

Nutritional Security and Educational Outcomes: A Study of PM POSHAN Scheme in India

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Abstract: *The PM POSHAN Scheme, earlier known as the Mid-Day Meal Scheme, is among the largest school nutrition programmes globally. It is designed to address classroom hunger, increase school participation, and promote equality among children from diverse backgrounds. This study examines the scheme with special emphasis on its objectives, financial trends, coverage, and key implementation issues.*

The study follows a mixed-method approach, combining qualitative and quantitative analysis based on secondary data collected from government reports, Ministry of Education documents, and relevant academic literature. Statistical tools such as mean and standard deviation are used to study allocation patterns, while Compound Annual Growth Rate (CAGR) is applied to analyse long-term financial trends. The results show that although there are variations between budget estimates and revised figures, actual spending has consistently increased, reflecting sustained government focus on child welfare.

The findings further indicate that the scheme has played a significant role in improving enrolment, attendance, retention, and nutritional status of school children. However, several challenges remain, including inadequate infrastructure, hygiene issues, lack of dietary diversity, delays in fund flow, and low remuneration for cooking staff. The study recommends strengthening infrastructure, improving meal quality, introducing digital monitoring, and encouraging community participation to enhance the overall effectiveness and sustainability of the programme.

Keywords: *PM POSHAN Scheme, School Nutrition, Mid-Day Meal Programme, Educational Outcomes, Budget Allocation, Child Welfare.*

Introduction

In India, the Mid-Day Meal programme was initially introduced in 1995 in select states as a pilot programme to improve student enrolment, attendance, and nutritional status. With time, the scheme was extended beyond the country, it became one of the largest school meal initiatives globally. (Ministry of Education, 2022). In September 2021, the Government of India implemented the PM POSHAN Scheme, which is a notable development of the initial Mid-Day Meal Scheme. The project will offer one hot cooked meal a day to students in government and government-aided schools, which include pre-primary (Bal vatika) to Class 8. The programme addresses the issues of hunger and education, resulting in the improvement of children's nutritional status and educational attainment across the nation (World Food Programme, 2024).



The primary objectives of the PM POSHAN Scheme include enhancing the nutritional condition of the schoolchildren, develop the local agriculture, and promote the social equity by developing the sense of community among the children with different backgrounds. The scheme is designed on a decentralised model, with the central government giving financial aid and guidelines, with state governments and union territories implementing the scheme. This design makes the scheme flexible to meet the local needs and conditions so that it can deliver services effectively (Akshay Patra Foundation).

The PM POSHAN Scheme has been enjoying a progressive coverage since its inception. By the 2024-25 academic year, the scheme will benefit up to 11.20 crore children in 10.36 lakh schools around the country. This growth indicates how the government wants to enhance the nutritional condition of schoolchildren. The scheme has enjoyed huge investments in terms of financial allocation, with a 2024-25 Union Budgetary allocation of ₹12,467.39 crore to implement the scheme. The use of money, however, has not been uniform, and reports have shown that certain states have not been using their funds as per the allocated budgets, casting doubt on their efficiency and accountability in the management of funds (Times of India, 2024, October 16).

The PM POSHAN Scheme has a number of challenges that interfere with its potential despite its high aims. Problems like fund delays, poor infrastructure and logistical problems have been raised. Research has outlined such barriers as financial constraints,

supply delays, food hygiene and food waste, human resources and corruption, all of which serve as major is essential for the effective execution of the scheme. (Nickeled and Dimed, 2025). Also, the quality and nutritional value of food served within the scheme have been a source of controversy. The cases of the inability of the nutritional value of meals to have conformed to the standards have influenced the targeted health outcomes, and the use of the services of private organisations in preparing and delivering meals has questioned the issue of transparency and accountability (Prasad, 2023).

