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Impact of free mid-day meal program on academic performance in public schools of Nepal

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Abstract

Public school students are the major sources of human capital within the country. Therefore, this study aims to analyze the impact of government expenditure on the mid-day meal program to develop the academic activities of students within the country. To examine the students' attendance, retention, and overall academic performance in public schools, this study has developed structured questionnaires and has collected data from 50 samples from the selected study area. This included 21 students chosen through random sampling and 29 participants selected purposively: 21 parents, 3 teachers, and 5 school management committee members. Quantitative data have been analyzed using tables and figures. Qualitative data were analyzed thematically and presented in narrative form. The findings show that the mid-day meal program increased enrollment rates and reduced dropout cases as well as raised the overall academic careers of the students. Schools provided a mid-day meal budget, and students brought homemade food for lunch. This program is focused on homemade food, so junk food has been avoided in school, which directly affects children's health. Therefore, the government should raise the mid-day meal program budget to improve academic performance as well as human capital within the country.

Keywords: Academic performance, Enrollment rate, Mid-day meal program, Public schools, Student nutrition.

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1. Introduction

The development of society has been closely linked with the development in education, which significantly affects social, economic, cultural, and political aspects of society. Societies that give priority to education tend to progress, while those that neglect education often remain backward in development [1].

In the time of the evolution of society, people thought about preventing different diseases and searched for various ways of prevention. As society developed and people started attending school, society became more concerned about healthy living

[2]. This led to the development of school health programs. Individuals interested in student well-being focused on how schools could contribute to children's health and development from the 17th century. European scientist John Peter Frank (1745-1821 AD) published an article about school health. In 1890 AD, Boston and Philadelphia in America prepared day meals in schools with the aim of decreasing malnutrition. In the USA, the National School Lunch Program (NSLP) was established in 1946 AD with the aim of providing nutritionally balanced, low-cost or free lunches to children in public and nonprofit private schools. This was a great welfare policy after World War II [3].

In the late 20th and early 21st centuries, school meal programs were adopted by middle-income countries as a policy tool to address malnutrition and poverty. For global support for school meal programs, the World Food Program has been an active player mainly in conflict and post-conflict regions, providing meals to school children with the aim of alleviating short-term hunger and promoting healthy human capital through better education and nutrition [4, 5].

By the mid-1990s (1996-1999 AD), the ILO had estimated that around 250 million children between 5-14 years were engaged in labor work worldwide. The highest number of child laborers was found in Asia, Africa, and Latin America. In 2000, the Millennium Development Goals (MDGs) were set by the UN with a target year of 2015 AD. Goals 1 (Eradicate Extreme Poverty and Hunger) and 2 (Achieve Universal Primary Education) are directly connected to solving the child labor problem. This mid-day meal program also focuses on solving the malnutrition problem and improving education. Similarly, after the MDGs in 2015, the UN set the SDGs (2016-2030). The goals have continued the targets of the MDGs, which are broader and more ambitious, covering a larger area. Goal 4 is for quality education. The mid-day meal program has supported this goal to meet its targets. A study by World Food Programme (WFP) [6] it explains that the school meal program has increased in enrollment by 9 percent on average in most developing countries with high food insecurity. According to UNESCO [7], food and nutrition programs play a vital role in reducing inequities in education, especially in Sub-Saharan Africa [7, 8].

The health and nutrition interventions are important aspects of school meals that highlight the benefits of school feeding programs and need to be strongly promoted, but are typically part of broader sectoral and cross-sectoral policies and program activities. The lessons learned by other countries through their experience with meal programs encourage and attract students for learning, and demands usually increase [9].

The mid-day meal (MDM) program has become a key policy in several Asian countries, aiming to enhance educational outcomes and nutrition for schoolchildren. Launched in India in 1995, the program has grown to feed over 120 million children daily, making it the world's largest school-feeding initiative [10, 11]. Nepal introduced its MDM program in 1996 with support from the World Food Program, expanding to 30 districts by 2009-10 [12]. Studies have shown that school meal programs are highly effective in improving both nutrition and education, particularly in developing countries like Nepal. In Nepalese history, the school feeding program was introduced during the Rana Regime with the goal of improving educational performance. During the 1950s, students in need were provided free mid-day meals in the government schools of the Kathmandu Valley [13]. The Sanskrit schools have continued to provide free education with accommodation and food to a limited number of students to this day [6, 14].

After the federal act of 2015, all three tiers of government play an important role in supporting development activities in Nepal. Education, agriculture, and health sectors are also supervised by local governments. The roles of the province and local governments are vital; hence, the study is equally important from the case study perspective to analyze the ongoing status and consequences of the homegrown School Meal Program in Nepal [5].

Nepal, a developing nation that has various challenges, including high poverty and malnutrition. According to the WFP-2022, about 36 percent of children under the age of five in Nepal have suffered from chronic malnutrition. This situation has directly impacted school children. The mid-day meal program addresses these issues, with the aim of improving the health and educational outcomes of school children [15, 16].

Free mid-day meal program in public schools is a scientific program aimed at improving the learning activities and nutritional status of school children in the country. This program is launched with the goal of addressing malnutrition and encouraging school attendance. Mainly in the rural part of Nepal, poverty and food insecurity are prevalent; the mid-day lunch program is a symbol of hope for many families and communities [3, 6, 17].

Free mid-day meal program directly connects school children with education, food security, and social security. This program has been run by the government of Nepal to provide nutritional support and improve the educational outcomes of school children. To enhance the quality of education and promote students' health, this program provides free meals to students in public schools across the country. Therefore, the aim of this study is to examine the impact of the free mid-day meal program on students' overall academic performance in public schools.

