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Research Article

The Impact of the Free Nutritious Meal Program on Reducing Stunting and Household Food Expenditure in West Sumatra, Indonesia

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Abstract: This study aims to analyze the impact of the Free Nutritious Meal Program (MBG) on reducing stunting rates and reducing household food expenditure in Indonesia, focusing on West Sumatra. The MBG program is one of the government's efforts to improve the nutritional status of vulnerable groups, particularly pregnant women, breastfeeding mothers, and young children, as well as reduce the economic burden of household food expenditure. This study uses a quantitative approach with a descriptive design, combining secondary data analysis from BPS and Kemenkes, along with primary data collected through a survey of 218 respondents who participated in the MBG program in the region. The results of the study indicate that participation in the MBG program has a significant impact on reducing stunting and reducing household food expenditure. The program not only improves the nutritional intake of families but also alleviates the food expenditure burden, which has been the largest economic challenge for many families, particularly those in low-income and vulnerable categories. Linear regression analysis and Structural Equation Modeling (SEM-PLS) were used to test the relationships among the variables, with results showing significant path coefficients between participation in the MBG program and both stunting reduction and food expenditure reduction. This study provides empirical evidence regarding the effectiveness of the MBG program in reducing stunting and improving household economic resilience, and offers recommendations for the government to expand the program's coverage across Indonesia to achieve more optimal stunting reduction targets.

Keywords: Free Nutritious Meal Program; Household Food Expenditure; Regression Analysis; SEM-PLS; Stunting.

1. Introduction

Indonesia, as the world's fourth most populous country, faces numerous challenges in meeting the nutritional needs of its population, particularly vulnerable groups such as children under five, pregnant women, and breastfeeding mothers. One of the primary nutritional issues that continues to be a focus of the government is stunting, which refers to the condition of impaired growth in children due to chronic malnutrition during the first 1,000 days of life. According to data from the Ministry of Health of the Republic of Indonesia (Kemenkes), the prevalence of stunting in Indonesia in 2023 was around 21.5%, although there has been a significant decline in recent years (Kemenkes, 2023). However, this figure is still far from the target set by the Sustainable Development Goals (SDGs), which aim to reduce stunting prevalence to less than 10% by 2030.

This stunting issue has long-term impacts on cognitive development, education, and economic well-being, contributing to a cycle of poverty. In this context, efforts to reduce stunting must involve a comprehensive and sustainable approach, including improving nutrition, caregiving practices, and access to clean water and sanitation. One of the policies currently promoted by the government is the Free Nutritious Meal Program (MBG), which aims to improve access to nutritious food for at-risk populations, particularly children and pregnant women.

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The MBG program is expected to have positive impacts not only by improving nutritional status but also by reducing household expenditure burdens, particularly in relation to food consumption. According to data from the National Socio-Economic Survey (Susenas) reported by the Central Bureau of Statistics (BPS), food expenditure often constitutes the largest share of household income, especially in low-income areas. Therefore, providing free nutritious meals is expected to alleviate some of the economic burden on families while ensuring that nutritional needs are met.

However, despite the ambitious goals of this program, it is important to delve deeper into examining the potential impact of this program on reducing stunting and food expenditure in households. Some key questions that need to be addressed through this research include the extent to which the MBG program can improve nutritional status and reduce stunting rates, as well as how this program can reduce food-related expenditures, which have been the largest financial burden for households in Indonesia, particularly those living in poverty.

This study aims to analyze the potential impact of the MBG program on reducing stunting and household food expenditure in Indonesia using secondary data available from official sources such as Kemenkes, BPS, and the Indonesian Nutrition Status Study (SSGI). The analysis will adopt an initial impact projection approach, utilizing household food consumption data and stunting prevalence data collected over a specific period.

This research is expected to make significant contributions to policy formulation regarding more effective nutrition and socio-economic intervention programs, as well as provide recommendations for the government and relevant stakeholders to maximize the impact of the MBG program in reducing stunting and improving household economic well-being in Indonesia.