The PM POSHAN Scheme has great potential in solving the two problems of hunger and education among schoolchildren in India. Although there have been improvements in terms of coverage and the financial allocations, the success of the scheme depends on the ability to overcome the current implementation problems. Resolving the problems connected with the use of funds, infrastructure, and the quality of meals is the key to achieving the goals of the scheme. A collaborative approach from key stakeholders such as government bodies, educational institutions, and community members is imperative to ensure the effective delivery of nutritious meals to schoolchildren, thereby contributing to their overall development and well-being (World Food Programme, 2024).

Literature Review

Avinash and Avinash (2013) observed that MDMS meaningfully increased enrolment, attendance, and academic performance in rural Karnataka. And D'Souza et al. (2021) reported nutritional benefits in terms of BMI and MUAC gained by government school children who become MDMS beneficiaries. On a similar note, Halaswamy (2023) also reported an increase in enrolment, attendance and social equity in Channagiri Taluk, but there was still menu monotony and poor infrastructure. Kumar (2017) in Jharkhand noted the intervention of MDMS in improving enrolment of the Dalits and girls and curbing caste-based discrimination. The attitudes of parents analysed by Dey and Singh (2023) in West Bengal were found to be characterised by improved attendance and concentration, but hygiene was an issue. Assam and Nagaland Regional assessments by Dowarah (2020) and Yimchunger (2024) revealed the lack of timely grain delivery, poor logistics and inadequate basic infrastructure. In Tamil Nadu, Mahendran and Indrakant (2014) reported low eating habits as a result of bad quality food and increasing prices, and in Kerala, Resmi (2024) identified a lack of hygiene and variety as the reasons behind low student satisfaction with the quantity of food. Haque (2023) in Odisha highlighted the benefits of nutritional alternatives in terms of ingredient substitutes, which propose low-cost diets. Rani and Jain (2013), in their teacher views of Punjab, found satisfaction with quantity and ambivalence about health outcomes. The educational and nutritional benefits, especially in girls, were also validated by a larger Karnataka-level study by Mirajkar et al. (2016), although meal quality and monitoring have to be improved. In general, all these studies identify the positive role of MDMS in participating in schools and nutrition, yet emphasise the necessity of improving the infrastructure, hygiene, variety of the menu, and responsibility.

Research Objectives

- To examine the objectives and framework of the PM POSHAN (Mid-Day Meal) Scheme in India.

- To examine the trends in coverage and expenditure of the scheme at the national level
- To identify key challenges in the implementation of the scheme

Research Methodology

This study includes a descriptive and analytical research design to examine the PM POSHAN Scheme in India. The study is a qualitative and quantitative study. The qualitative component is aimed at appraising such documents as policy documents, government reports, and past academic literature to find out the aims, structure, and challenges of the scheme, and the quantitative part tends to examine the financial distributions and coverage patterns.

The paper is solely founded on the secondary data sources that include Government of India budget reports, Ministry of Education reports, Accountability Initiative reports, India Brand Equity Foundation (IBEF) data, and articles related to the topic. Financial information on the years 2014-15 to 2025-26 in terms of Budget Estimates (BE), Revised Estimates (RE) and actual Releases has been put together.

To analyse the data and to measure the central tendencies and variations, descriptive statistics were applied (mean and standard deviation). Compound Annual Growth Rate (CAGR) was determined to determine long-term growth trends, where trend analysis and comparative analysis were also used to depict discrepancies between the planned allocations and actual disbursements.

Limitations of the study are the secondary data used and no primary field survey carried out, but the study made attempts to make the study reliable and cite all references.

Objective of PM POSHAN Scheme

The PM POSHAN programme, managed by the Ministry of Education, is active in all government schools and aided government schools across the country. It provides nutritious cooked meals to students in Bal Vatika (Pre-primary) and Classes I to VIII. The scheme is implemented universally, extending benefits to all eligible children regardless of gender or socio-economic background, thereby contributing to the larger goal of universalising elementary education.

The scheme is designed to address two interlinked challenges faced by children in India-nutritional insecurity and limited educational participation. Its objectives include:

- Enhancing the dietary and nutritional well-being of children attending government schools and aided government schools.
- Encouraging regular school attendance among economically disadvantaged children while improving their capacity to engage effectively in classroom activities.
- Delivering additional nutritional support to elementary school children during drought periods and in disaster-affected regions.

