



The Alarming Reality Of Anaemia In Pregnancy

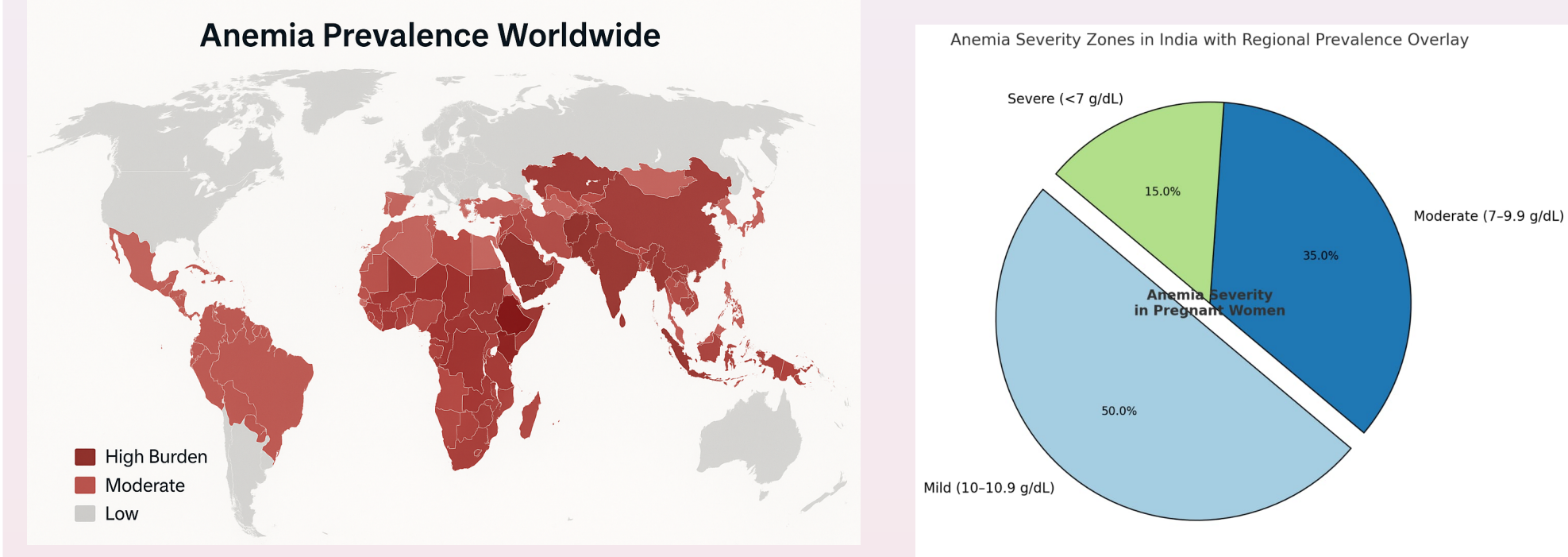
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INTRODUCTION

WHO defines anaemia in pregnancy as haemoglobin < 11 g/dl

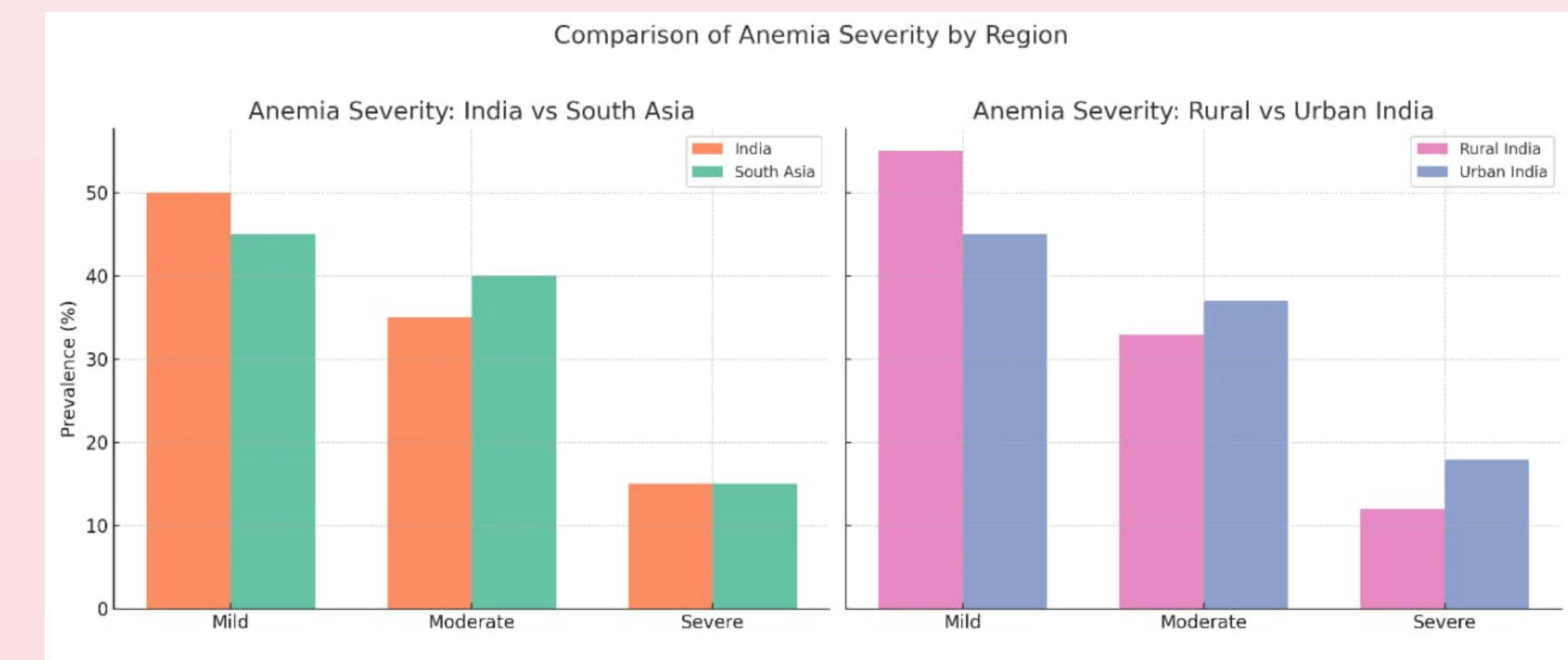
India contributes the highest burden globally, impacting maternal and child health.

