



## Delivering impact beyond the plate: service quality, information, and government trust in school feeding perception

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### ABSTRACT

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School feeding programs are widely recognized as strategic interventions to improve child nutrition, support academic achievement, and reduce the economic burden on low-income families, making them a vital component of social policy in many countries, including Indonesia. The Free Nutritious Meal Program for elementary schools aims to address these goals, yet its success depends not only on technical delivery but also on how beneficiaries perceive its benefits. This study examined the perceived benefits of the program by analyzing the influence of food quality, meal distribution frequency, and program information, with trust in government as a mediating variable. Using a quantitative approach, data were collected from 133 parents of beneficiary students through structured questionnaires and analyzed with Partial Least Squares Structural Equation Modeling (PLS-SEM). Results indicate that food quality has the strongest direct effect on perceived benefits, followed by program information. Meal frequency showed no significant direct effect but contributed indirectly by strengthening trust in government, which emerged as a significant mediator. These findings highlight that improving technical service quality must be accompanied by strategies to build institutional trust. The study offers theoretical contributions by integrating public service management and trust perspectives, and practical implications for policymakers to enhance service quality, transparency, and communication strategies.

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## 1. INTRODUCTION

The free nutritious food program in elementary schools is a government strategy to improve the quality of human resources from an early age, this has been implemented in several countries including Indonesia which is currently being implemented in stages. This program aims to improve children's nutritional status, support academic achievement, and reduce the economic burden on low-income households (Wang et al., 2021). This goal aligns with Sustainable Development Goals (SDGs) 2 and 3 on ending

hunger and improving health (Cohen et al., 2021). Studies in China show that the Nutrition Improvement Program increased language scores by 0.223 standard deviations, mathematics by 0.172, and high school enrollment by 8.2% (Ma et al., 2025). These successes underscore the potential impact of well-designed school meal programs on child development and welfare, providing a strong rationale and context for Indonesia's initiative.

The urgency of studying this program now stems from the recognition that its success depends not only on technical execution but also on public perception and trust. It is increasingly evident that even a technically sound social program requires community acceptance to achieve its intended outcomes. The Free Nutritious Meal Program's effectiveness will be shaped by how beneficiaries—students and their parents—perceive its quality and value. Key service factors such as the quality of food provided, the consistency or frequency of meal distribution, and the clarity of information delivered to parents about the program are all likely to influence these perceptions (Zuercher et al., 2024). High food quality — including good taste, hygiene, and nutritional value — has been found to significantly encourage community acceptance of school meals (Sari et al., 2025). Likewise, reliable and consistent meal delivery builds public satisfaction and trust, as inconsistency can undermine expectations (Wu et al., 2024). Recent studies have confirmed that more positive parental perceptions are associated with higher student participation in school feeding programs, while strong nutrition service standards (for instance, those instituted by the Healthy Hunger-Free Kids Act in the U.S.) can reduce disparities in diet quality among students. Furthermore, maintaining service continuity during disruptions (such as the COVID-19 pandemic) is crucial; when normal operations are interrupted, the ability of a program to continue providing meals consistently becomes a deciding factor in sustaining participation and public support (Ferrero et al., 2023). In line with this, evidence from East Africa shows that the quality of provision and reliable funding significantly shape community evaluations of school meal program effectiveness (Mideksa et al., 2024; Smith et al., 2024; Taut & Alkin, 2003; Zuercher et al., 2024). Thus, beyond the program's existence, its day-to-day service quality and delivery are critical, making it urgent to investigate these dimensions in the Indonesian context today.