2. Preliminaries or Related Work or Literature Review

In analyzing the impact of the Free Nutritious Meal Program (MBG) on reducing stunting and household food expenditure, it is crucial to consider various theories relevant to nutrition and public health as well as household economics. This theoretical review will explore several key concepts that form the foundation for understanding the potential impact of the program.

Stunting is a condition of impaired growth in children caused by chronic malnutrition, occurring during the first 1,000 days of life (1000 HDK), which includes the pregnancy period and the first two years of life. According to Black et al. (2013), poor nutrition during the 1000 HDK can affect both physical and cognitive development, which in turn impacts learning ability, productivity in adulthood, and future earning potential. Therefore, nutritional interventions such as the Free Nutritious Meal Program (MBG) can be an effective strategy to reduce stunting.

The nutrition-based systems approach theory suggests that the success of nutrition interventions depends not only on food provision but also on good caregiving practices, sanitation, and access to adequate healthcare. The MBG program is designed to provide food that meets the nutritional standards recommended by the Recommended Dietary Allowances (RDA), with the hope that it will improve the nutritional intake of children, pregnant women, and breastfeeding mothers, thereby potentially reducing stunting rates.

From an economic perspective, food expenditure is one of the largest components of household budgets, especially for low-income families. Engel's Law (1857) explains that the proportion of expenditure spent on food is generally higher for lower-income households. The MBG program is expected to reduce food expenditure burdens on households, which can directly ease the economic pressure on vulnerable families.

Furthermore, the Household Food Security Theory suggests that households with limited access to nutritious food are more vulnerable to health problems, including stunting. By reducing food expenditure through programs like MBG, households can reallocate resources to other essential needs, such as education and healthcare.

The behavior change theory by Prochaska and DiClemente (1983), known as the Stages of Change Model, can be used to understand how the MBG program might influence family eating habits. This program not only provides food but may also influence household consumption behaviors. For instance, through nutrition counseling and education accompanying food provision, the MBG program is expected to encourage healthier eating habits among beneficiaries.

The microeconomic theory proposed by Becker (1965) on household time and resource allocation suggests that households tend to maximize utility (satisfaction) by allocating resources (including income) to their most pressing needs. By reducing food expenditure through the MBG program, households can redirect their resources to improve their economic and social well-being, which in turn may contribute to reducing stunting rates.

3. Proposed Method

This study aims to analyze the potential impact of the Free Nutritious Meal Program (MBG) on reducing stunting and household food expenditure in Indonesia, with a focus on West Sumatra. The study employs a quantitative approach with a descriptive design that combines secondary data analysis with primary data collection. Primary data is collected through a survey of 218 respondents from various areas in West Sumatra, while secondary data is obtained from official sources such as BPS, Kemenkes, and the Indonesian Nutrition Status Study (SSGI).

This is a quantitative descriptive study, aiming to describe and analyze the initial impact of the MBG program on two main variables: stunting and household food expenditure. This approach allows the researcher to explore the relationship between participation in the MBG program and nutritional status and food expenditure in households.

The population of this study is households involved in the Free Nutritious Meal Program in West Sumatra. The sample consists of 218 respondents who were selected through simple random sampling from various villages and subdistricts where the MBG program is implemented. The sample is considered representative for depicting the impact of the MBG program on households in the region.

The instrument used in this study is a questionnaire divided into two main sections. The first section contains questions about the demographic characteristics of the respondents, such as age, education, gender, and economic status. The second section contains questions that measure participation in the MBG program, nutritional status, and household food expenditure. A 5-point Likert scale is used to measure the degree of agreement with the statements provided.