2. Methodology

This study adopts a mixed-method approach, integrating both quantitative and qualitative methods to examine the effectiveness of the mid-day meal program at Gupteshori Basic School. A descriptive research design has been employed to capture and analyze the current status and functioning of the program comprehensively.

2.1. Data Collection

Both primary and secondary data were utilized in this study, with primary data collected through field surveys and interviews with key stakeholders, including students, parents, teachers, and members of the school management committee. Direct observations were conducted during lunch breaks to understand the program's implementation and its impact on

students. Secondary data were gathered from school reports, local administrative records, and relevant online sources to supplement the primary data.

2.2. Sampling and Sample Size

A simple random sampling method was used to select 21 students out of the total 105 students enrolled in the school. Likewise, a purposive sampling method was applied to select 21 parents, 3 teachers, and 5 school management committee members, ensuring their direct involvement and relevance to the program.

2.3. Data Analysis

Quantitative data were analyzed using Microsoft Excel and SPSS version 20, with results presented in the form of percentages, frequencies, and tables. Qualitative data from interviews and observations were analyzed thematically and presented as narratives.

2.4. Triangulation

To ensure the validity and reliability of the findings, data from surveys, interviews, observations, and secondary sources were triangulated, providing a comprehensive understanding of the impact of the mid-day meal program.

2.5. Description of Study Area

Tirpa is a small village in Rawa Besi Rural Municipality-03, Khotang district, Koshi province, Nepal. Located in a hilly region at 27°15'10" N latitude and 86°39'6" E longitude, it has a population of 883 across 209 households [18]. The majority of residents belong to the Magar community (114 households), followed by Brahmin-Chhetri (46), Majhi (37), Dalit (10), and Newar (3). Gupteshor Basic School, established in 1959, is situated in the village and serves 105 students with 11 teachers. The school faces poor infrastructure, and many students come from low-income families. Agriculture is the primary livelihood of the villagers, with rice, maize, and millet as staple crops, and fruits and vegetables as cash crops. The village's residents, mainly from marginalized and low-income backgrounds, face challenges in accessing quality education. Due to these challenges, Tirpa was chosen for this study to assess the effectiveness of the mid-day meal program in improving the learning activities of students.

3. Results and Discussion

3.1. Demographic Variation of Sample Population

A demographic variable refers to characteristics of a population that researchers use to categorize and understand different groups within that population. Some common demographic variables are age, sex, occupation, family members, religion, income, education level, and so on. Demographic variation refers to the differences in sample populations. It helps to understand the demographic characteristics such as age, gender, education, family size, and more between the sample populations.

Table 1.
Characteristic of Sample Population.

SN	Characteristic	Number of Respondents	Percentage
1	Students	21	42
2	Parents	21	42
3	Teachers	3	6
4	Management committee members	5	10
	Total	50	100

Table 1 shows the different types of sample sizes of the population. Among them, 42 percent are students and the same percentage of parents. Ten percent are management committee members and six percent are teachers. Out of the total respondents, 16 percent are key informants in the study.

3.2. Gender Distribution of Respondent

Gender plays a significant role in selecting samples for the study. It refers to representing the study population based on their gender. This approach helps in achieving an inclusive and comprehensive understanding of the research topic. In this study, the gender of the sample population is categorized as male and female.

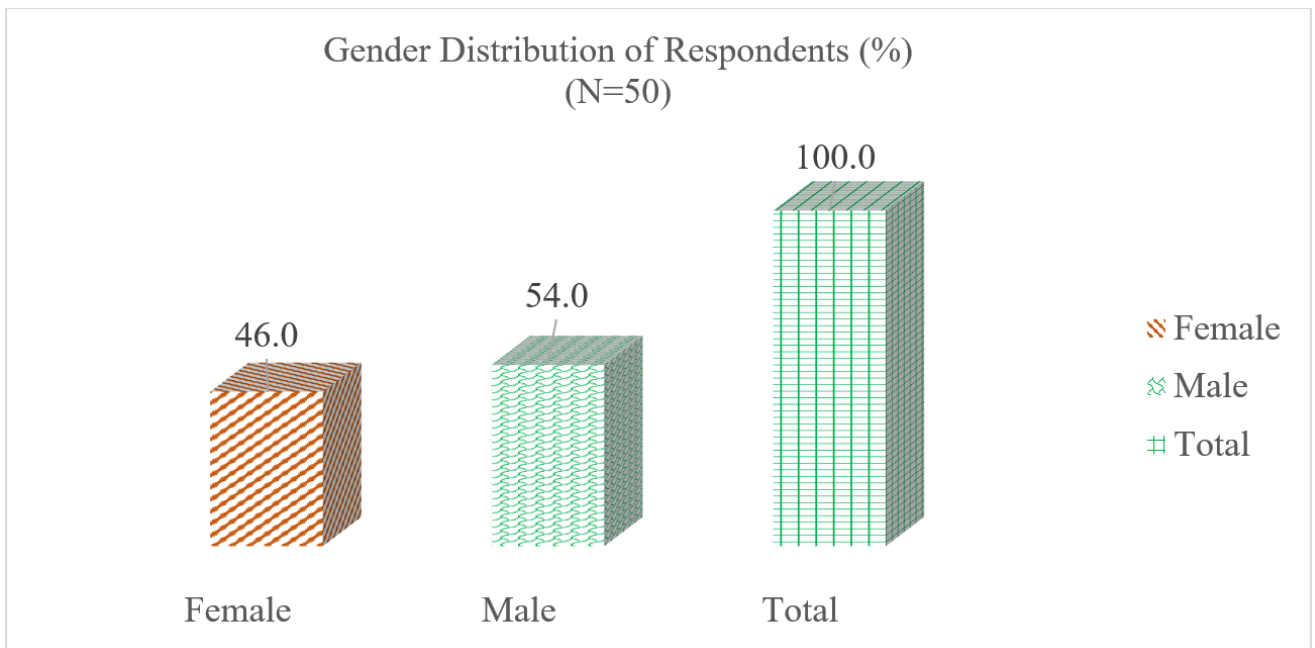


Figure 1.
Gender Distribution of Respondent.