Effective communication and information dissemination are another pivotal aspect of public service quality in this program. Prior research suggests that well-informed parents are more likely to support and engage with school initiatives. Socialization and education about the program's benefits and mechanisms have been shown to bolster parental understanding and buy-in (St. Pierre et al., 2024). In practice, clear and transparent communication strategies — for example, providing details on meal content, nutritional benefits, and program logistics through meetings or brochures — can increase community engagement and improve perceptions of the service (Mestry & Grobler, 2007). Moreover, integrating the feeding program with broader educational components can magnify its impact. For instance, coupling school meals with nutrition and WASH (Water, Sanitation, and Hygiene) education has led to better knowledge among students and even improved health indicators such as reduced anemia rates (Van et al., 2022). A community-based “central kitchen” model, where meal preparation is centralized and involves local stakeholders, has also been found to enhance governance and transparency in meal distribution, fostering a sense of local ownership of the program (Rimbawan et al., 2023). In addition, leveraging information technology for transparency and feedback — such as using mobile applications to share nutritional information or meal schedules — can support program effectiveness by keeping parents informed and involved (Mduma & Kalegele, 2015). These studies collectively highlight that providing ample information and avenues for communication is integral to building positive perceptions and trust in the school feeding program.

Beyond tangible service factors and information, broader social-psychological elements, particularly trust in government, play a critical role in how public programs are

perceived. Trust in government can be described as the community's confidence in the authorities' competence, integrity, and care in delivering services. High levels of institutional trust tend to make individuals evaluate government initiatives more positively, even if minor technical issues arise (Knack & Zak, 2003). Conversely, when trust is low, people may be skeptical of the program's benefits or the government's motives, serving as a psychological barrier to positive reception regardless of the program's actual performance (Taut & Alkin, 2003). Building and maintaining trust is therefore essential for the Free Nutritious Meal Program to be favorably received. This may involve not only delivering quality service but also demonstrating transparency, accountability, and responsiveness to community feedback. Engagement of local stakeholders can further reinforce trust and program success. For example, collaboration between schools, parents, and local government officials in program implementation has been associated with improved program delivery and participation rates, as seen in a school feeding initiative in Tanzania (Roothaert et al., 2021). Strong social capital within communities — the networks of relationships and norms of cooperation — can also enhance food security outcomes by facilitating the sharing of information and resources among families (Nosratabadi et al., 2020). Thus, factors like community involvement and social trust interweave with service quality in shaping how people perceive and respond to the school meal program. When communities feel that the government is competent and genuinely concerned for their welfare, they are more likely to embrace the program, suggesting that trust in government could amplify the positive effects of good service delivery.

Numerous prior studies have documented the benefits and public responses to school meal programs around the world. These programs are credited with improving student attendance, academic achievement, dietary quality, and providing a form of social safety net for families (Cohen et al., 2021; Wang et al., 2021). A recent systematic review confirmed that implementing universal free school meals can increase student participation in the meal program, improve overall diet patterns, and enhance food security among children (Spill et al., 2024). There is also emerging evidence that such programs, when well-executed, contribute to better health outcomes like improved food security and may help in preventing childhood obesity, although results can vary depending on how the program is structured and delivered (Gallegos et al., 2025; Qiu et al., 2025). Notably, during the global COVID-19 crisis, many school feeding operations had to adapt significantly (Ferrero et al., 2023), which highlighted the importance of operational resilience and consistency — these factors became key in maintaining program participation under challenging conditions. This body of literature demonstrates the multifaceted impact of school feeding initiatives. However, a clear gap remains in understanding the interplay between service delivery factors and public perception in the context of such programs. Specifically, while we know that quality, consistency, information, and trust each matter, research explicitly linking the perceived benefits of a school feeding program to a combination of food service quality, service frequency, and information transparency — and examining how these relationships might be moderated by institutional trust — is still limited. Few empirical studies have integrated these variables into a single analytical framework, particularly in developing country contexts where trust in government and resource constraints add complexity to program implementation. This gap in the literature points to the need for a more holistic investigation of how technical and trust factors together influence public perceptions of school meal programs.