OBJECTIVE: To investigate the prevalence, determinants, and consequences of anaemia in pregnancy among rural Indian women, with a focus on identifying the major risk factors and their impact on maternal and fetal outcomes.



EPIDEMIOLOGY

NFHS-5: 52.2% of pregnant women are anaemic. According to WHO classification: More than 40% population consist a severe public health problem. Rural, adolescent, and low income women are at highest risk.



STUDY DESIGN

This cross-sectional study employed a mixed-methods approach, combining quantitative and qualitative data collection and analysis methods.

METHOD AND MATERIAL

A total of 1,200 pregnant women were selected from rural areas of India using a multi-stage sampling technique. Data were collected through structured interviews, hemoglobin measurements, and focus group discussions. Quantitative data were analyzed using descriptive statistics, bivariate analysis, and multivariate logistic regression, while qualitative data were analyzed using thematic analysis.

WHY PREGNANT WOMEN AT INCREASED RISK OF ANAEMIA

INCREASED IRON REQUIREMENT IN PREGNANCY



Increased Iron Requirement

Pregnancy demands higher iron to support:



- Maternal red blood cell expansion
- Placental development
- Fetal growth and blood formation

Total iron need in pregnancy: ~ 1000 mg

- 300 mg** → fetus and placenta
- 500 mg** → increased maternal RBC mass
- 200 mg** → lost via excretion

Diet often cannot meet this demand, especially in low-resource settings.

Why Pregnant Women Are at Increased Risk of Anemia



Increased Iron Requirement

Pregnancy demands higher iron for maternal and fetal needs



Physiological Hemodilution

Expansion of plasma volume dilutes red blood cells



Dietary Deficiencies

Inadequate intake or absorption of iron, folate & vitamin B₁₂



Increased Risk of Blood Loss

Due to frequent vomiting, closely spaced births



Parasitic and Infectious Diseases

Increased burden of malaria, hookworm & chronic infections



Low Socioeconomic & Educational Status

Poor nutrition, early marriage, lack of access to supplements

RESULTS

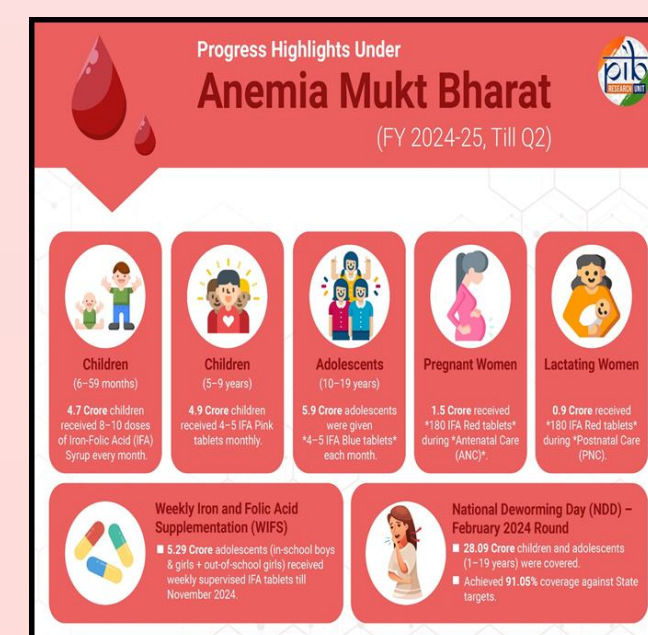
The prevalence of anaemia in pregnancy was found to be 83.2% (95% CI: 80.5-85.9), with 58.1% of women having moderate to severe anaemia (Hb < 9 g/dl). The major determinants of anaemia included low socioeconomic status, inadequate dietary habits, and lack of iron-folic acid supplementation

