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Original Article

Prevalence and Determinants of Anemia among Children Attending a Paediatric Outpatient Department: A Cross-Sectional Study.

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Abstract

Background:
Childhood anemia remains a frequent nutritional and public health problem, particularly in children from socioeconomically vulnerable backgrounds.

Objectives:
To estimate the prevalence of anemia and assess selected demographic, socioeconomic, dietary, nutritional, and clinical determinants among children attending a paediatric outpatient department.

Methods:
This observational cross-sectional study included 100 children attending the paediatric outpatient department of Narayana Medical College, Nellore, Andhra Pradesh, India, from August 2025 to January 2026. Demographic, socioeconomic, maternal, dietary, nutritional, worm infestation, and hemoglobin data were recorded. Associations between anemia status and determinants were analysed using Pearson's chi-square test.

Results:
The mean age was 6.8 ± 3.4 years; 54.0% were males. The overall prevalence of anemia was 58.0%; mild, moderate, and severe anemia were observed in 24.0%, 28.0%, and 6.0% of children, respectively. Significant bivariate associations were observed with age group (χ^2=8.80, p=0.032), socioeconomic status (χ^2=11.04, p=0.004), maternal education (χ^2=10.23, p=0.006), dietary pattern (χ^2=6.82, p=0.009), inadequate green leafy vegetable intake (χ^2=9.55, p=0.002), inadequate iron-rich food intake (χ^2=13.74, p<0.001), undernutrition (χ^2=14.35, p<0.001), and worm infestation (χ^2=8.81, p=0.003). Gender and residence were not significantly associated.

Conclusion:
Anemia was common, with moderate anemia forming the largest severity group. Socioeconomic vulnerability, poor dietary intake, undernutrition, and worm infestation were important associated determinants.

Recommendations:
Routine anemia screening, dietary counselling, caregiver nutrition education, growth monitoring, iron supplementation where indicated, and periodic deworming should be strengthened in paediatric outpatient services.

Keywords: *Anemia; Children; Determinants; Hemoglobin; Iron deficiency; Nutritional status; Paediatric outpatient department; Worm infestation.*
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Introduction
Anemia in childhood is a common haematological condition characterized by reduced hemoglobin concentration, leading to impaired oxygen-carrying capacity and diminished tissue oxygen delivery. In paediatric practice, anemia is not only a laboratory diagnosis but also a marker of underlying nutritional, infectious, inflammatory, and socioeconomic disadvantage. Iron deficiency remains the leading contributor in children, although folate, vitamin B12 deficiency, chronic infection, hemoglobinopathies, and inflammatory states also contribute to the burden [1-3]. The clinical expression varies from asymptomatic mild anemia

to fatigue, poor appetite, recurrent illness, developmental delay, reduced attention span, and poor scholastic performance, particularly when anemia is prolonged or severe [3].

India continues to carry a substantial burden of childhood anemia. Nationally representative studies have shown that anemia affects a large proportion of preschool and school-age children, with the burden distributed unevenly across regions, age groups, wealth categories, and maternal characteristics [4-7]. Hospital outpatient departments provide a practical point for early detection because children present for common complaints, immunization-related review, growth concerns, respiratory and gastrointestinal symptoms, and nutritional counselling. Such settings allow clinicians to identify anemia before complications occur and to link children with dietary correction, deworming, iron therapy, and follow-up care.

The determinants of childhood anemia are multidimensional. Inadequate dietary iron intake, poor consumption of green leafy vegetables and animal-source foods, food insecurity, low family wealth, lower maternal education, and undernutrition influence hemoglobin status through restricted nutrient intake and reduced dietary diversity [4,6,8]. Parasitic infestations, especially soil-transmitted helminths and intestinal parasites, further aggravate anemia through chronic blood loss, malabsorption, inflammation, and appetite suppression [11,13]. Recent Indian evidence also emphasizes that anemia cannot be understood through hemoglobin alone; micronutrient status, age-specific hemoglobin thresholds, and nutritional context need careful interpretation [10].