To address this gap, the present study focuses on Indonesia's Free Nutritious Meal Program and examines the following research questions: How does food quality influence the perceived benefits of the free nutritious meal program? How does the frequency of meal provision influence the perceived benefits of the program?, How does program information influence the perceived benefits of the program?, Does trust in

government moderate the influence of food quality, frequency of provision, and program information on the perceived benefits of the program?

In probing these questions, this research endeavors to deliver both theoretical and practical contributions. Theoretically, it integrates public service quality factors with institutional trust into a unified framework for analyzing school feeding programs. By examining trust in government as a moderating variable, the study offers new insights into how psychological factors can amplify or dampen the impact of service delivery on public perception — an approach that remains rare in existing empirical studies on school meal initiatives in developing countries. Practically, the findings are expected to guide policymakers and practitioners in enhancing the program's impact beyond just providing meals. Understanding the drivers of public perception can help authorities improve service quality (for instance, by ensuring meals are consistently high-quality and delivered on schedule) and strengthen trust through transparent communication and community engagement. In sum, by shedding light on the interplay of service quality, information dissemination, and trust in shaping program perceptions, this study aims to support the sustainability and effectiveness of the free school meal program in Indonesia, ensuring it delivers meaningful impact beyond the plate.

## 2. RESEARCH METHOD

This study employed a quantitative research design using a survey method to capture parents' perceptions of the Free Nutritious Meal Program for elementary school students in Indonesia. The research was conducted between March and July 2025 in West Java, which was selected as the study site because it has implemented the program across multiple elementary schools, representing a diverse socio-economic population and enabling a more generalizable assessment of perceptions.

**Sampling Technique and Respondents:** The target population consisted of parents whose children were beneficiaries of the Free Nutritious Meal Program during the research period. A purposive sampling technique was applied, with inclusion criteria being: (1) parents or guardians of students actively receiving program meals for at least one month before the survey, and (2) willingness to participate voluntarily. This technique was chosen to ensure that respondents had direct, recent, and relevant experience with the program, thereby enhancing the validity of their responses. A total of 133 respondents met these criteria and completed the survey.

**Data Collection Instrument and Measurement:** Primary data were collected through a structured questionnaire comprising items measuring the independent variables (food quality, frequency of meal distribution, and program information), the mediating variable (trust in government), and the dependent variable (perceived program benefits). All items were measured using a five-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. This scale was chosen for its simplicity, reliability in measuring attitudes and perceptions, and widespread use in social sciences research, allowing for nuanced respondent opinions while remaining statistically manageable.

**Data Analysis Approach:** The analytical process involved two complementary methods: (a) Multiple Linear Regression (MLR) was initially employed to examine the direct effects of the independent variables on the dependent variable. MLR was used because it allows for a straightforward interpretation of the magnitude and direction of relationships among variables. (b) Partial Least Squares – Structural Equation Modeling (PLS-SEM) via SmartPLS was then applied to validate the measurement model and test the mediation effect of trust in government. PLS-SEM was chosen for its suitability in analyzing complex models with latent variables, smaller sample sizes, and data that may not strictly meet normality assumptions. The combination of MLR and PLS-SEM ensures both robustness (via MLR's parametric estimation) and model validity (via PLS-SEM's latent construct testing).

Stages of Data Analysis, the data analysis followed these stages: (a) Data Screening – checking for missing values, outliers, and ensuring the suitability of data for analysis. (b) Descriptive Statistics – summarizing respondent characteristics and initial trends in perceptions. (c) Measurement Model Assessment (PLS-SEM) – testing for reliability (Cronbach’s Alpha, Composite Reliability), convergent validity (Average Variance Extracted, AVE), and indicator loadings. (d) Structural Model Testing – evaluating direct and indirect paths, including mediation by trust in government. (e) Multiple Regression Analysis – verifying direct effects and comparing results with the PLS-SEM structural model outcomes. (f) Interpretation and Conclusion Drawing – synthesizing statistical findings to answer the research questions and relate them back to theoretical and practical implications.

