

IMPACT OF A FOOD SECURITY SCHEME ON THE REDUCTION OF SEVERE CHILD WASTING IN INDIA

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Abstract:-

Pradhan mantri garib kalyan Anna Yojana launched in 2020 has provided food security to more than 80 crore people in India. It is a part of Atmanirbhar Bharat and was launched on March 26,2020. Families belonging to Antyodaya Anna Yojana (AAY) and Priority Households (PHH) categories are eligible for this scheme. NFHS national family health survey provided data on children under 5 years who are severely wasted (weight for height) in different states of India. The research indicates that the PMGKAY scheme has a positive effect on lowering the children under 5 years who are severely wasted (weight for height).

IndexTerms- children below 5 years who are severely wasted

INTRODUCTION:-

Pradhan Mantri garib kalyan Anna Yojana is a food security scheme which is presently benefitting more than 80 crores of people in the country. It was a part of Atmanirbhar Bharat and was launched on March 26,2020. Families belonging to Antyodaya Anna Yojana (AAY) and Priority Households (PHH) categories are eligible for the scheme.

Severe child wasting (low weight-for-height) is an acute malnutrition in a child. It occurs because of rapid weight loss or inability to gain weight due to lack of nutrition or infectious diseases like diarrhoea. In NFHS 6 data sheet, state wise data on children under 5 years who are severely wasted (weight-forheight) [This is below -3 standard deviations, based on the WHO standard]. Severe child wasting not only reflects acute under nutrition in children but also indicates a high risk of illness, slow growth and child mortality. Proper food and health access must be given to children.

The present research paper aims to understand the impact of the food security scheme 'Pradhan Mantri Garib Kalyan Anna Yojana' on children under 5 years who are severely wasted. PMGKAY provides food grains and fulfills the requirement of nutrition among the people and therefore improves the health.

LITERATURE REVIEW

1. **Ragbendra Jha, Raghav Gaiha & Anurag Sharma (2006), Micronutrient Deprivation and Poverty-Nutrition Traps in Rural India, ASARC Working Paper 2006-03.** The authors show that rural agricultural workers in India have common micronutrient deficiencies, which lower labor output. The authors claim that rural households can fall into a cycle of low nutritious intake, reduced output, low income, and poor nutrition. They argue that conventional income transfers may not break the cycle unless nutrition is addressed directly due to the "poverty-nutrition trap".

2. **Katinka Weinberger (2003), The Impact of Micronutrients on Labor Productivity: Evidence from Rural India, presented at IAAE Conference.**

Weinberger said iron and vitamin A deficiencies hinder productivity. Her findings suggest rural India can increase daily agricultural income by 5– 17% by increasing micronutrient consumption. Fortified grain programs are supported by the study's finding that micronutrients, not calories, improve labor performance.

3. **Anil B. Deolalikar (1988), Nutrition and Labor Productivity in Agriculture: Estimates for Rural South India, Review of Economics and Statistics, 70(3): 406–413.** South Indian agricultural production per worker and calorie consumption are statistically connected in Deolalikar's pioneering study. The basic model supports the nutrition-based efficiency wage theory and is extensively discussed in Indian labor-nutrition literature. 4. **John Strauss & Duncan Thomas (1998), Health, Nutrition and Economic Development, Journal of Economic Literature, 36(2): 766–817.**

Strauss and Thomas examine how food and health influence global worker productivity, cognitive ability, and economic growth. They claim boosting diet and health builds human capital, especially in poor nations. Their framework affects Indian policy research.

5. **Anand V. Swamy (1997), A Simple Test of the Nutrition-Based Efficiency Wage Model, Journal of Development Economics, 53(1): 85–98.**

Swamy proves the efficiency wage model theory by showing that betternourished workers produce more, making higher wages economically practical for employers in agricultural economies. Dietary policies may increase salaries and labor supply, says the study.

6. **Kumar K., Singh A., & Gautam S. K. (2025), Calorie Consumption and Wages: Evidence from India's Labour Market, IZA Discussion Paper No. 18100.**

Using contemporary Indian labor market data, the authors show that a 10% increase in calorie consumption raises rural incomes by 2.5%. Their findings corroborate nutrition plans' income effects.

7. **Amit Kumar et al. (2022), Government Transfers, COVID-19 Shock, and Food Insecurity: Evidence from Rural Households in India, Agribusiness, 38(3): 636–659.** Article explores how COVID-19 lockdown government supplies of free grains and cash influenced rural food insecurity. Transfers significantly reduced moderate (~2.4%) and severe (~0.9%) hunger in beneficiary households, proving nutrition-based interventions stabilise income during shocks.

8. **Mihir Jha (2023), Labour Incomes in India: A Comparison of Two Surveys, PLoS ONE, 18(2): e0269924.**

Between survey sources (PLFS versus CPHS), Jha discovers rural–urban and inter-state salary disparities. He suggests that NHM and PMGKAY could end compensation disparities due to rural workers' poor diet and health.