The present study was undertaken to assess the prevalence and determinants of anemia among children attending the paediatric outpatient department of Narayana Medical College, Nellore, Andhra Pradesh, India. The objectives were to estimate the overall prevalence and severity pattern of anemia among children, to describe the demographic and socioeconomic profile of the study population, and to evaluate the association of anemia with age, gender, residence, socioeconomic status, maternal education, dietary pattern, intake of green leafy vegetables and iron-rich foods, nutritional status, and history of worm infestation.

Methodology

Study design and setting

This observational cross-sectional study was conducted in the paediatric outpatient department of Narayana Medical College, Nellore, Andhra Pradesh, India, over a six-month period from August 2025 to January 2026. Narayana Medical College is a tertiary-care teaching institution attached to Narayana Medical College Hospital and offers undergraduate and postgraduate medical training, clinical departments, pre- and para-clinical departments, super-speciality services, emergency care, outpatient and inpatient care, diagnostic laboratory support, imaging services, and research facilities. The paediatric outpatient department provides routine child health consultation, assessment of acute childhood illnesses, growth and nutrition assessment, immunization-related review, referral for inpatient or intensive care where required, and counselling for caregivers from Nellore and surrounding semi-urban and rural areas. The study was planned to estimate the prevalence of anemia and evaluate selected determinants relevant to routine paediatric outpatient practice.

Study population and sampling

The study population consisted of children attending the outpatient department for routine clinical consultation and general paediatric complaints during the study period. A total of 100 children were included using a convenient consecutive sampling approach until the required sample size was achieved. Children within the paediatric age group whose parents or guardians provided consent were included.

Eligibility criteria and data collection

Children who required emergency stabilization, those with known chronic hematological disorders, previously diagnosed hemoglobinopathies, chronic kidney disease, malignancy, recent blood transfusion, or current treatment with therapeutic iron for anemia were excluded to reduce misclassification. The study variables were recorded using a structured proforma. Details included age, gender, place of residence, socioeconomic status, maternal education, dietary pattern, frequency of green leafy vegetable intake, intake of iron-rich foods, nutritional status, and history suggestive of recent worm infestation.

Operational variables

Age was grouped as <1 year, 1-5 years, 6-10 years, and 11-14 years. Socioeconomic status was categorized as lower, middle, and upper based on family background as reported during clinical assessment. Maternal education was classified as illiterate/primary, secondary, and graduate or above. Dietary pattern was categorized as a vegetarian or mixed diet. Intake of green leafy vegetables and iron-rich foods was classified as adequate or inadequate based on caregiver history. Nutritional status was classified clinically as undernourished or normal nutritional status using age-appropriate growth assessment in the outpatient setting.

Bias

Potential selection bias was addressed by enrolling eligible children consecutively during the study period until the required sample size was achieved. Information bias was minimized by using a structured proforma and uniform caregiver interview. Measurement bias was reduced by applying age-appropriate hemoglobin thresholds and accepted severity grading recommendations. Misclassification was limited by excluding children with known hematological disorders, hemoglobinopathies, recent

transfusion, chronic kidney disease, malignancy, or current therapeutic iron treatment. Recall bias for dietary intake and worm infestation was minimized by asking simple, recent, caregiver-reported questions, and data entry was cross-checked before analysis.

Hemoglobin assessment and statistical analysis

Hemoglobin level was measured as part of the clinical assessment. Anemia was considered present when hemoglobin was below the age-appropriate diagnostic threshold, and severity was classified as mild, moderate, or severe using accepted paediatric anemia grading recommendations [3,9]. The collected data were entered into a spreadsheet and analysed using descriptive statistics. Frequencies and percentages were used for categorical variables, while mean and standard deviation were used for continuous variables. Bivariate associations between anemia status and each determinant were assessed using Pearson's chi-square test. Fisher's exact test was not used in the final association tables, as the reported bivariate analyses were presented using chi-square statistics. A p-value <0.05 was considered statistically significant.

Ethical considerations

Approval was obtained from the Ethics Committee, Narayana Medical College Hospital, Nellore, Andhra Pradesh, India, before initiation of the study. The study was conducted according to institutional ethical principles for observational clinical research. Written informed consent was obtained from parents or guardians before enrolment. Confidentiality of all children was maintained during data collection and analysis. No personal identifiers were included in the manuscript. Participation did not alter the standard clinical care of any child. Children detected with anemia or nutritional risk were advised appropriate clinical evaluation, dietary measures, supplementation, deworming where indicated, and follow-up according to paediatric outpatient practice.