Food and Nutrition Norms under PM POSHAN Scheme:

Following are the norms as per National Food Security Act (NFSA), 2013:

The PM POSHAN programme lays down well-defined nutritional benchmarks to ensure that school children receive adequate dietary support. These standards vary for the primary and upper primary stages in accordance with the growth and energy needs of children.

Primary Stage (Classes I–V):

- Daily nutritional intake is set at about 450 calories of energy.
- Protein requirement is 12 grams.
- To meet these levels, the meal composition generally includes around 100 g of cereals, 20 g of pulses, 50 g of vegetables, and 5 g of oil or fat.

Upper Primary Stage (Classes VI–VIII):

- Energy requirement increases to approximately 700 calories per child per day.
- Protein intake rises to 20 grams.

- The food basket expands accordingly, with 150 g of cereals, 30 g of pulses, 75 g of vegetables, and 7.5 g of oil or fat.

Comparative Perspective:

The distinction between primary and upper primary levels reflects the changing physiological and developmental needs of children. As children progress to higher grades, their bodies require more calories and protein to support growth spurts, physical activity, and cognitive development. The incremental rise in food quantities - particularly cereals, pulses, and vegetables - ensures that the meals remain both nutritious and filling, addressing classroom hunger and supporting learning outcomes.

Recent Developments

The PM POSHAN scheme was a national programme in schools, approved by the Government of India, between 2021-22 and 2025-26. The scheme has a financial commitment of ₹54,061.73 crore by the Central Government, but with ₹31,733.17 crores by State Government and Union Territory administrations.

Table. 1: Year-wise outlay under PM POSHAN Scheme: (Rs in Crores)

Financial Year	Budget Estimation	Revised Estimation	Releases
FY 25-26	12,500.00	-	-
FY 24-25	12,467.39	-	1,163.64
FY 23-24	11,600.00	10,000.00	8,452.67
FY 22-23	10,233.75	12,800.00	12,681.03
FY 21-22	11,500.00	10,233.75	10,233.75
FY 20-21	11,000.00	12,900.00	12,882.11
FY 19-20	11,000.00	9,912.21	9,629.35
FY 18-19	10,500.00	9,947.74	9,518.08
FY 17-18	10,000.00	10,000.00	9,095.81
FY 16-17	9,700.00	9,700.00	9,483.40
FY 15-16	9,236.40	9,236.40	9,151.55
FY 14-15	13,215.00	11,050.90	10,526.97
Mean	11079.38	10578.10	9347.12
SD	1224.05	1280.22	3062.47
CAGR	-1.30	-1.45	9.44

Source: ibef.org

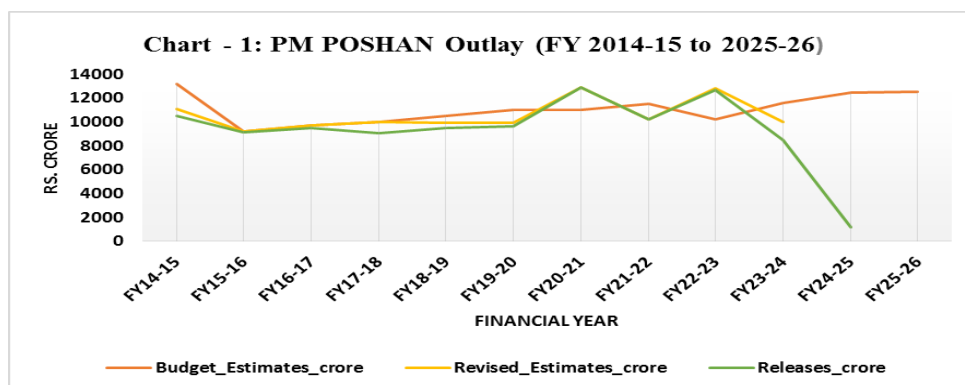


Table 1 and Chart-1 presents the year-wise budget estimation, revised estimation, and actual releases under the PM POSHAN Scheme, expressed in crores of rupees. The data spans from FY 2014-15 to FY 2025-26 and highlights the trends in financial allocations and disbursements.

