

CLINICAL EVALUATION OF SOMATIC MANIFESTATIONS, DIETARY PATTERNS, AND THERAPEUTIC GAPS IN ADOLESCENT SYMPTOMATIC ANAEMIA: A CROSS-SECTIONAL SURVEY

^{*1}Dr. Shreya Sujay Deshmukh, ²Dr. Sunil S. Banne

¹MD Scholar Dept. of HMM, ²PG Guide, Dept. of HMM)

Dr. J. J. Magdum Homoeopathic Medical college and Hospital, Jaysingpur-416101.

Article Received: 19 June 2026, Article Revised: 09 July 2026, Published on: 29 July 2026

*Corresponding Author: Dr. Shreya Sujay Deshmukh

MD Scholar Dept. of HMM, Dr. J. J. Magdum Homoeopathic Medical college and Hospital, Jaysingpur-416101.

Doi: <https://doi-doi.org/101555/ijarp.6897>

ABSTRACT

Background: Iron Deficiency Anaemia (IDA) remains a significant public health challenge in adolescent development, frequently manifesting in complex somatic and functional impairments.

Objective: To evaluate self-reported clinical symptoms, dietary behaviors, and active therapeutic gaps in adolescents aged 10–19 years.

Materials and Methods: A descriptive cross-sectional study was conducted using a structured digital questionnaire administered in the regional language (Marathi) via Google Forms using a voluntary convenience sample (N=67). Descriptive statistics summarized parameters across demographic, clinical, and lifestyle domains.

Results: Despite 89.6% (n=60) reporting regular intake of iron-rich foods, systemic symptoms consistent with IDA were highly prevalent: 50.7% (n=34) suffered academic or physical decline due to fatigue, 47.8% (n=32) experienced immediate exertional breathlessness, and 31.3% (n=21) exhibited pica behavior. Notably, 83.6% (n=56) received no active oral therapeutic supplementation.

Conclusion: Relying solely on self-reported dietary intake is insufficient to prevent functional decline, pointing to dietary absorption barriers and a profound therapeutic gap. There is an urgent need for targeted institutional screening and individualized homeopathic intervention to support systemic assimilation alongside dietary education.

KEYWORDS: Adolescent Anaemia, Iron Deficiency, Homeopathy, Assimilation, Dietary Paradox, Pica.

INTRODUCTION

Adolescence (10–19 years) represents a critical developmental window marked by rapid growth, physiological changes, and heightened nutritional demand. Anaemia develops when the body lacks sufficient healthy red blood cells or functional hemoglobin to meet physiological oxygen transport demands. Worldwide, iron deficiency is the leading cause of anaemia [1]. In India, adolescent anaemia remains a major driver of chronic tissue hypoxia, leading to widespread somatic symptoms and diminished functional capacity [2].

National epidemiological surveys highlight the magnitude of this issue. Data from the National Family Health Survey-3 (NFHS-3) indicated an anaemia prevalence of 56% among adolescent girls (15–19 years) and 30% among adolescent boys [3]. The National Nutrition Monitoring Bureau Survey (NNMBS, 2006) reported prevalence rates reaching 68.67% in adolescents aged 12–14 years and 69.7% in those aged 15–17 years [3]. Furthermore, the Comprehensive National Nutrition Survey (CNNS, 2016–2018) documented anaemia in 40% of adolescent girls and 18% of adolescent boys, affecting approximately 72 million adolescents nationwide, with low serum ferritin ($<15 \mu\text{g/L}$) identified as the strongest individual predictor [4].

While public health policies predominantly focus on quantitative dietary recommendations and distribution programs, high rates of functional deterioration persist across communities. From a classical homeopathic and integrative perspective, nutritional deficiencies are frequently not merely a consequence of inadequate intake, but rather a qualitative failure of systemic absorption and constitutional assimilation. This cross-sectional survey investigates the intersection between self-reported dietary habits, somatic symptoms, and active therapeutic deficits within an adolescent cohort.

MATERIALS AND METHODS

Study Design and Population

A descriptive, cross-sectional, questionnaire-based survey was conducted among adolescents aged 10–19 years. A voluntary convenience sample of 67 participants ($N=67$) was recruited.