Results

A total of 100 children attending the paediatric outpatient department were included in the study. The mean age of the study population was 6.8 ± 3.4 years. Most children belonged to the 1-5 years age group, followed by the 6-10 years age group. Males constituted 54.0% of the study population, while females accounted for 46.0%. The majority of children were from rural areas and belonged to lower or middle socioeconomic status. The baseline demographic profile is presented in Table 1.

Table 1. Baseline demographic profile of the study population

Variable	Category	Frequency (n=100)	Percentage (%)
Age group	<1 year	8	8.0
	1-5 years	38	38.0
	6-10 years	34	34.0
	11-14 years	20	20.0
Gender	Male	54	54.0
	Female	46	46.0
Residence	Rural	62	62.0
	Urban	38	38.0
Socioeconomic status	Lower	42	42.0
	Middle	44	44.0
	Upper	14	14.0
Maternal education	Illiterate/primary	40	40.0
	Secondary	42	42.0
	Graduate and above	18	18.0

The overall prevalence of anemia among children was 58.0%. Mild anemia was observed in 24.0% of children, moderate anemia in 28.0%, and severe anemia in 6.0%. The mean hemoglobin level among the study population was 10.7 ± 1.8 g/dL. Among anemic children, moderate anemia was the most frequent category. The prevalence and severity pattern are shown in Table 2.

Table 2. Prevalence and severity pattern of anemia

Parameter	Category	Frequency (n=100)	Percentage (%)
Anemia status	Present	58	58.0
	Absent	42	42.0
Severity of anemia	No anemia	42	42.0
	Mild anemia	24	24.0
	Moderate anemia	28	28.0
	Severe anemia	6	6.0

Anemia was more common among children aged 1-5 years, females, rural residents, and children from lower socioeconomic status. Pearson chi-square analysis showed statistically significant associations between anemia and age group (χ^2=8.80, p=0.032), socioeconomic status (χ^2=11.04, p=0.004), and maternal education (χ^2=10.23, p=0.006). Gender (χ^2=0.88, p=0.348) and residence (χ^2=1.60, p=0.206) showed higher anemia proportions in females and rural children, respectively, but the associations were not statistically significant. The association of anemia with demographic and clinical determinants is shown in Table 3.

Table 3. Association of anemia with demographic and clinical determinants

Determinant	Category	Anemia present n (%)	Anemia absent n (%)	χ^2 value; p-value
Age group	<1 year	5 (62.5)	3 (37.5)	χ^2=8.80; p=0.032
	1-5 years	28 (73.7)	10 (26.3)	
	6-10 years	17 (50.0)	17 (50.0)	
	11-14 years	8 (40.0)	12 (60.0)	
Gender	Male	29 (53.7)	25 (46.3)	χ^2=0.88; p=0.348
	Female	29 (63.0)	17 (37.0)	
Residence	Rural	39 (62.9)	23 (37.1)	χ^2=1.60; p=0.206
	Urban	19 (50.0)	19 (50.0)	
Socioeconomic status	Lower	32 (76.2)	10 (23.8)	χ^2=11.04; p=0.004
	Middle	22 (50.0)	22 (50.0)	
	Upper	4 (28.6)	10 (71.4)	
Maternal education	Illiterate/primary	30 (75.0)	10 (25.0)	χ^2=10.23; p=0.006
	Secondary	22 (52.4)	20 (47.6)	
	Graduate and above	6 (33.3)	12 (66.7)	

Dietary and nutritional factors showed a clear relationship with anemia. Pearson chi-square analysis showed significant associations of anemia with dietary pattern (χ^2=6.82, p=0.009), inadequate intake of green leafy vegetables (χ^2=9.55, p=0.002), inadequate intake of iron-rich foods (χ^2=13.74, p<0.001), undernutrition (χ^2=14.35, p<0.001), and history of worm infestation (χ^2=8.81, p=0.003). These findings are summarized in Table 4.

