The Bioscan
AN INTERNATIONAL QUARTERLY JOURNAL OF LIFE SCIENCES
20(3): S.I (3), 582-584, 2025
www.thebioscan.com

Trends in Anemia and Iron Deficiency in India, Jammu & Kashmir, and Regional Peers (2020–2025): A Multi-Source, Programmatic Evaluation

Jayachandran Gopi[1], Shivam Sharma[2]*, Shounak Nandy[3], Krishnareddy[4], Kamaljot Singh[5], Nitesh Kumar[6], Prateek Bobhate[7]

[1]All India Institute of Medical Sciences, Vijaypur, Jammu, India, ORCID: 0009-0006-4263-082X, drjcgopi@gmail.com

[2]*All India Institute of Medical Sciences, Vijaypur, Jammu, India, ORCID: 0009-0007-1399-8219, drshvmshrm@outlook.com

[3]All India Institute of Medical Sciences, Vijaypur, Jammu, India, ORCID: 0009-0000-3472-4670, shouunaknandy@gmail.com

[4]All India Institute of Medical Sciences, Vijaypur, Jammu, India, ORCID: 0009-0009-3523-8290, rishnareddymunge@gmail.com

[5]All India Institute of Medical Sciences, Vijaypur, Jammu, India, ORCID: 0009-0003-8246-4270, kamaljot.singh6684@gmail.com

[6]All India Institute of Medical Sciences, Vijaypur, Jammu, India, ORCID: 0000-0002-1584-8907, nitesh.med04@gmail.com

[7]All India Institute of Medical Sciences, Vijaypur, Jammu, India, ORCID: 0000-0001-5290-6312, prateekbobhate@gmail.com

Corresponding author: **Shivam Sharma***

DOI: 10.63001/tbs.2025.v20.i03.S.I(3).pp582-584

KEYWORDS
Anemia Mukt Bharat, Iron Deficiency Anemia, India, Jammu & Kashmir, Adolescents, Maternal Health, Program Evaluation, South Asia, Policy

Received on:

28-06-2025

Accepted on:

22-07-2025

Published on:

26-08-2025

ABSTRACT

Anemia and iron deficiency anemia (IDA) remain pervasive in India and South Asia, impacting women, adolescents, and young children and undermining health and economic growth. The Anemia Mukt Bharat (AMB) initiative, under India's POSHAN Abhiyaan, targets substantial reductions by 2025.

Objectives:

To analyze five-year national and state trends in anemia and IDA coverage indicators, with an in-depth focus on Jammu & Kashmir, and benchmark progress against peer regions.

Methods:

We synthesized national scorecard data, NFHS surveys, implementation studies, and regional meta-analyses from 2020–2025. Coverage, compliance, and program innovation were evaluated across populations and regions, including comparative analysis with Pakistan and Sub-Saharan Africa.

Results:

India achieved strong coverage gains for pregnant women (95% IFA supplementation) and improvements among adolescents and lactating mothers. Jammu & Kashmir demonstrated striking convergence with the national average post-2021, benefitting from localized intervention. Notable gaps persist in young children (6–59 months) and adolescent girls, exacerbated by compliance, behavioral, and structural challenges. Rajasthan's "Shakti Divas" proved high impact for adolescent supplementation but flagged sustainability issues. In comparison, Pakistan and Sub-Saharan Africa retain high prevalence, underscoring regional barriers.

INTRODUCTION

Anemia is a leading cause of maternal and child morbidity worldwide, with India shouldering a disproportionate share of the burden [1][2][3]. Although the Anemia Mukt Bharat program has generated momentum toward its 2025 targets, multiple national surveys highlight that adolescent girls, children, and disadvantaged populations remain vulnerable [2][4][5]. Peer regions—including Pakistan and many African countries—face similar challenges, shaped by overlapping determinants like poverty, gender inequity, education and dietary insufficiency [3][6]. This manuscript synthesizes current trends, program outcomes, and cross-country lessons to provide a comprehensive public health analysis.

2. Materials and Methods

2.1 Data Sources

- National/state AMB Scorecards (2020–2025) [1]
- HMIS coverage reports
- NFHS-4 and NFHS-5[2][4]
- Published compliance and implementation studies [7][5][6]
- Regional meta-analyses for Pakistan/Africa [3][6]
- District and aspirational district analyses