Data Collection Tool

Data were collected via a structured online questionnaire deployed through Google Forms. The survey instrument was translated into the regional language (Marathi) to ensure linguistic accuracy and optimal participant comprehension. The questionnaire gathered data across four primary domains:

- Baseline Demographics and Anthropometrics: Age, gender, self-reported height, and

weight.

- Physiological and Functional Symptoms: Exercise-induced dyspnea, lower-limb muscle cramping, fatigue, headaches, and vertigo.
- Objective Physical and Gastrointestinal Signs: Observed skin pallor, peripheral coldness, pica behavior, and gastrointestinal irregularities.
- Dietary Habits and Therapeutic History: Diet type (vegetarian vs. non-vegetarian/mixed), frequency of iron-rich food consumption, and current use of oral iron or multivitamin supplements.

Statistical Analysis

Survey responses were extracted, verified, and compiled. Categorical variables and percentage distributions were converted into absolute counts (n) and evaluated using descriptive statistics.

Ethics and Participant Privacy

Digital informed consent was obtained from all voluntary participants (or parent/guardian where applicable) prior to questionnaire entry. Participant anonymity was strictly maintained, and no personally identifiable information (PII) was recorded.

RESULTS

Demographic and Anthropometric Profile

The study cohort (N=67) was predominantly female, accounting for 79.1% (n=53), while male participants constituted 20.9% (n=14). Late adolescence formed the majority of the sample, with 19-year-olds representing 61.2% (n=41) and 18-year-olds representing 23.9% (n=16).

Adolescents aged 17 years comprised 7.5% (n=5), while ages 11, 13, 14, 15, and 16 years each accounted for 1.5% (n=1).

Anthropometric weight distributions demonstrated peaks at 40 kg (11.9%, n=8) and 45 kg (10.4%, n=7). Reported height peaked at 150 cm (16.4%, n=11) and 160 cm (10.4%, n=7).

Clinical Presentation and Somatic Manifestations

Self-reported physiological symptoms indicating functional strain were widespread across the cohort:

- Exertional Breathlessness: 47.8% (n=32) experienced immediate shortness of breath during routine physical exertion.

- Lower Limb Muscle Cramps: 43.3% (n=29) reported muscle cramping while climbing stairs.
- Persistent Fatigue: 38.8% (n=26) experienced profound exhaustion that persisted despite resting.
- Headaches and Vertigo: 34.3% (n=23) suffered from frequent episodes of dizziness or headaches.

Physical Signs and Gastrointestinal Manifestations

- Skin Pallor: Visible pale or whitish skin discoloration was noted by 17.9% (n=12) of respondents.
- Peripheral Temperature: 34.3% (n=23) reported chronically cold extremities (hands and feet).
- Pica Behavior: Abnormal cravings for non-nutritive substances (such as soil, pencils, chalk, or starch) were confirmed by 31.3% (n=21) of participants.
- Gastrointestinal Irregularities: Recurrent stomach pain, nausea, or constipation affected 49.3% (n=33) of the cohort. Sudden weight loss or appetite suppression was reported by 22.4% (n=15).

Dietary Patterns, Supplementation, and Functional Impact

- A mixed diet was followed by 71.6% (n=48) of the cohort, while 28.4% (n=19) adhered strictly to a vegetarian diet. Regular intake of dietary iron sources (e.g., green leafy vegetables, lentils, beans, meat, or fortified foods) was reported by 89.6% (n=60) of participants.

Despite high reported dietary intake, active therapeutic oral supplementation (iron, folic acid, or multivitamins) was dangerously low at 16.4% (n=11), leaving 83.6% (n=56) without supplementation. Sedentary habits were prevalent: 61.2% (n=41) exercised "rarely," and 13.4% (n=9) "never" engaged in physical exercise. Crucially, 50.7% (n=34) documented a decline in academic or physical performance attributed to ongoing fatigue.