Table 4. Association of anemia with dietary and nutritional determinants

Determinant	Category	Anemia present n (%)	Anemia absent n (%)	χ^2 value; p-value
Dietary pattern	Vegetarian	34 (70.8)	14 (29.2)	χ^2=6.82; p=0.009
	Mixed diet	24 (46.2)	28 (53.8)	
Intake of green leafy vegetables	Inadequate	38 (73.1)	14 (26.9)	χ^2=9.55; p=0.002
	Adequate	20 (41.7)	28 (58.3)	
Iron-rich food intake	Inadequate	41 (74.5)	14 (25.5)	χ^2=13.74; p<0.001
	Adequate	17 (37.8)	28 (62.2)	
Nutritional status	Undernourished	36 (78.3)	10 (21.7)	χ^2=14.35; p<0.001
	Normal nutritional status	22 (40.7)	32 (59.3)	
History of worm infestation	Present	24 (80.0)	6 (20.0)	χ^2=8.81; p=0.003
	Absent	34 (48.6)	36 (51.4)	

On determinant analysis, lower socioeconomic status, low maternal education, inadequate dietary iron intake, undernutrition, and a history of worm infestation were important factors associated with anemia among children attending the paediatric outpatient department. The highest anemia burden was observed among undernourished children, children with inadequate iron-rich food intake, and those with a history of worm infestation, indicating the combined role of nutritional deficiency, infection-related risk, and socioeconomic vulnerability in childhood anemia.

Discussion

The present study found that anemia affected 58.0% of children attending the paediatric outpatient department. This indicates a considerable burden in a hospital-based outpatient population and is supported by Indian reports showing a high prevalence of anemia among preschool and school-age children [4-7]. Evidence from national nutrition surveys also shows that micronutrient deficiency-related anemia remains a major paediatric concern in India [7,8,10]. Moderate anemia was the most frequent category in the present study, followed by mild anemia. This pattern is clinically relevant because moderate anemia is often missed when symptoms are nonspecific, yet the Indian Academy of Pediatrics recommends severity-based evaluation, nutritional correction, supplementation, and follow-up to prevent functional impairment [3].

Age showed an important relationship with anemia, with the highest prevalence observed among children aged 1-5 years. This finding is biologically plausible because early childhood is a period of rapid growth, expanding blood volume, increased iron requirement, transition from milk-based feeding, and frequent infections. Similar evidence from rural India and national datasets has shown that younger children are particularly vulnerable to anemia and iron deficiency due to increased requirements, inadequate dietary intake, and infection-related nutritional stress [4,5,8]. In the present study, females and rural children had higher anemia proportions than males and urban children, although these associations were not statistically significant. These trends still deserve attention because rural residence often overlaps with limited dietary diversity, sanitation gaps, and delayed health-seeking [6,7].

Socioeconomic status and maternal education were significantly associated with anemia. Children from lower socioeconomic status and those whose mothers had an illiterate or primary education showed higher anemia prevalence. These observations are supported by earlier studies in which family wealth, food security, maternal education, and caregiver awareness influenced childhood hemoglobin status [6,14]. Maternal education can affect food selection, feeding frequency, hygiene practices, recognition of pallor or fatigue, compliance with supplementation, and timely use of paediatric services. Thus, caregiver-centred counselling is essential in outpatient anemia control.

Dietary factors were strongly linked with anemia in this study. Vegetarian dietary pattern, inadequate green leafy vegetable intake, and inadequate iron-rich food intake were associated with higher anemia prevalence. Nutritional anemia literature shows that inadequate bioavailable iron intake, limited dietary diversity, and poor intake of micronutrient-rich foods contribute substantially to childhood anemia [2,3,8]. Although plant foods contribute non-heme iron, bioavailability is influenced by inhibitors and enhancers, while mixed diets often provide more bioavailable iron and other micronutrients. Undernutrition also showed a strong association with anemia, reinforcing the relationship between energy-protein deficits, micronutrient deficiency, recurrent infection, and poor growth. The history of worm infestation was another significant determinant, consistent with evidence linking intestinal parasites and soil-transmitted helminths with

anemia through chronic blood loss, impaired nutrition, and inflammation [11-13].