The Figure 1 shows that among the total number of respondents, the male population is greater than that of the female. The male population is 54 percent, and the female population is 46 percent. The sex distribution indicates a fairly balanced gender representation, with slightly higher participation of males than females.

3.3. The Effectiveness of Free Mid-Day Meal Program in the Learning Process

Various indicators have been tested to find the effectiveness of the mid-day meal program. The program has become a positive intervention for school children in learning activities.

3.4. Average Student Attendance Rate

The average school opening days in a year are 220 days. The average attendance of students before and after the mid-day meal program has shown a difference. There is a significant difference in average attendance before and after the implementation of the program. The program directly impacts the attendance of students.

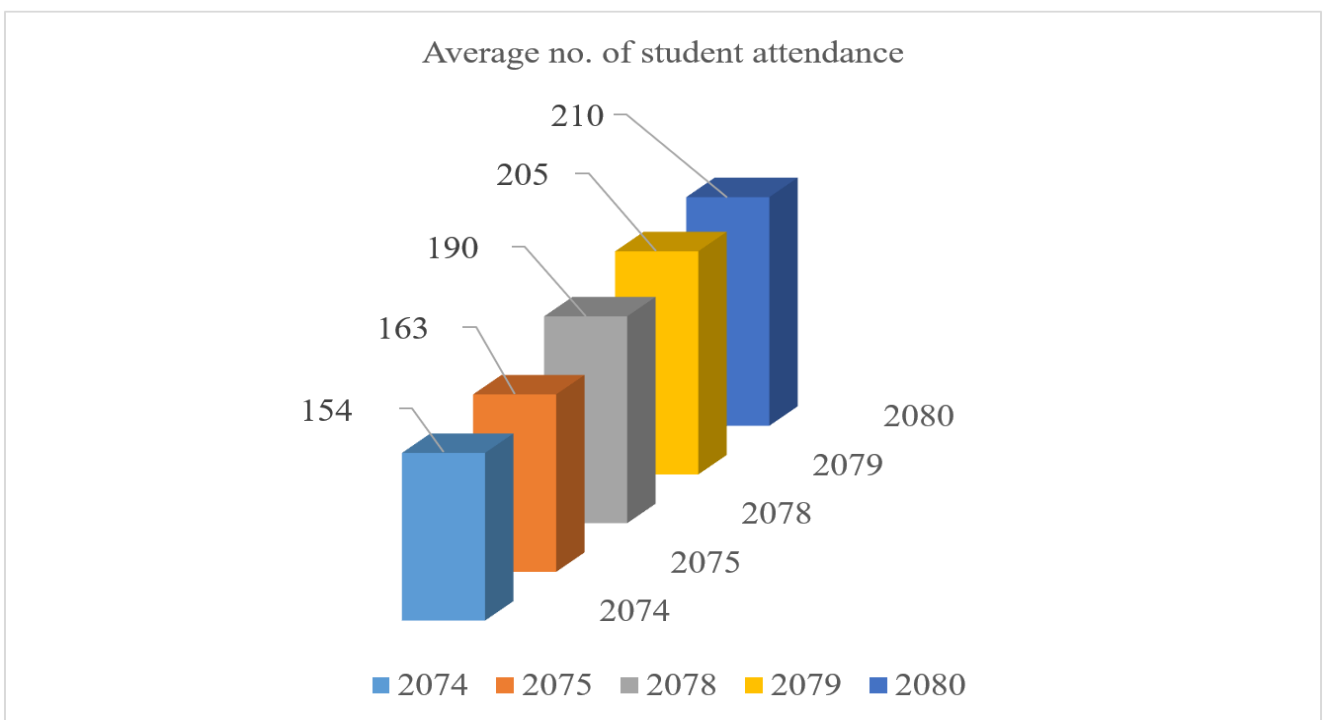


Figure 2.
Average Student Attendance Rate.

The figure 2 shows a steady increase in students' average attendance each year after the mid-day meal program was implemented. In 2074 BS, the average attendance was 154 days out of 220, rising to 163 days in 2075 BS. Due to the COVID-19 pandemic, attendance data for 2076 and 2077 are missing. However, in 2078 BS, average attendance rose to 190 days, and by 2080 BS, it reached 210 days out of 220. This data reflects a positive trend in attendance following the program's implementation. Previous studies also highlight similar improvements in attendance and participation due to the mid-day meal program [11].

3.5. Admission and Dropout Rates

Students got admission in the new academic year, and some students left the school without completing their education. One of the targets of the mid-day meal program is to minimize the dropout rate of students in school [19]. Before and after the implementation of the mid-day meal program, the results in admission and dropout rates of students have been found to be different. This program directly affects admission and dropout rates in the school.