Data collection is done through direct interviews with respondents using a questionnaire that has been tested for validity and reliability. Secondary data on stunting prevalence and household food expenditure is obtained from the annual reports of BPS, Kemenkes, and SSGI. The data collected will be analyzed using descriptive statistics to describe the demographic characteristics of respondents, and simple linear regression analysis to test the relationship between participation in the MBG program and the dependent variables, which are stunting reduction and household food expenditure reduction.

Table 1. Operationalization Table of Variables.

Variable	Operational Definition	Indicators	Measurement Scale
Stunting	Condition of impaired growth in children aged 0-59 months due to malnutrition	- Prevalence of stunting in the study area	Ordinal Scale (Based on stunting categories)
Household Food Expenditure	Total expenditure on food consumption by households	- Percentage of food expenditure to total household expenditure	Ratio Scale (Nominal)
MBG Program Participation	Level of respondent involvement in the Free Nutritious Meal Program	- Frequency of participation in the MBG program	Likert Scale (1-5)
Nutritional Status	Balance of nutrients consumed by respondents and their families	- Nutritional status index (based on food consumption)	Likert Scale (1-5)

This study has some limitations, including potential data accuracy issues from respondents and the possibility of bias in food consumption reporting. Therefore, this study will employ data triangulation to ensure the validity of the findings.

4. Results and Discussion

This study aims to analyze the impact of the Free Nutritious Meal Program (MBG) on reducing stunting and household food expenditure in Indonesia, specifically in West Sumatra. The data collected from 218 respondents through a survey indicate that there is a significant relationship between participation in the MBG program and the reduction of stunting and household food expenditure. The data was analyzed using simple linear regression and Structural Equation Modeling (SEM-PLS) to test the relationships among the variables.

Table 2 presents the results of the hypothesis testing from the SEM-PLS analysis, which was used to test the effect of participation in the MBG program on reducing stunting and household food expenditure. The analysis results show that the effect of MBG participation on reducing stunting has a positive and significant path coefficient ($\beta = 0.45$, p-value < 0.01). Additionally, MBG participation was also found to reduce household food expenditure with a path coefficient of ($\beta = -0.35$, p-value < 0.01).

Table 2. Hypothesis Test Results from SEM-PLS.

Path	Path Coefficient (β)	t-Value	p-Value	Decision
MBG → Stunting Reduction	0.45	3.87	0.000	Significant
MBG → Reduction in Food Expenditure	-0.35	3.21	0.001	Significant

Based on the hypothesis test results, it can be concluded that participation in the MBG program has a positive and significant impact on reducing stunting. This indicates that providing free nutritious meals that meet the Recommended Dietary Allowances (RDA) can improve the nutritional intake of families, particularly those at high risk of stunting, such as pregnant women, breastfeeding mothers, and young children. The program not only improves nutritional status but also helps families meet their essential nutritional needs.

On the other hand, the study also shows that the MBG program can reduce household food expenditure. Participation in this program alleviates the economic burden on families who previously spent a significant portion of their budget on purchasing food. With the provision of free nutritious meals, households can reallocate funds for other needs, such as education and healthcare, which in turn can improve the quality of life for families.

These findings are in line with previous research that has shown that well-designed and structured food assistance programs can reduce household expenditure and contribute to improved nutritional status (Black et al., 2013; Becker, 1965).

5. Conclusions

This study shows that the Free Nutritious Meal Program (MBG) has a significant impact on reducing stunting rates and reducing household food expenditure in West Sumatra. Participation in the program has been shown to improve the nutritional status of families, particularly those at risk of stunting, such as pregnant women, breastfeeding mothers, and young children. Furthermore, providing free nutritious meals alleviates the economic burden on households that previously allocated a significant portion of their income to purchasing food. This program not only contributes to improving nutritional status but also provides economic benefits by reducing food expenditure. Overall, these findings support the importance of expanding the MBG program to a broader region to achieve the national goal of reducing stunting. Additionally, the results of this study provide evidence that the MBG program can be an effective solution to address nutritional issues and improve household economic resilience in Indonesia, particularly for low-income and vulnerable families.

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