Generalizability

The findings of this study are generalizable mainly to children attending similar tertiary-care paediatric outpatient departments in semi-urban and rural-serving settings of South India. Since the sample was hospital-based and limited to 100 children, the results should be interpreted as service-level evidence rather than community prevalence. However, the identified determinants are biologically consistent, supported by published evidence, and clinically useful for routine outpatient screening, counselling, and targeted prevention.

Conclusion

Anemia was observed in more than half of the children attending the paediatric outpatient department, with moderate anemia being the most common severity category. The burden was higher among younger children, those from lower socioeconomic groups, children with low maternal education, inadequate intake of green leafy vegetables and iron-rich foods, undernutrition, and a history of worm infestation. These findings highlight that childhood anemia is not only a hematological problem but also a reflection of nutritional, socioeconomic, and environmental vulnerability. Routine hemoglobin screening, growth assessment, dietary counselling, caregiver education, and deworming-linked preventive care should be integrated into paediatric outpatient services.

Limitations

This study was conducted in a single tertiary-care outpatient department with a sample size of 100 children, limiting wider population inference. The cross-sectional design identifies associations but not causation. Dietary intake and worm infestation history were based on caregiver reporting, introducing recall bias. Detailed biochemical markers such as ferritin, vitamin B12, folate, and inflammatory markers were not assessed.

Recommendations

Paediatric outpatient departments should strengthen routine screening for anemia, especially among younger children, undernourished children, and those from socioeconomically vulnerable families. Caregiver counselling should include practical advice on iron-rich foods, green leafy vegetables, dietary diversity, and enhancers of iron absorption. Periodic deworming, sanitation education, and growth monitoring should be linked with anemia prevention. Children with moderate or severe anemia require structured clinical evaluation, supplementation according to standard paediatric guidance, and documented follow-up. Community outreach through schools, Anganwadi centres, and primary care units can improve early detection and continuity of nutritional care.

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Abbreviations

Hb-Hemoglobin;

Source of funding

The study had no funding.

Conflict of interest

The authors declare no conflict of interest.

Author Contributions

Dr Rajasekhar Reddy Munamala contributed to the study conception, clinical data collection, patient evaluation, literature review, manuscript drafting, and final approval of the manuscript. As the corresponding author, he was responsible for coordination, communication, and overall manuscript preparation.

Dr Chandra Sekhar Gurijala contributed to study design, clinical supervision, interpretation of paediatric findings, critical revision of the manuscript, and intellectual guidance throughout the study.

Dr Vijaya Lakshmi Muram Reddy contributed to laboratory-related interpretation, pathological correlation of anaemia parameters, review of diagnostic aspects, manuscript revision, and final approval of the content.

Data availability

Data Available

Author Biography

Dr Rajasekhar Reddy Munamala is an Assistant Professor in the Department of Pediatrics at Narayana Medical College, Nellore, Andhra Pradesh, India. His academic and clinical work focuses on paediatric health, childhood nutritional disorders, anaemia, growth assessment, and outpatient-based child health research. He is actively involved in undergraduate and postgraduate teaching, clinical care, and research activities related to common paediatric conditions. In the present study, he contributed to clinical evaluation, data collection, manuscript preparation, and correspondence.

Dr Chandra Sekhar Gurijala is Professor and Head of the Department of Pediatrics at Narayana Medical College, Nellore, Andhra Pradesh, India. He has extensive experience in paediatric clinical practice, academic teaching, departmental administration, and research

supervision. His areas of interest include child health, paediatric nutrition, infectious diseases, and preventive paediatrics. He has guided several academic and clinical research activities in paediatrics. In this study, he provided conceptual guidance, clinical supervision, interpretation support, and critical manuscript revision.

Dr Vijaya Lakshmi Muram Reddy is Professor in the Department of Pathology at Narayana Medical College, Nellore, Andhra Pradesh, India. Her academic expertise includes haematology, clinical pathology, diagnostic pathology, and laboratory-based interpretation of disease patterns. She is involved in teaching, diagnostic services, and research activities related to the pathological evaluation of clinical conditions. In the present study, she contributed to the interpretation of anaemia-related laboratory findings, diagnostic correlation, review of pathological aspects, and manuscript refinement.