2.2 Indicators

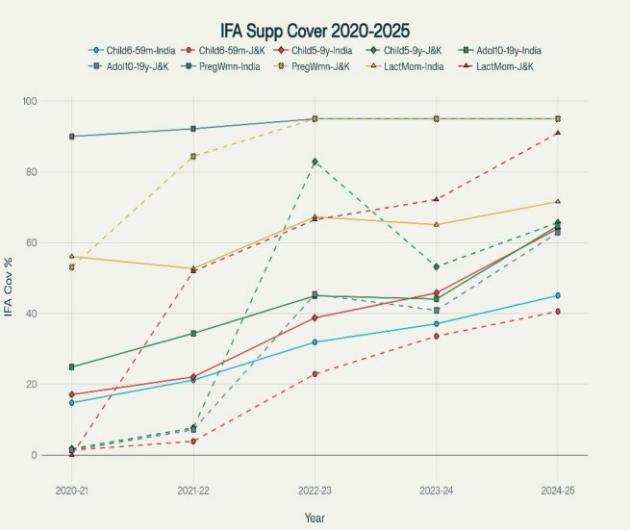
IFA supplementation—Children (6–59 months), Children (5–9 years), Adolescents (10–19), Pregnant and lactating women
- AMB Composite Index (average of 5 indicators)

2.3 Analysis

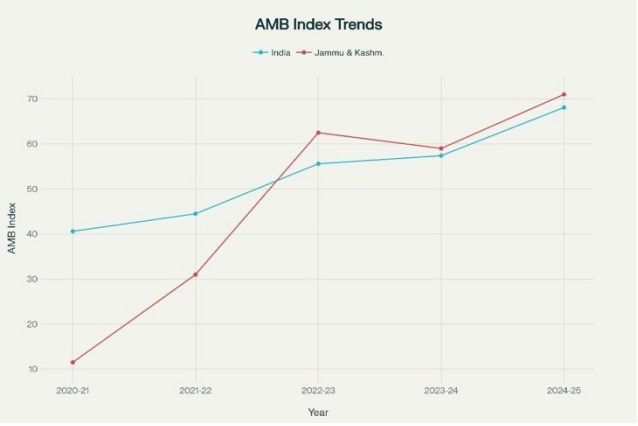
Descriptive and comparative trend analysis by group, year, and geography (2020–21 vs 2024–25). Comparative benchmarks from South Asia/Africa meta-analyses.

3. Results

IFA Supplementation coverage from 2020-2025



AMB Index trend comparison between India and J&K from 2020-25



3.1 India-wide Trends and State Performance

Indicator	2020-21	2024-25
Children (6–59 months)	14.8%	45.1%
Children (5–9 years)	17.1%	64.0%
Adolescents (10–19)	24.9%	64.8%
Pregnant women	>90%	95.0%
Lactating mothers	56.1%	71.6%
AMB Index	40.6	68.1

- Pregnant women showed the highest and most consistent coverage (95% by 2024–25).
- Best performing states: Andhra Pradesh (92.7), Madhya Pradesh (91.0), and successful UTs like Ladakh.
- Lowest coverage: Arunachal Pradesh (34.8), Kerala (40.3).
- Gains in children and adolescents are solid but lag behind women.

3.2 Jammu & Kashmir: Case Study

Indicator	2020-21	2024-25
Children (6–59 months)	1.4%	40.6%
Children (5–9 years)	1.8%	65.7%
Adolescents (10–19)	1.4%	62.9%
Pregnant women	53.1%	95.0%
Lactating mothers	0.0%	91.0%
AMB Index	11.5	71.0

s

J&K made a rapid turnaround post-2021, with dramatic gains in vulnerable groups and convergence on the national mean.

3.3 Compliance, Implementation, and District Innovations

Ballabgarh, North India: 77.1% IFA compliance (pregnant women); forgetfulness and side-effects are major barriers [4].
- Rajasthan "Shakti Divas": Adolescent coverage jumped from ~22% to ~89% through coordinated delivery, monitoring, and school-community engagement [7]. However, sustainability challenges (supply chain, resources, reporting) were reported.

3.4 Regional and International Context

**Pakistan: ** Latest meta-analyses show anemia prevalence 70.4% (pregnant women), 54.6% (adolescent/adult women); with rural and adolescent women at highest risk [6].
- **Sub-Saharan Africa: ** Average prevalence among women of reproductive age is 41.7% with core determinants including education, poverty, sanitation challenges [3].

Discussion

India's AMB program has propelled progress, particularly via robust supplementation coverage for pregnant women and a surge in adolescent and maternal outreach—validated in high-performing states and transitional regions like Jammu & Kashmir. The J&K case illustrates the catalytic effect of targeted resource allocation, local ownership, and intensified microplanning in narrowing historic gaps.

Nonetheless, the more limited advances for young children and non-pregnant adolescent females underscore persistent hurdles: program fatigue, motivational and cultural barriers, and adherence gaps—confirmed in compliance studies and state reports. Structural challenges—intermittent supply chains, insufficient integration into education and women's health systems—continue to impede population-wide gains, even as promising models like "Shakti Divas" demonstrate the potential of intersectoral convergence and data-driven microplanning. Key, however, is ensuring these pilots translate into sustainable, system-wide practice.