The Budget Estimates (BE) show fluctuations over the years. In FY 2014-15, the allocation was the highest at ₹13,215 crore, but it dropped sharply in FY 2015-16 to ₹9,236.40 crore. From then onwards, the allocations gradually increased, reaching ₹12,467.39 crore in FY 2024-25 and ₹12,500 crore in FY 2025-26. The mean budget estimate during the period is ₹11,079.38 crore with a standard deviation of ₹1,224.05, indicating moderate variability in planned allocations. The CAGR for budget estimates is 1.30%, suggesting a marginal negative trend over the years, despite the apparent rise in later years. This decline is partly due to higher initial allocations (FY 2014-15) compared to mid-period figures.

The Revised Estimates (RE) also reflects fluctuations, with values ranging from ₹9,236.40 crore in FY 2015-16 to a peak of ₹12,900 crore in FY 2020-21. Interestingly, the revised estimates in FY 2020-21 were substantially higher than the budgeted amount, highlighting a mid-year adjustment due to increased funding requirements, possibly linked to pandemic-related needs. The mean revised estimate stands at ₹10,578.10 crore with a standard deviation of ₹1,280.22. Similar to the budget estimates, the CAGR for revised estimates is -1.45%, again pointing to a small overall negative trend.

On the other hand, the releases (actual expenditure) show a more consistent growth pattern. In FY 2014-15, releases were ₹10,526.97 crore, and they remained around the ₹9,000–10,000 crore mark up to FY 2019-20. A notable rise is observed in subsequent years, with releases reaching ₹12,882.11 crore in FY 2020-21, ₹12,681.03 crore in FY 2022-23, and ₹8,452.67 crore in FY 2022-24. By FY 2024-25, the releases amounted to ₹1,163.64 crore, but this reflects a partial year or pending disbursement, not a decline in policy support. The average release during the period is ₹9,347.12 crore, with a relatively higher standard deviation of ₹3,062.47, showing greater variation compared to budgeted and revised estimates. Importantly, the CAGR for releases is +9.44%, reflecting a healthy upward trend in actual expenditures, even though budget and revised estimates show a negative CAGR. This indicates that, despite conservative planning, actual spending under the scheme has expanded steadily.

Comparing the three components, a key finding is that releases have outpaced the planned budgetary growth, suggesting a higher-than-anticipated financial commitment to the scheme. For example, in FY 2020-21, while the BE was ₹11,000 crore, actual releases reached ₹12,882.11 crore. Similarly, in FY 2021-22, the releases matched the revised estimate of ₹10,233.75 crore, reflecting accurate disbursement efficiency.

Overall, the figures prove that the official budget and revised estimates portray a slightly decreasing tendency, whereas the real releases have increased significantly throughout the years. This implies that there is high prioritisation of the PM POSHAN Scheme by the government, which guarantees sufficient resource flow regardless of the changes in the planned allocations. The trend of increased spending that the scheme has experienced is an indicator of the widening scope of interest in the scheme in terms of nutritional security and child welfare in India.

Main challenges in the implementation of the PM POSHAN scheme in India

1. Infrastructure and Hygiene

- Many schools do not have adequate kitchens, storage facilities and clean drinking water.
- Contamination and health hazards are sometimes caused by poor sanitation and hygiene practices.

2. Administrative and Financial Inefficiency:

- Sluggish payments by central and state governments impact efficient operation.
- The supply chain has leakages and corruption, which makes resource allocation less effective.
- Poor remuneration to cooks/helpers results in a lack of satisfaction and retention.

3. Nutritional Adequacy and Menu Diversity:

- Meals often lack fruits, milk, or protein-rich items due to budget constraints.
- Seasonal shortages and price fluctuations affect the quality and consistency of meals.
- Limited monitoring leads to gaps between prescribed nutrition and actual delivery.

4. Governance and Accountability:

- Wide variation in implementation across states and districts.
- Instances of corruption, misreporting, and diversion of food grains.
- Weak monitoring mechanisms and lack of community involvement in oversight.