9. **Dorian Headey & Harold Alderman (2024), Food Prices, Diet Quality and the Wages of the Poor, Food Policy, 122(2): 102511.**

This study analyses how diet quality (beyond calories) and rising food prices affect rural wages. According to the authors, long-term productivity requires dietary diversity and micronutrient consumption, not just calories. This affects Indian nutrition scheme redesign.

10. **Pallavi Gupta & Shweta Singh (2025), Women's Participation in Agriculture and Nutritional Outcomes: A Systematic Review, ArXiv Preprint 2504.03202.**

Their review links women's agricultural labor force participation to family food variety and adult nutrition. Malnutrition risk increases with female labor involvement without nutrition/health support, underscoring the need for gender-sensitive and labor-inclusive nutrition programs.

11. **Suryadepto Nag & R. Basu (2023), Infrastructure, Energy Access, and Rural Labour Wages in India, ArXiv Preprint 2309.09178.**

In rural India, better infrastructure (electricity, roads, etc.) enhances labor productivity and salaries. Nutrition and health access raise workforce capacity when combined with infrastructure improvements, the study concluded.

12. **M. Golechha et al. (2024), Impact of India's Flagship National Health Mission on Health Governance and Human Resources: A Scoping Review, World Medical & Health Policy, 17(1): 6–30.**

Growing rural health services ASHA workers, sub-centres, and outreach programs has improved maternal/child health, lowered absenteeism and medical costs, and increased labor participation and productivity.

13. **Nutrition International (2024), Enhancing Nutrition Outcomes through India's Social Safety Net Programs, Policy Brief.**

This policy briefly documents that programmes like PMGKAY and PM POSHAN reached over 800 million people and shows remaining nutritional gaps. It recommends linking food-based transfers to workfare programs (e.g., Mahatma Gandhi National Rural Employment Guarantee Act) and nutrition counselling to maximise workforce gains.

RESEARCH GAP

Despite this literature, **gap still exists:-**

Only a few studies have measured how receipt of free food services translates into changes in labor supply, productivity, or income at the household level, along with an impact on health. Health is the most important part of one's life. The impact of Pradhan mantri garib Kalyan Anna Yojana has not been considered with respect to its reduction of children under 5 years who are severely wasted (weight for height) .

OBJECTIVE:-

The aim of this research is to analyse the impact of PMGKAY on reduction of children under 5 years who are severely wasted (weight for height) in different states of India. It provides households with food security, enabling better child nutrition and lowering wasting.

HYPOTHESIS FORMULATION

- **Null Hypothesis (H₀):** There is no meaningful relationship between reduced severe child wasting in 2023-2024 and Pradhan mantri garib kalyan Anna Yojana
- **Alternative Hypothesis (H₁):** There is a significant positive relationship between reduced severe child wasting in 2023-2024 and Pradhan mantri garib kalyan Anna Yojana

DATA ANALYSIS:-

Government data has been used in the table below:

Table 1: State wise data of PMGKAY beneficiaries 2023-2024 in lakhs and severe child wasting 2023-2024 and 2019-2021

S.No.	State/UT	PMGKAY Beneficiaries 2023-24 (lakhs)	Severe child wasting 2023-2024	Severe child wasting 2019-2021
1	Andhra Pradesh	268.22	2.7	6
2	Arunachal Pradesh	8.4	8	6.5
3	Assam	251.17	8.5	9
4	Bihar	871.18	4.7	8.9
5	Chhattisgarh	200.77	6.7	7.5
6	Goa	5.32	2.4	7.5
7	Gujarat	351.8	5.4	10.6
8	Haryana	125.49	3.6	4.4
9	Himachal Pradesh	28.64	2.4	6.9
10	Jharkhand	264.19	5.9	9.1
11	Karnataka	401.93	4.8	8.4
12	Kerala	154.8	2.6	5.8
13	Madhya Pradesh	534.79	6.8	6.5
14	Maharashtra	700.17	7.6	10.9
15	Manipur	20.08	-	3.4
16	Meghalaya	21.46	6.2	4.7
17	Mizoram	6.83	3.8	4.9
18	Nagaland	14.05	4.1	7.9
19	Odisha	325.98	5.8	6.1
20	Punjab	141.45	4.4	3.6
21	Rajasthan	440.01	6.4	7.6
22	Sikkim	3.81	3.5	6.6
23	Tamil Nadu	364.12	4.9	5.5
24	Telangana	191.62	3.9	6.5
25	Tripura	24.43	5.0	7.3
26	Uttar Pradesh	1505.19	4.8	7.3
27	Uttarakhand	81.94	2.0	4.7
28	West Bengal	601.84	4.8	7.1
Total	India	8049.94	5.2	7.7