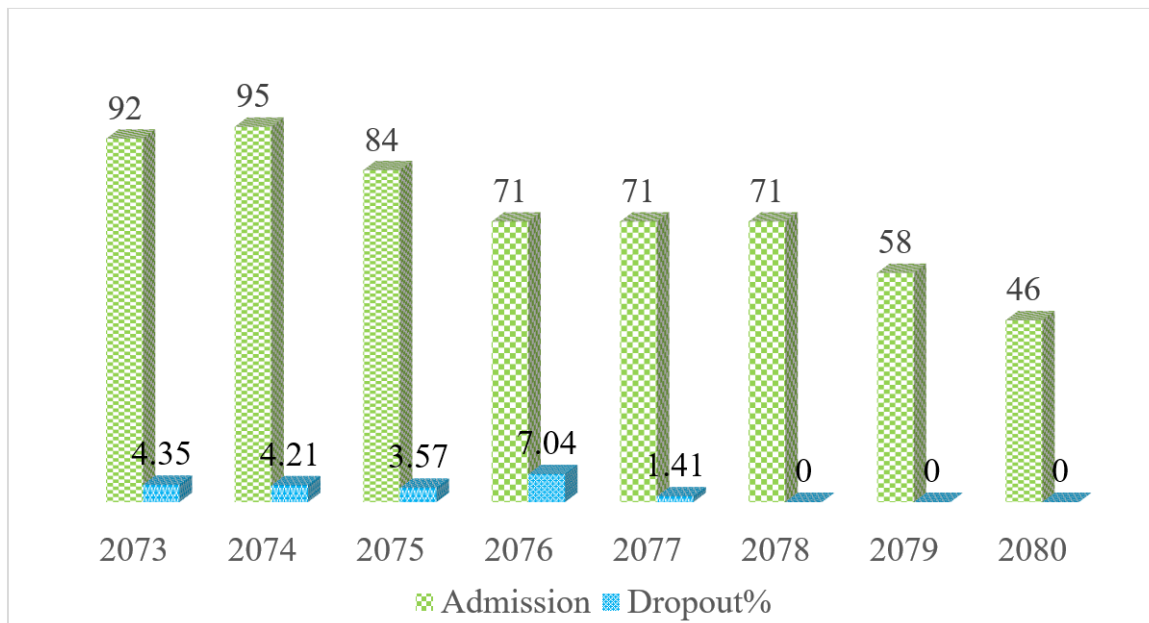


Figure 3.

Admission and dropout rate before and after the program.

The data Figure 3 illustrates the relationship between school admissions and dropout rates over several years. Before the introduction of the mid-day meal program, dropout rates were high. In 2073 BS, 92 students enrolled with a 4.35% dropout rate, and in 2074 BS, the highest enrollment of 95 students was recorded, with a 4.21% dropout rate. In 2075 BS, 84 students were admitted, and the dropout rate decreased to 3.57%. However, in 2076 BS, with 71 admissions, the dropout rate peaked at 7.04%.

After the mid-day meal program began, dropout rates significantly declined, with no dropouts in the last three years. In 2077 BS, 71 students enrolled, and the dropout rate was just 1.41%. In 2078 BS, 2079 BS, and 2080 BS, 71, 58, and 46 students enrolled, respectively, with zero dropouts. This study confirms prior findings by Tamang (2080), showing that the mid-day meal program effectively reduced dropout rates and improved long-term educational outcomes.

3.6. Reasons Why Students Attend School

There are several reasons why students go to school. The primary reason is to gain academic knowledge and skills that are essential for personal and professional growth. School provides a suitable environment for children to develop social skills and improve academic performance. Additionally, schools offer opportunities for extracurricular activities that help with the physical, mental, and social development of students. Moreover, various factors play a motivational role for students to go to school.

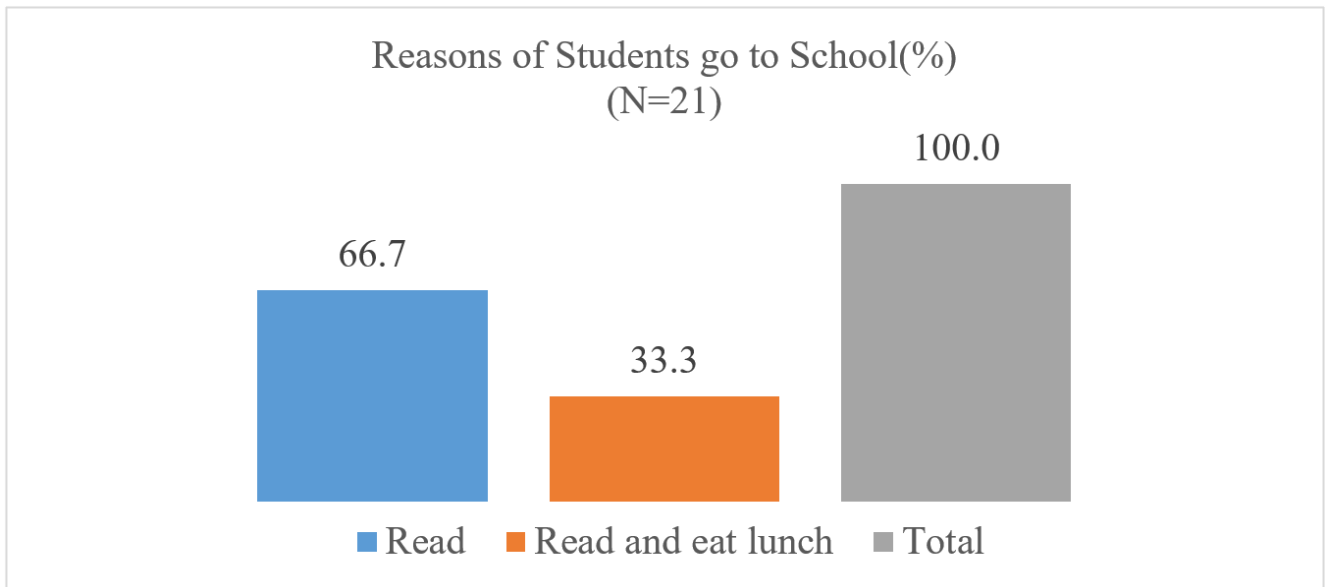


Figure 4.
Reasons Why Students Attend School.