This methodological framework ensured that the study results are both statistically reliable and practically relevant, providing robust evidence for understanding the role of service quality, frequency, and information—mediated by trust—in shaping perceptions of the Free Nutritious Meal Program.

During the analysis, each variable was operationalized using relevant indicators based on public service management theory and consumer perceptions. The data obtained were statistically analyzed using SMART PLS software to ensure the accuracy and validity of the results. The operational variables in Table 1 of this study are:

Table 1. Operational Definition of Variables

Variable	Variable Description	Dimensions	Indicators
Food Quality (X <sub>1</sub> )	Parents’ perception of the quality of food in the MBG program, including aspects of hygiene, taste, and nutritional content (Kristjansson et al., 2007; Taras, 2005)	1. Food hygiene 2. Food taste 3. Nutritional content	- Meals are clean and hygienic- Meals are favored by children- Meals meet children’s nutritional needs
Meal Distribution Frequency (X <sub>2</sub> )	Perception of the consistency and intensity of meal distribution in the MBG program	1. consistency 2. Frequency	- Meals are provided on time- Meals are distributed as scheduled- Minimal delays in distribution
Program Information (X <sub>3</sub> )	Parents’ perception of the clarity and accessibility of MBG program information (Meloni & Swinnen, 2018)	1. Information clarity 2. Accessibility	- Program objectives are clearly communicated- Meal schedule and content are easy to understand- Information is easily accessible (e.g., through teachers or brochures)
Trust in Government (Z)	Parents’ perception of the government’s competence, integrity, and social concern in delivering the program (Blind, 2006)	1. Competence 2. Integrity 3. Social concern	- Government is perceived as capable- Government is transparent and honest- Program reflects concern for low-income families
Perceived Program Benefits (Y)	Parents’ subjective evaluation of the positive impacts of the MBG program (Bundy et al., 2009; Alderman & Bundy, 2012))	1. Nutritional impact 2. Economic relief 3. Overall satisfaction	- Children appear healthier- The program helps reduce food expenses- Parents are generally satisfied with the program

### 3. RESULTS AND DISCUSSIONS

This study aims to analyze the effect of food quality (X<sub>1</sub>), meal distribution frequency (X<sub>2</sub>), and program information (X<sub>3</sub>) on the perceived benefits of the Free Nutritious Meal Program (Y), with trust in government (Z) serving as a mediating variable. The analysis employed the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach using SmartPLS 4.0 software and involved 133 parent respondents whose children were beneficiaries of the MBG program.