5. Social and Cultural Barriers

- Discrimination based on caste or community during meal distribution in some areas.
- Gender inequality in wages and recognition of women working as cooks/helpers.
- Resistance in some communities due to cultural or dietary preferences.

6. Vulnerability to Crises:

- COVID-19 pandemic disrupted meal delivery, exposing dependency on physical schools.
- Substitutes like dry rations or cash transfers were inconsistent and inadequate.
- Lack of resilience in adapting to emergencies or natural disasters.

Findings of the study

The study reveals that PM POSHAN plays a crucial role in addressing classroom hunger, improving nutritional security, and enhancing school attendance and retention. The scheme covers over 11 crore children across government and aided schools, with structured nutrition standards ensuring caloric and protein adequacy. Despite negative CAGR trends in budget and revised

estimates, actual releases show consistent growth (+9.44%), reflecting strong government prioritisation of children's welfare. Past research also confirms positive impacts on enrolment, attendance, academic performance, and social equity.

Another important finding is that the scheme's expenditure has often exceeded initial budget allocations, indicating higher-than-planned commitment in practice. For example, in FY 2020–21, actual releases were ₹12,882 crore compared to a BE of ₹11,000 crore. This highlights that the scheme has adapted flexibly to rising nutritional needs and crisis situations, such as during the pandemic. State-level variations, however, point to uneven implementation, with coverage rates differing significantly across regions.

Challenges

Irrespective of its successes, the scheme has been challenged by consistent infrastructural, financial and governance challenges. There is also a lack of proper kitchens, storage and sanitation facilities in many schools, which at times affects food safety. Administrative inefficiency issues, e.g., fund transfer delays and supply chain leakages, do not allow smooth operations. Nutritional diversity of meals is also insufficient, because milk and products rich in proteins are not included very often because of the financial constraints. In addition, poor pay and appreciation of cooks/helpers leads to dissatisfaction and high turnover.

Suggestions

In order to enhance PM POSHAN Scheme, there are a number of measures that are suggested. Firstly, there is a need to invest in infrastructure to have clean kitchens, safe storage and availability of drinking water in every school. Second, the quality of meals needs to be enhanced by diversifying menus into locally available fruits, pulses and dairy products, with the help of regular nutritional audits. Third, accountability and lessening leakages can be enhanced using digital monitoring equipment and community-based oversight committees. Lastly, cooks/helpers will have fair wages, competence training, and social appreciation, which will increase efficiency and equity. A combination of these measures will be able to improve the nutritional, educational and social effectiveness of the scheme, turning it into a more robust and inclusive programme.

Conclusion

The current research highlights the importance of the PM POSHAN (Mid-Day Meal) Scheme in alleviating hunger, increasing the nutritional performance, and raising the educational attendance rates amongst Indian children. The results indicate that, though there have been swings in budgetary allocations and estimated financial releases, the actual financial releases have been steadily increasing in an encouraging manner, showing a great sense of commitment by the government towards the programme. The flexibility in the scheme to provide structured nutritional norms and the level of adaptation in times of crisis, including the COVID-19 pandemic, show that it is not only a social welfare programme but also a foundation of human capital formation. The contribution it makes to improving enrolment, attendance, academic performance and social equity has been further corroborated by evidence in past research and strengthens its multi-dimensional role in the lives of children.

Meanwhile, the analysis demonstrates the existence of persistent issues connected with the infrastructure, financial management,

governance, and nutritional adequacy. Poor sanitation, lack of dietary variation and insufficient kitchens are hindering performance in most states. To curb such failures, there is a need to introduce policy changes and improve the enforcement authority, such as more investment in infrastructure, meal planning, digital monitoring, and citizen engagement. Providing equitable wages and recognition to cooks/helpers will enhance delivery and equity of programmes as well. With such measures in place, PM POSHAN Scheme may turn out to be a more inclusive and resilient programme so that no child would be left without nutrition and education on the basis of poverty or other social impediments.

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