DISCUSSION

The primary insight derived from this study is a clinical paradox: high self-reported consumption of iron-rich foods (89.6%) alongside a high burden of somatic symptoms characteristic of functional iron deficiency anaemia. Symptoms such as vertigo (34.3%), peripheral coldness (34.3%), and pica (31.3%) suggest that intake alone does not guarantee

systemic sufficiency.

This mismatch highlights potential dietary and biological absorption barriers within the adolescent population. For the 28.4% of participants who adhere strictly to a vegetarian diet, dietary iron is restricted to non-heme iron sources, which carry significantly lower biological bioavailability than heme iron. Furthermore, regional dietary habits in India often include regular co-ingestion of dietary inhibitors—such as phytates in whole grains and tannins in tea—which chemically bind non-heme iron and inhibit gastrointestinal absorption.

The systemic physiological toll is reflected in functional impairment, with 50.7% of participants reporting compromised academic or physical output due to exhaustion. This chronic fatigue may reinforce a sedentary cycle, as reflected by the high proportion of adolescents exercising rarely (61.2%) or experiencing exertional dyspnea (47.8%).

Despite these manifestations, a critical therapeutic gap exists: 83.6% of respondents receive no oral therapeutic supplementation. From a classical homeopathic perspective, nutritional management should address both quantitative intake and systemic assimilation. Rather than viewing anaemia solely as a chemical deficiency, homeopathic philosophy posits that individual susceptibility and altered gastrointestinal function impair nutrient utilization. Constitutional remedies—such as *Ferrum metallicum*, *Calcarea phosphorica*, *Natrum muriaticum*, *Phosphorus*, or *Aletris farinosa*—are traditionally indicated to improve host responsiveness, support gastrointestinal function, and relieve somatic distress [5, 6, 7]. Further clinical trials are warranted to systematically measure how constitutional treatment affects biological parameters like serum ferritin and total iron-binding capacity.

STUDY LIMITATIONS

This study relies on a voluntary digital convenience sample (N=67), which introduces selection bias and limits generalizability across broader socio-economic demographics. Additionally, clinical manifestations and dietary habits were self-reported rather than validated by objective laboratory measurements (such as hemoglobin or serum ferritin assays). Future research should pair survey-based clinical profiles with biochemical evaluations in larger, randomized adolescent cohorts.

CONCLUSION

Passive dietary awareness alone is insufficient to protect adolescent iron health, as demonstrated by the high prevalence of functional decline (50.7%) despite high reported iron-rich food consumption. The low rate of therapeutic supplementation (16.4%) reveals a

major care gap.

Public health strategies should combine community-level iron bioavailability education and routine institutional screening with individualized holistic treatments to improve absorption and support healthy adolescent development.

REFERENCES

1. Dwivedi AK. Anaemia in females: its causes, prevention, treatment and management with homoeopathic remedies. Indian J Res. 2019;8(6):50.
2. World Health Organization. Nutritional Anaemias: Tools for Effective Prevention and Control. Geneva: World Health Organization; 2017.
3. Ministry of Health and Family Welfare, Government of India. Guidelines for Control of Iron Deficiency Anaemia: National Iron+ Initiative. New Delhi: Adolescent Division, Ministry of Health and Family Welfare; 2013. Available from: <https://www.nhm.gov.in/images/pdf/programmes/child-health/guidelines/Control-of-Iron-Deficiency-Anaemia.pdf>
4. Scott S, et al. Anaemia in Indians aged 10–19 years: prevalence, burden and associated factors at national and regional levels. Comprehensive National Nutrition Survey (CNNS) Analytic Report. 2023.
5. Allen HC. Allen's Keynotes Rearranged and Classified with Leading Remedies of the Materia Medica and Bowel Nosodes. 10th ed. New Delhi: B. Jain Publishers (P) Ltd; 2005.
6. Boericke W. Pocket Manual of Homoeopathic Materia Medica with Indian Medicine and Repertory. 9th rev ed. New Delhi: Integrated Book Promotion and Publication; 2017.
7. Phatak SR. Materia Medica of Homoeopathic Medicines. Reprint ed. Delhi: B. Jain Publishers (P) Ltd; 2010.