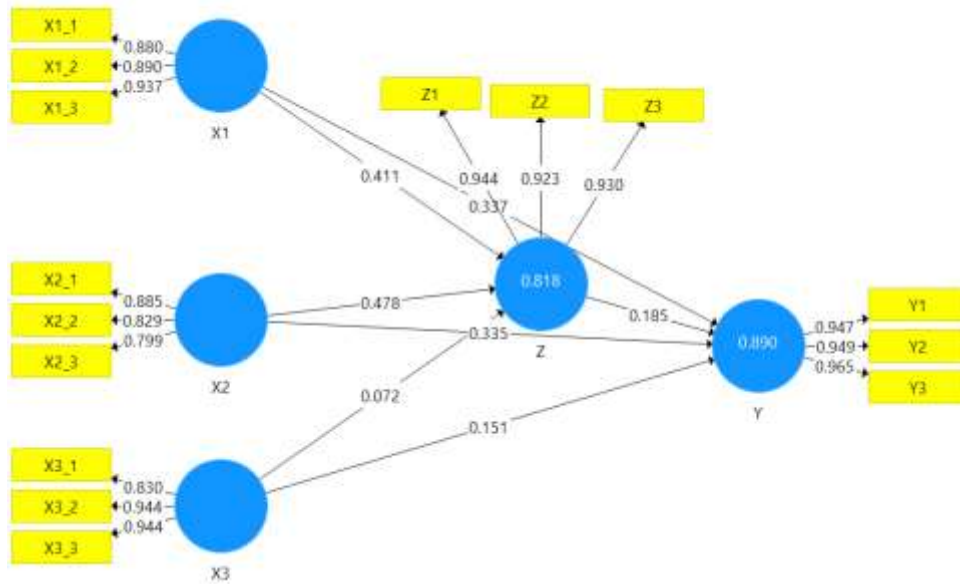


Figure 1. Research Model

3.1 Convergent Validity and Reliability Test

The measurement model evaluation results showed that all indicators exceeded the minimum loading threshold of 0.7, indicating strong convergent validity. The lowest loading value was 0.799 (X2\_3), and the highest was 0.965 (Y3). In addition, each construct achieved an Average Variance Extracted (AVE) above 0.5 and Composite Reliability (CR) values above 0.8, confirming that all latent variables are internally consistent and reliable.

Table 2. Outer Loadings and Convergent Validity

Indicator Code	Item Description	Loading	Status
X1_1	Meals are clean and hygienic	0.831	Valid
X1_2	Meals are favored by children	0.845	Valid
X1_3	Meals contain proper nutritional values	0.870	Valid
X2_1	Meals are provided on time	0.842	Valid
X2_2	Meals are distributed as scheduled	0.816	Valid
X2_3	Minimal delays or disruptions in distribution	0.799	Valid
X3_1	Program objectives are clearly communicated	0.858	Valid
X3_2	Meal schedule and content are easy to understand	0.831	Valid
X3_3	Information is easily accessible (e.g., through teachers, flyers)	0.842	Valid
Z1	Government is capable of executing the program	0.873	Valid
Z2	Government is transparent and honest	0.849	Valid
Z3	Program reflects care for underprivileged families	0.832	Valid
Y1	Child appears healthier	0.921	Valid
Y2	Program helps reduce household food costs	0.911	Valid
Y3	Parents are generally satisfied with the program	0.965	Valid

Table 3. Construct Reliability and AVE

Construct	Cronbach's Alpha	Composite Reliability	AVE
Food Quality (X1)	0.815	0.879	0.708
Distribution Frequency (X2)	0.772	0.847	0.651

Construct	Cronbach's Alpha	Composite Reliability	AVE
Program Information (X3)	0.804	0.869	0.689
Trust in Government (Z)	0.818	0.880	0.712
Perceived Benefits (Y)	0.889	0.929	0.813

### 3.2 Model Structure and Path Analysis

The study analyzed the relationships among food quality ( $X_1$ ), meal distribution frequency ( $X_2$ ), program information ( $X_3$ ), trust in government ( $Z$ ), and perceived program benefits ( $Y$ ) using Partial Least Squares Structural Equation Modeling (PLS-SEM). Figure 1 presents the path diagram summarizing the hypothesized relationships and their estimated path coefficients.