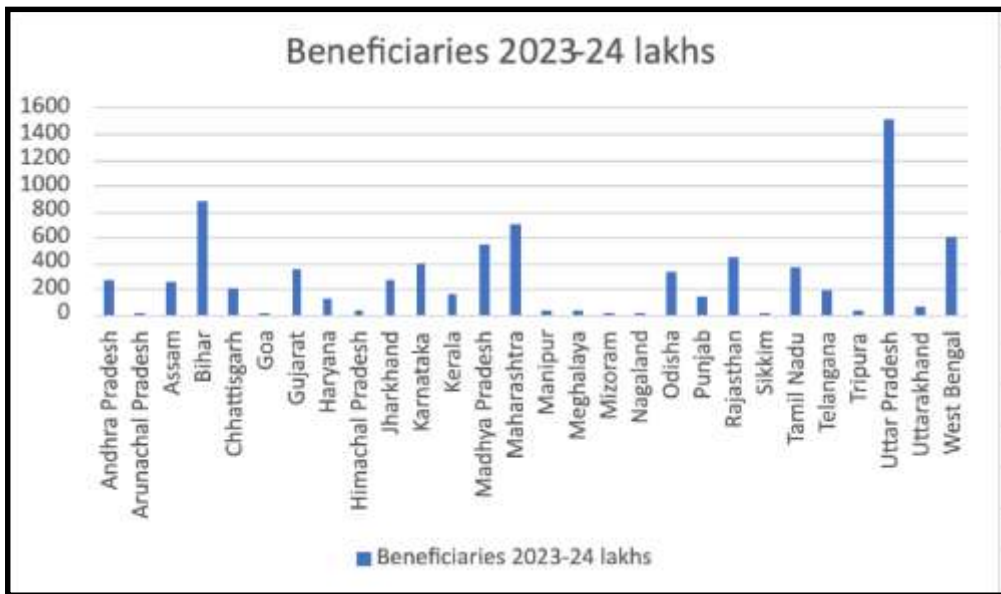


Diagram1: PMGKAY beneficiaries 2023-2024 in lakhs

Now a comparison of the figures of 2023-2024 (6th NFHS fact sheets) with 2019-2020 (5th NFHS) has been made in the 6th column as under. The positive figures show improvement and the negative ones show an increase in the severe child wasting.

Table 2: comparison of severe child wasting 2023–24 and severe child wasting 2019- 2021

S. No.	State/UT	PMGKAY Beneficiaries 2023-24 (lakhs)	Severe child wasting 2023-2024	Severe child wasting 2019-2021	Comparison (2023-24 - 2019-21)
1	Andhra Pradesh	266.22	2.7	6	3.3
2	Arunachal Pradesh	8.4	8	6.5	-1.5
3	Assam	251.17	8.5	9	0.5
4	Bihar	871.16	4.7	8.8	4.1
5	Chhattisgarh	200.77	6.7	7.5	0.8
6	Goa	5.32	2.4	7.5	5.1
7	Gujarat	361.6	5.4	10.6	5.2
8	Haryana	126.49	3.6	4.4	0.8
9	Himachal Pradesh	28.64	2.4	6.9	4.5
10	Jharkhand	264.19	5.9	9.1	3.2
11	Karnataka	401.93	4.6	8.4	3.8
12	Kerala	154.8	2.6	5.8	3.2
13	Madhya Pradesh	534.79	6.8	6.5	-0.3
14	Maharashtra	700.17	7.6	10.9	3.3
15	Manipur	20.08	-	3.4	-
16	Meghalaya	21.46	6.2	4.7	-1.5
17	Mizoram	6.83	3.6	4.9	1.3
18	Nagaland	14.05	4.1	7.9	3.8
19	Odisha	395.98	5.8	6.1	0.3
20	Punjab	141.45	4.4	3.6	-0.8
21	Rajasthan	440.01	6.4	7.6	1.2
22	Sikkim	3.81	3.5	6.6	3.1
23	Tamil Nadu	364.12	4.9	5.5	0.6
24	Telangana	191.62	3.9	8.5	4.6
25	Tripura	24.43	5.0	7.3	2.3
26	Uttar Pradesh	1506.19	4.8	7.3	2.5
27	Uttarakhand	61.94	2.0	4.7	2.7
28	West Bengal	601.84	4.8	7.1	2.3
Total	India	8049.94	5.2	7.7	2.5

From the above table, it can be easily computed that most of the states have a positive relationship between Pradhan Mantri Garib Kalyan Anna Yojana beneficiaries and decrease in severe child wasting. Bihar, Goa, Gujarat, Himachal Pradesh, Telangana have seen a substantial decrease in severe child wasting. Andhra Pradesh, Jharkhand, Karnataka, Kerala, Maharashtra, Nagaland, Sikkim have also seen a reduction in severe child wasting. Only Arunachal Pradesh, Madhya Pradesh, Meghalaya,

Punjab, saw an increase in severe child wasting. Since the maximum number of states have seen reduction in severe child wasting. Therefore, the null hypothesis stands rejected and the alternate hypothesis is true that there is a significant positive relationship between reduced severe child wasting in 2023-2024 and Pradhan mantri garib kalyan Anna Yojana.

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