CONSEQUENCES OF MATERNAL ANAEMIA

Consequences of Anemia in Pregnancy – Summary Table				
Outcome	Description	Prevalence/Rate	Severity Level	Source
Preterm Labor	Delivery before 37 weeks of gestation	26,2% – 38%	Moderate to Severe Anemia	Nimbalkar et al., 2023, Gopinath et al., 2018
Preeclampsia	Pregnancy-induced high blood pressure	10,3% – 19,5%	Moderate to Severe Anemia	Gopinath et al., 2018
Postpartum Hemorrhage (PPH)	Excessive bleeding after delivery	8,1% – 8,3%	Severe Anemia	Gopinath et al., 2018
Intrauterine Growth Restriction (IUGR)	Poor fetal growth due to inadequate oxygen	9,8%	Severe Anemia	Gopinath et al., 2018
Stillbirth/IUFD	Fetal death in utero	3,9%	Severe Anemia	Gopinath et al., 2018
Neonatal Death (NND)	Infant death within 28 days of birth	0,48% – 1,69%	Moderate to Severe Anemia	Gopinath et al., 2018
NICU Admission	Newborns requiring intensive care	1,66% (mild) – 8,07% (severe)	All levels	Gopinath et al., 2018
Low Birth Weight (LBW)	Birth weight < 2,5 kg	13,7% (severe anemia cases)	Severe Anemia	Gopinath et al., 2018
Maternal Mortality	Death of mother due to complications of pregnancy or childbirth	0,6%	Severe Anemia	Nimbalkar et al., 2023, Gopinath et al., 2018

EXISTING INTERVENTIONS

Intervention	Details	Sources
Anemia Mukh Bharat (AMBI)	National program to reduce anemia by 2% per year using default strategy	NHM, Ministry
IFA Supplementation - Distribution	60-13 per 100 ANC-regimented women received full course (2018-21)	Frontiers in Nutrition (2022)
IFA Supplementation - Adherence (100 days)	Only 25.2% adhered to 100-day supplementation	Scandinavian Journal of Public Health (2022)
Calcium Supplementation - Distribution	95.5% per 100 ANC-regimented women received full course (2018-21)	Frontiers in Nutrition (2022)
Effective IFA Coverage	Less than 50% effective across all states	NHM (2022)



CONCLUSION

This study highlights the need for targeted interventions to address anemia in pregnancy, particularly in rural India. The findings suggest that improving access to iron-folic acid supplementation, promoting dietary counseling, and addressing social and cultural barriers can significantly reduce the prevalence of anemia and improve maternal and fetal outcomes.

RECOMMENDATIONS FOR STRENGTHENING RESPONSE

Nutrition

Promote iron-rich diets: leafy greens, pulses, fortified foods

Encourage vitamin C for better absorption



Supplementation

Ensure regular IFA supply and compliance

Use double doses for severe cases

Food fortification: Iron-fortified salt/flour



Infection Control

Deworming (albendazole)

Malaria prophylaxis in endemic zones



Health System Strengthening

Equip frontline workers (ASHAs, ANMs)

Point-of-care Hb testing in ANC

Monitor with Mother & Child Protection Cards



Behaviour Change

Educate mothers on:

Importance of IFA

Food taboos & misconceptions

Community outreach via ASHAs

Additional Interventions for Rural Pregnant Women



Mobile Health Units & Outreach Camps

Regular mobile ANC clinics
Immediate testing and IFA distribution



Engaging Local Women's Groups (SHGs)

Spread awareness
Peer-led compliance campaigns



Involving Local Schools & Teachers

Nutrition education in village schools



Nutrition Kits

IFA, deworming medicine, fortified cereals
instructional leaflets



Community Kitchens

'Iron-rich meal days' at Anganwadi centers



Local Food Fortification Initiatives

Fortified wheat/rice and double-fortified salt



Strengthening ASHA/ ANM Engagement

Incentives for 100% IFA compliance



Addressing Cultural Beliefs

Dialogues on food taboos and misconceptions

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