Figure 4 shows a significant majority (66.7%) of students go to school primarily to read, which shows that education is their primary aim, while 33.3% are motivated by meals. They have both opportunities to read and receive a midday meal. This indicates that the mid-day meal program plays a role in encouraging students to attend school.

3.7. Sectors of Spending Mid-Day Meal Money (Students' Perspective)

Most students come from low-income families, with parents working in agriculture or other professions to make ends meet. The school provides meal money based on student attendance, and parents use this money for various expenses.

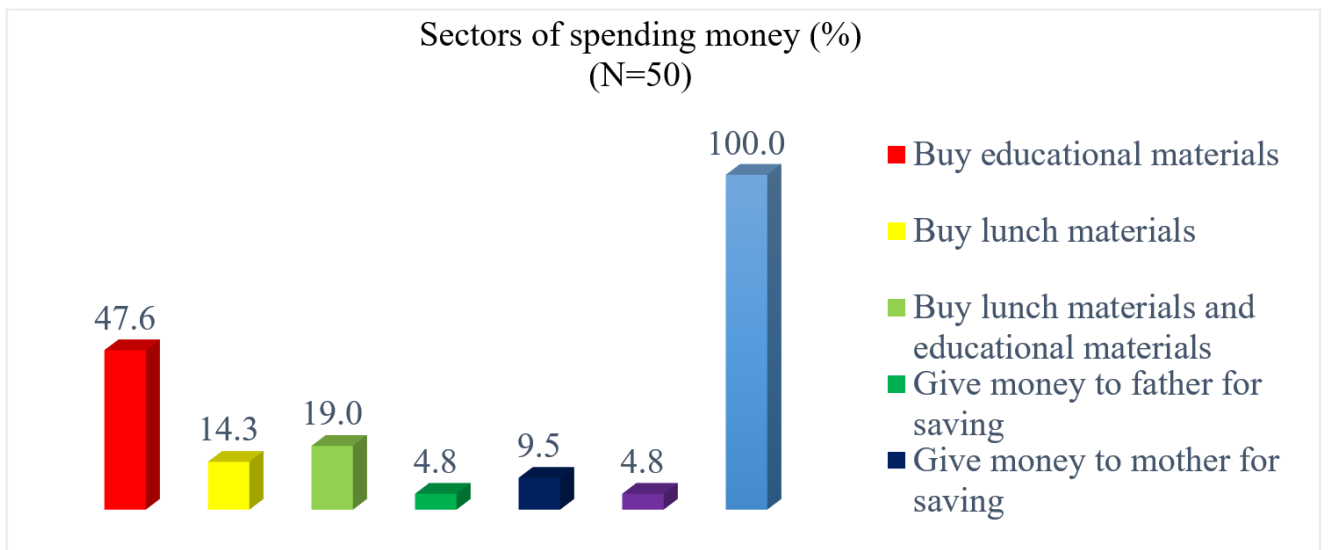


Figure 5.
Sectors of Spending Mid-Day Meal Money.

Figure 5 shows the spending of the daily meal budget in different sectors. A maximum of 47.6 percent answered that they spend on educational materials, reflecting the priority given to the educational sector by parents. Similarly, 19 percent divided that money between lunch and educational materials. 14.3 percent spend on lunch materials only, and a small percentage of students prefer saving their money by giving it to their parents or by self-putting it in khutruke, which indicates that this program develops the saving behavior of students.

3.8. Sectors of Spending Mid-Day Meal's Money by Parents

The school called the parents for meal money, and parents received that money according to the attendance of their children. Parents spend the mid-day meal money in various sectors, which are mentioned in the figure.