Case-control comparison with regional peers confirms that anemia rates remain stubborn where gender inequity, early marriage, dietary insufficiency, and poverty are entrenched. India's model, while more expansive in coverage, confronts the same underlying social determinants, which require multisectoral policies integrating nutrition, education, sanitation, and women's empowerment.

Future strategies must prioritize:
- Scale-up of adolescent- and child-focused programs, especially in marginalized/remote settings
- Strengthening cross-sectoral convergence (health, education, nutrition, sanitation)
- Improved behavioral interventions and compliance support
- Enhanced digital tracking, transparent reporting, and community accountability
- Continuous learning and scaling of local innovations with central-state partnership

CONCLUSION

India has made measurable strides against anemia under AMB, particularly for pregnant women, adolescents, and neglected regions like Jammu & Kashmir. Yet, wide gaps in children and adolescent girls, persistent behavioral and systemic barriers, and regional inequities caution against complacency.

Meeting and sustaining 2025 targets will require a life-course, equity-driven approach—integrating supply-side delivery with socio-behavioral support, powering community mobilization, and forging strong intersectoral linkages. The journey of Jammu & Kashmir and district models like "Shakti Divas" underscore that rapid progress is achievable with leadership, local ownership, and innovation.

India's evolving experience, benchmarked against global comparators, offers powerful lessons for anemia control worldwide: a blend of national vision, decentralized action, and evidence-based, adaptive policymaking remains vital for conquering persistent public health challenges.

India's recent trajectory marks key progress under AMB, but closing persistent gaps requires deeper integration of behavioral, social, and systemic strategies—especially for children and

adolescents. Lessons from district-level innovation and comparative analyses should guide future investments for an equitable, anemia-free India.

REFERENCES

- Ministry of Health and Family Welfare. Anemia Mukt Bharat Dashboard [Internet]. C2025 [cited 2025 Jul 31].
- Joshi NK, Bhardwaj P, Goel AD, et al. Assessment of the intensive phase 'Shakti Divas' initiative to combatting anemia in Rajasthan, India. PLoS One. 2025;20(3):e0319520.
- International Institute for Population Sciences (IIPS), ICF. National Family Health Survey (NFHS-5), 2019–21: India. Mumbai: IIPS; 2021.
- Deori TJ, Ramaswamy G, Jaiswal A, et al. Compliance with iron folic acid (IFA) tablets among pregnant women attending ANC clinic, Ballabgarh. J Family Med Prim Care. 2021;10(5):2006–11.
- Kapil U, Sareen N. The National Iron Plus Initiative: current status & future strategies. Indian J Med Res. 2014;139(4):531–33.
- Tirore LL, Areba AS, Habte A, et al. Prevalence and associated factors of severity levels of anemia among women of reproductive age in sub-Saharan Africa: a multilevel ordinal logistic regression analysis. Front Public Health. 2024;11:1349174.
- Let S, Tiwari S, Singh A, et al. Prevalence and determinants of anemia among women of reproductive age in Aspirational Districts of India: an analysis of NFHS 4 and NFHS 5 data. BMC Public Health. 2024;24:437.
- Mahar B, Shah T, Shaikh K, et al. Uncovering the hidden health burden: a systematic review and meta-analysis of iron deficiency anemia among adolescents, and pregnant women in Pakistan. J Health Popul Nutr. 2024;43:149.
- Baig-Ansari N, Badruddin SH, Karmaliani R, et al. Anemia prevalence and risk factors in pregnant women in an urban area of Pakistan. Food Nutr Bull. 2008;29(2):132–9.
- UNICEF India. Anemia Mukt Bharat – The Journey So Far. New Delhi: UNICEF; 2023.
- Ashraf F, Nafees Uddin MM, Mustafa MS, et al. Prevalence and factors influencing anemia in women of reproductive age visiting a tertiary care hospital in Karachi: a cross-sectional study. Women's Health. 2024;20:17455057241227364.

Citations:

[1] Anaemia Mukt Bharat https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1448&lid=797

[2] progress under the Anemia Mukt Bharat strategy 2017–20 … https://academic.oup.com/heapol/article/37/5/597/6539775

[3] India's Fight Against Anemia Nourish, Prevent, Protect https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2122623

[4] Press Release: Press Information Bureau https://www.pib.gov.in/PressReleseDetail.aspx?PRID=2122623

[5] Anaemia Mukt Bharat https://www.drishtiias.com/daily-news-analysis/anaemia-mukt-bharat

[6] Details of Anemia Mukt Bharat https://www.mohfw.gov.in/?q=en%2Fpressrelease-8

[7] Details of Anemia Mukt Bharat https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2042053