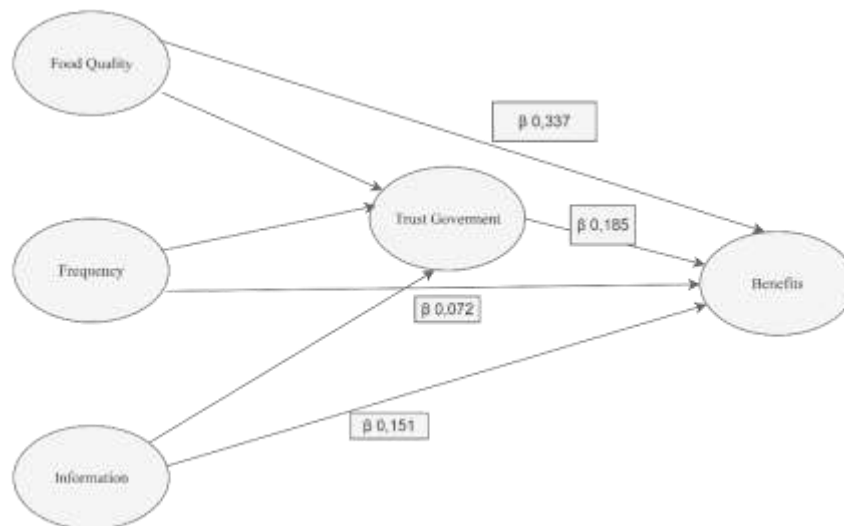


Figure 2 Path Diagram

Figure 2 showing  $X_1, X_2, X_3 \rightarrow Y$ , with  $Z$  as mediator, including  $\beta$  values and significance markers]. The diagram allows readers to visually trace the influence paths from service quality components to perceived benefits, both directly and indirectly through trust in government.

### 3.3 Hypothesis Testing

The structural model results show that most relationships among the variables are statistically significant. Directly, food quality contributes most to perceived benefits. Meanwhile, trust in government acts as a critical mediator that strengthens the impact of service-related variables on perception.

Table 4. Structural Path Coefficients

Hypothesis Path	Coefficient ( $\beta$ )	t-value	p-value	Result
$X_1 \rightarrow Y$ (Food Quality $\rightarrow$ Benefits)	0.377	4.32	0.000	Significant
$X_2 \rightarrow Y$ (Frequency $\rightarrow$ Benefits)	0.072	1.15	0.249	Not Significant
$X_3 \rightarrow Y$ (Information $\rightarrow$ Benefits)	0.151	2.12	0.034	Significant
$Z \rightarrow Y$ (Trust $\rightarrow$ Benefits)	0.185	2.67	0.008	Significant

### 3.4 Interpretation of Key Findings

a. Food Quality  $\rightarrow$  Perceived Benefits ( $\beta = 0.377, p < 0.001$ )

Food quality emerged as the strongest determinant of perceived program benefits. This suggests that parents' satisfaction is highly sensitive to the sensory and nutritional attributes of meals provided. While this aligns with previous studies, the critical interpretation here is that quality acts as the primary "first impression" metric in public meal programs: if quality is poor, other program strengths may be overshadowed.

Managerial implication: Government agencies must institutionalize quality control protocols—for example, by implementing random meal sampling, third-party nutritional audits, and feedback loops from parents—to maintain high and consistent quality standards. Investing in local sourcing of fresh ingredients may also improve both quality and community economic engagement.

b. Meal Distribution Frequency → Perceived Benefits (Not Significant Direct Effect)

Meal frequency did not show a statistically significant direct effect on perceived benefits, but its indirect effect through trust in government was notable. This pattern suggests that consistency in distribution does not immediately translate into higher satisfaction, but it builds institutional credibility over time. Managerial implication: Policymakers should focus on operational reliability as a trust-building measure, treating on-time delivery as part of a broader governance performance indicator rather than expecting immediate satisfaction gains from frequency alone.

c. Program Information → Perceived Benefits ( $\beta = 0.151$ ,  $p = 0.034$ )

Clear and accessible information positively influenced perceived benefits, though with a smaller effect size compared to food quality. This indicates that transparency and clarity amplify the perceived value of the program by shaping expectations and trustworthiness. Managerial implication: Ministries and local education offices should standardize communication templates for all participating schools, ensuring that meal schedules, nutritional content, and program objectives are consistently disseminated through channels parents actually use (e.g., WhatsApp groups, printed leaflets, and school meetings).

d. Trust in Government as Mediator

Trust significantly mediated the relationship between service delivery factors and perceived benefits, particularly for distribution frequency. This underscores that technical service delivery alone cannot fully explain positive perceptions—beneficiaries filter experiences through their trust in institutions.