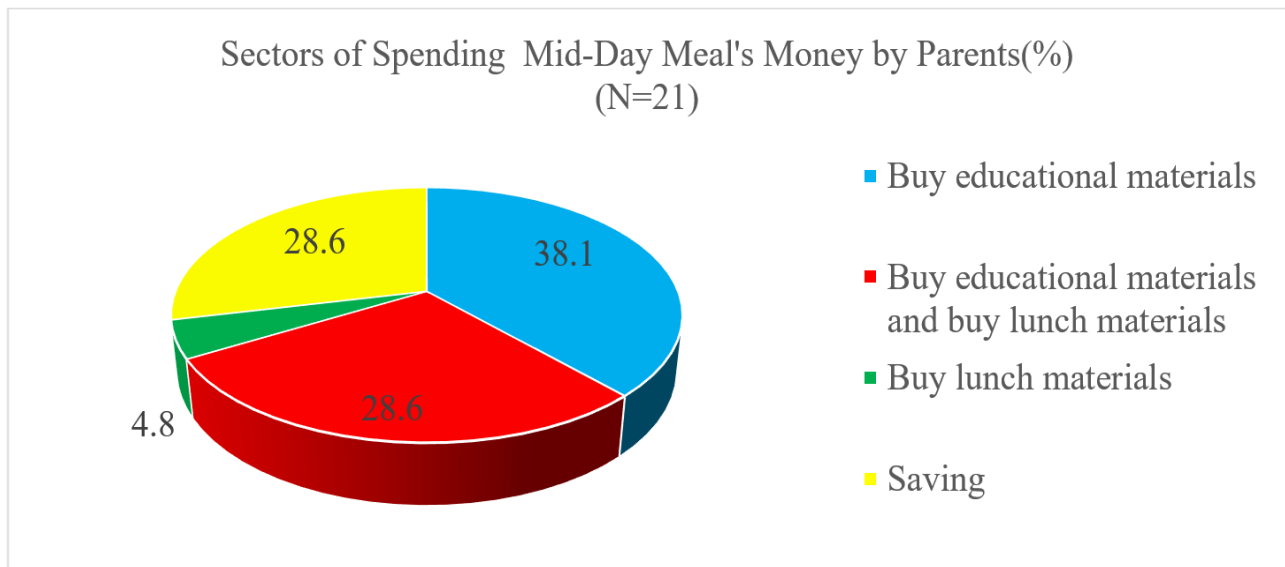


Figure 6.
Sectors of Spending Mid-Day Meal's Money by Parents.

Figure 6 shows the different sectors of spending the daily meal budget by parents. The maximum number of parents spend that money to buy educational materials. 38.1 percent spend the daily meal money to buy educational materials. 28.6 percent save that money, and 28.6 percent buy both educational and lunch materials. 4.8 percent buy lunch materials with that money.

From the above figures (Figure 5 & Figure 6) maximum students and parents spent money to buy educational materials, which indicates the budget invested in the appropriate sector. Some parents save the meal budget, and some students also suggest that their parents save that budget, which supports maintaining a savings habit for the future.

3.9. Availability of Sanitation Materials

This survey was conducted to assess the availability of sanitation materials in schools. These materials help prevent the spread of germs and promote a healthy living environment. In the school context, providing adequate sanitation supplies protects students from diseases, improves their health, and contributes to better learning outcomes.

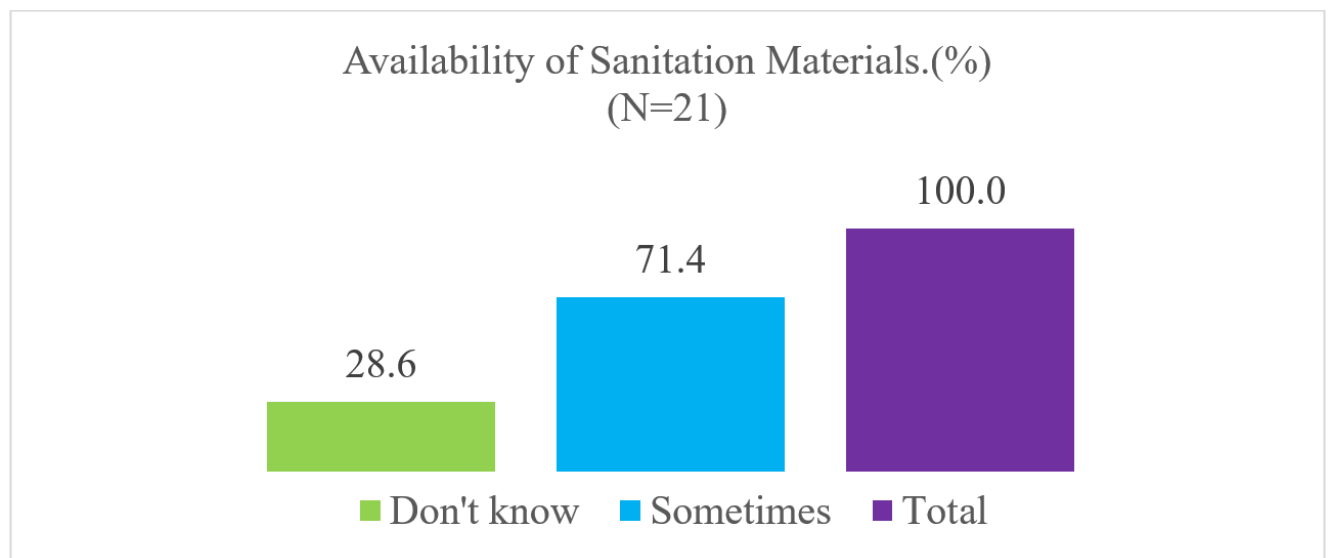


Figure 7.
Availability of Sanitation Materials.

Figure 7 shows the availability of sanitation materials for hand washing before and after the mid-day meal at school. Of the respondents, 71.4% reported that soap is sometimes available, while 28.6% were unsure whether soap is provided. The school management does not adhere to the minimum sanitation standards for students, indicating a weakness in the management's approach to student hygiene.

3.10. Information from Teachers and Management Committee Members

Key informant interviews were conducted with teachers and mid-day meal management committee members, with 6% of teachers and 10% of committee members participating. The mid-day meal program has positively impacted students by

improving attendance, reducing hunger-related health issues, and promoting local food production. It encourages healthier eating habits by allowing only homemade food and avoiding junk food. Students show improved academic performance, increased social interaction, and greater school participation. The program also supports poor and marginalized families by providing meal budgets in three phases yearly, aligning with models like Brazil's National School Feeding Program, which links local production to student nutrition [20].

3.11. The Problems of Mid-Day Meal Program

There are several challenges at the ground level in implementing the mid-day meal program [21]. This study aims to identify these problems in a specific area and gather suggestions from respondents for potential solutions. Problems are key drivers of change, offering opportunities for learning and development. Various issues have been raised regarding the mid-day meal program, and these challenges are presented in the figure below:

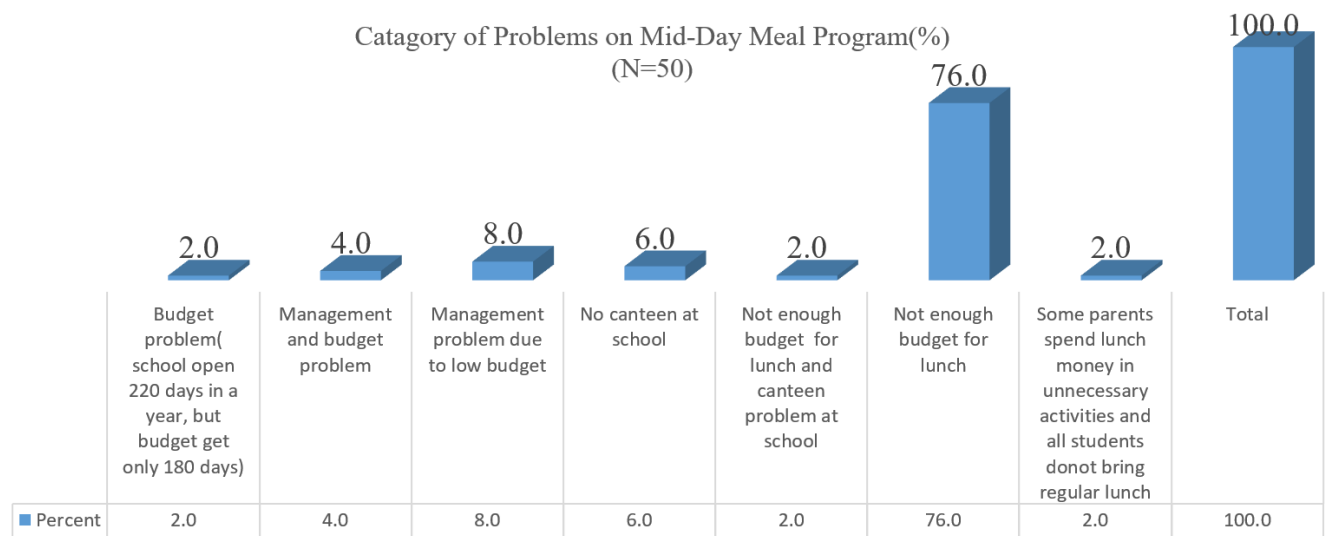


Figure 8.

Category of Problems on Mid-Day Meal Program.

Figure 8 illustrates the various problems associated with the mid-day meal program. The majority of respondents (76%) indicated that the primary issue is insufficient budget for the day meal. This is followed by management problems due to low funding (8%) and the absence of a canteen at the school (6%). Additionally, the day meal budget is allocated for 180 days, while the school operates for 220 days, creating a contradiction in budgeting based on the number of school days. Insufficient funding for the mid-day meal program remains the main challenge in the current situation.

3.12. Suggested Solution for the Problems

Local stakeholders faced various problems in the mid-day meal program. They have suggested some solutions to the problems. From the problems, it seems there is an infrastructure challenge at the school as well. These problems have created challenges in the management of the mid-day meal program.