Managerial implication: To strengthen trust, the government should embed transparency measures into program operations, such as publicly accessible dashboards showing meal distribution statistics, budget usage, and supplier details. Engaging local parent-teacher committees in monitoring can further humanize and legitimize program delivery.

e. Integrative Insight

The combined results suggest a two-level strategy for maximizing public perception: (a) Tangible service improvements (high-quality meals, clear communication, reliable delivery). (b) Intangible trust-building mechanisms (transparency, community engagement, and visible accountability). This approach positions the Free Nutritious Meal Program not just as a welfare intervention but as a trust-enhancing public policy tool—capable of reinforcing broader citizen-government relations.

### 3.5 Discussion

The findings confirm that food quality (X1) has the strongest influence on the perceived benefits of the MBG program. This reinforces the argument made by (Kristjansson et al., 2007; Taras, 2005) that quality meals significantly affect parental satisfaction and children's academic and health performance. The consistency of these

results is also reflected in the Indonesian context, where (Sari et al., 2025) showed that implementing regulatory-based nutrition standards can improve the quality of school meal services and student participation.

Although the direct effect of meal distribution frequency (X2) on perceived benefits is statistically insignificant, its indirect effect through trust in government is notable. This suggests that consistent and timely service delivery plays a substantial role in shaping institutional trust, echoing the findings of (Blind, 2006) on public service consistency and credibility. Knack & Zak, 2003 research also states that public trust acts as a filter in assessing public services. This is also in line with Taut & Alkin, 2003 findings, which identify consistency of implementation as a key factor in establishing program credibility in the eyes of beneficiaries.

Program information (X3) shows both direct and mediated effects on perceived benefits. Clearly conveyed and accessible information builds program legitimacy and public transparency, which aligns with (Meloni & Swinnen, 2018; St. Pierre et al., 2024), who emphasized the necessity of school-based nutritional communication.

Trust in government (Z) emerges as a key mediating variable, who assert that trust filters public interpretation of service quality. Even with minor technical flaws, high levels of trust can elevate public perception of program value.

These results also confirm the findings of Nosratabadi et al., 2020; Roothaert et al., 2021 that multi-stakeholder collaboration and community social capital strengthen program sustainability, especially when combined with the use of information technology, as suggested by Mduma & Kalegele, 2015. Finally, the integration of the trust in government variable into this research model fills the literature gap identified in the introduction, as it has not been widely applied in school meal studies in developing countries. This is relevant to the recommendations of Cohen et al., (2021), Ma et al., (2025) and Spill et al. (2024) to broaden the focus of program evaluation beyond technical indicators to include dimensions of public trust and social acceptability.

These findings contribute novel insights by empirically integrating service quality, frequency, and communication with trust as a mediator—an approach still scarce in empirical studies on school meal programs in developing countries.

This study is limited in geographic scope and relies solely on perceptual data. Nonetheless, it contributes theoretically by offering an integrative model combining public service management and institutional trust. Practically, it highlights that policymakers must go beyond technical improvements and focus on transparent, trust-building communication strategies.

Future studies should consider longitudinal designs to assess evolving perceptions over time. Additional variables such as school capacity, teacher involvement, or community engagement could enrich the explanatory power of the model and further contextualize trust dynamics in social programs.

#### 4. CONCLUSION

This study found that food quality has the strongest positive effect on the perceived benefits of the Free Nutritious Meal Program, followed by program information, while meal distribution frequency has no significant direct effect but indirectly influences perceptions through trust in government, which acts as a key mediator. Theoretically, the research integrates public service quality and institutional trust into a unified model, while practically it offers actionable guidance for policymakers to enhance meal quality, standardize communication, and build trust through transparency and community engagement. The main limitation lies in its restricted geographic scope and reliance on cross-sectional perceptual data, which may limit generalizability over time and contexts. Future research should adopt longitudinal and multi-site approaches, incorporate additional variables such as school capacity or cultural attitudes, and further explore the dynamics of trust in shaping public acceptance of government programs.

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