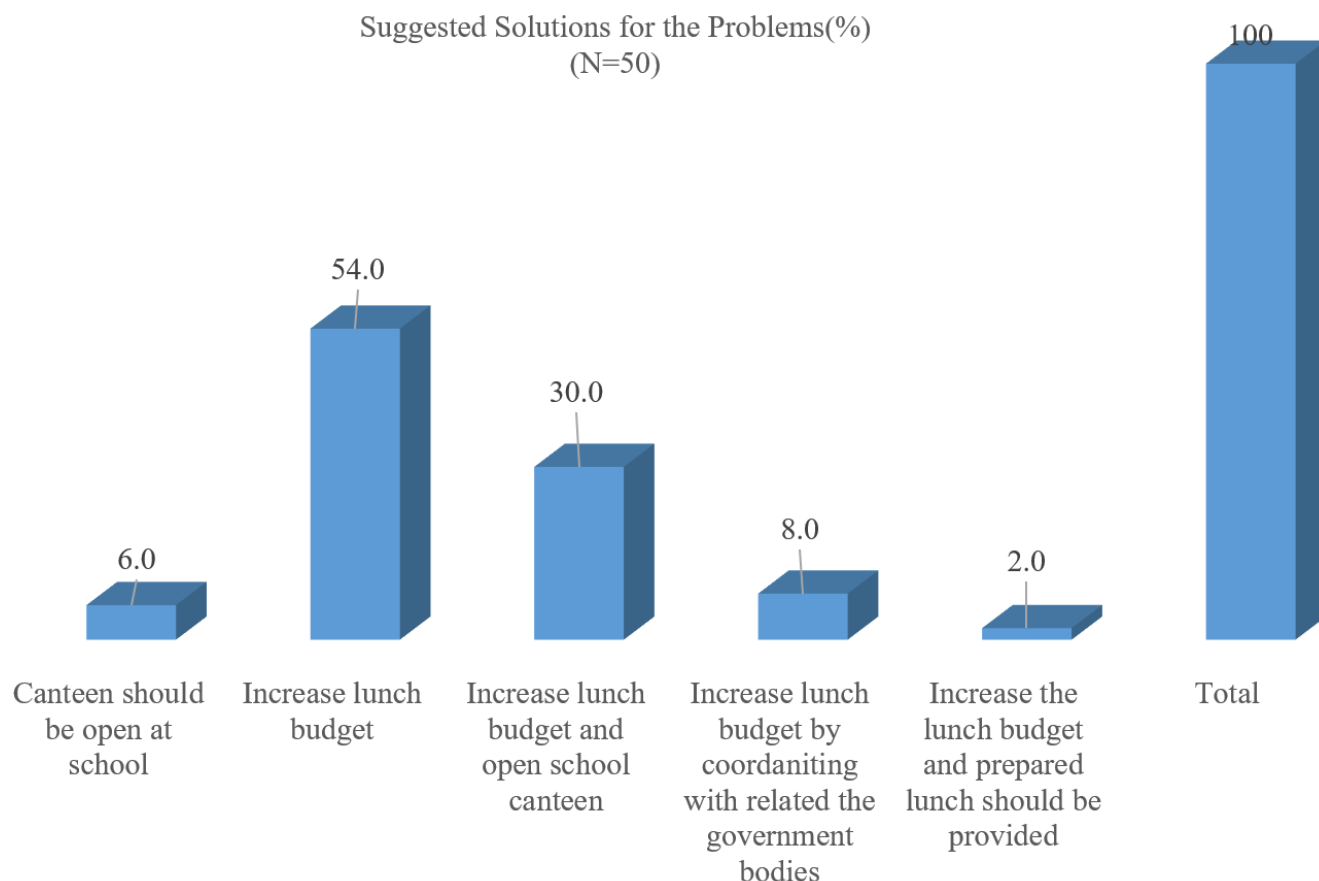


Figure 9.
Suggested Solution for the Problems.

Figure 9 presents various solutions suggested by respondents. The majority, 54%, recommended increasing the daily meal budget, noting that 15 rupees is insufficient for lunch. Thirty percent of respondents suggested both raising the lunch budget and opening a school canteen. Eight percent proposed increasing the lunch budget through coordination with relevant government bodies. The remaining respondents suggested providing prepared and fresh meals at school to ensure uniformity in the lunch served.

Overall, the data highlights a clear priority for financial improvement to meet the needs of the mid-day meal program. A few respondents also mentioned the need for better physical infrastructure for meal preparation and distribution at schools. Therefore, the school management committee and relevant authorities should plan to enhance the meal budget and school canteen services.

3.13. Role of Local Stakeholders in Implementing the Mid-Day Meal Program

The survey highlights suggestions from stakeholders involved in the mid-day meal program. Forty-two percent recommended bringing fresh meals regularly for better implementation. Twenty-four percent emphasized raising awareness about healthy meals, ensuring children's sanitation, and regular monitoring. Eighteen percent focused on meal care and sanitation, while 8% suggested coordinating with stakeholders to open a school canteen. Another 2% proposed using the canteen to ensure uniformity in meals and manage local food production. The remaining 2% stressed the importance of regular monitoring and educating students and parents about healthy food.

3.14. Major Findings

Based on the research questions and objectives of this study, several key findings have emerged regarding the effectiveness of the mid-day meal program in primary schools, the problems faced at the ground level, and the role of local stakeholders in its implementation. The program has had a positive impact on students' attendance, academic performance, and overall school participation. It has motivated students to attend classes regularly, with the average annual attendance rate reaching 210 days out of 220 in the year 2080 BS. The dropout rate has also dropped to zero, indicating the program's success in keeping students enrolled. Likewise, students are more engaged in extracurricular activities and show improved academic performance, with fewer students repeating classes. It promotes local production by encouraging homemade meals, which helps avoid junk food and supports better student health.

Beyond academic benefits, the program has fostered social change. It promotes sanitation awareness among students, contributing to healthier practices and reducing harmful behaviors related to hygiene. Students also share their meals, creating social harmony and minimizing caste discrimination. Furthermore, the program offers significant economic benefits to marginalized families, as it helps them save money that can be used for educational materials. The roles of various

stakeholders are also crucial for the program's success. Students are responsible for bringing fresh food for the mid-day meal, while parents play an important role in ensuring healthy food and monitoring sanitation. Teachers regularly monitor students' meals and educate both students and parents on the importance of healthy eating. The school management committee coordinates with relevant bodies to address any issues that arise.

However, several problems persist within the program. The allocated budget for the mid-day meal is insufficient, and there are inconsistencies in the availability of sanitation materials, indicating a lack of effective management. Poor physical infrastructure also hampers the smooth implementation of the program. Additionally, the monitoring of the mid-day meal is weak, and some parents misuse the funds provided for the meals, further challenging the program's effectiveness.

4. Conclusion

The mid-day meal program has proven to be a highly effective intervention, improving student attendance, reducing dropout rates, and enhancing both academic and extracurricular participation. It has positively impacted students' performance, fostered healthier eating habits, and supported local agriculture. The program has also promoted social inclusivity and improved sanitation awareness among students.

Stakeholder involvement students, parents, teachers, and management has been essential for the success of the program. However, challenges such as insufficient budget, inadequate infrastructure, and weak monitoring need to be addressed. In conclusion, addressing these challenges through increased funding, better infrastructure, and stronger oversight will ensure the program's long-term success, improving educational outcomes and supporting the well-being of marginalized students.

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