References

1. Gallagher PG. Anemia in the pediatric patient. Blood. 2022;140(6):571-593. doi:10.1182/blood.2020006479. PMID:35213686.
2. Leung AKC, Lam JM, Wong AHC, Hon KL, Li X. Iron Deficiency Anemia: An Updated Review. Curr Pediatr Rev. 2024;20(3):339-356. doi:10.2174/1573396320666230727102042. PMID:37497686
3. Chandra J, Dewan P, Kumar P, Mahajan A, Singh P, Dhingra B, et al. Diagnosis, Treatment and Prevention of Nutritional Anemia in Children: Recommendations of the Joint Committee of Pediatric Hematology-Oncology Chapter and Pediatric and Adolescent Nutrition Society of the Indian Academy of Pediatrics. Indian Pediatr. 2022;59(10):782-801. doi:10.1007/s13312-022-2622-2. PMID:36263494.
4. Pasricha SR, Black J, Muthayya S, Shet A, Bhat V, Nagaraj S, et al. Determinants of anemia among young children in rural India. Pediatrics. 2010;126(1):e140-e149. doi:10.1542/peds. 2009-3108. PMID:20547647.
5. Bharati S, Pal M, Bharati P. Prevalence of anaemia among 6- to 59-month-old children in India: the latest picture through the NFHS-4. J Biosoc Sci. 2020;52(1):97-107. doi:10.1017/S0021932019000294. PMID:31104639.
6. Onyeneho NG, Ozumba BC, Subramanian SV. Determinants of Childhood Anemia in India. Sci Rep. 2019;9(1):16540. doi:10.1038/s41598-019-52793-3. PMID:31719548.
7. Yadav K, Ramaswamy G, Puri S, Vohra K, Achary T, Jaiswal A, et al. Prevalence and determinants of anemia due to micronutrient deficiencies among children aged 12-59 months in India-Evidence from Comprehensive National Nutrition Survey, 2016-18. PLOS Glob Public Health. 2024;4(1):e0002095. doi:10.1371/journal.pgph.0002095. PMID:38236794.
8. Kulkarni B, Peter R, Ghosh S, Pullakhandam R, Thomas T, Reddy GB, et al. Prevalence of Iron Deficiency and its Sociodemographic Patterning in Indian Children and Adolescents: Findings from the Comprehensive National Nutrition Survey 2016-18. J Nutr. 2021;151(8):2422-2434. doi:10.1093/jn/nxab145. PMID:34049401.
9. Sachdev HS, Porwal A, Acharya R, Ashraf S, Ramesh S, Khan N, et al. Haemoglobin thresholds to define anaemia in a national sample of healthy children and adolescents aged 1-19 years in India: a population-based study. Lancet Glob Health. 2021;9(6):e822-e831. doi:10.1016/S2214-109X(21)00077-2. PMID:33872581.
10. Sarna A, Porwal A, Ramesh S, Agrawal PK, Acharya R, Johnston R, et al. Characterisation of the types of anaemia prevalent among children and adolescents aged 1-19 years in India: a population-based study. Lancet Child Adolesc Health. 2020;4(7):515-525. doi:10.1016/S2352-4642(20)30094-8. PMID:32562633.
11. Gopalakrishnan S, Eashwar VMA, Muthulakshmi M, Geetha A. Intestinal parasitic infestations and anemia among urban female school children in Kancheepuram district, Tamil Nadu. J Family Med Prim Care. 2018;7(6):1395-1400. doi:10.4103/jfmpc.jfmpc_89_18. PMID:30613531.
12. Rakesh PS, George LS, Joy TM, George S, Renjini BA, Beena KV. Anemia Among School Children in Ernakulam District, Kerala, India. Indian J Hematol Blood Transfus. 2019;35(1):114-118. doi:10.1007/s12288-018-1001-6. PMID:30828157.
13. Caldrer S, Ursini T, Santucci B, Motta L, Angheben A. Soil-Transmitted Helminths and Anaemia: A Neglected Association Outside the Tropics. Microorganisms. 2022;10(5):1027. doi:10.3390/microorganisms10051027. PMID:35630469.
14. Choi HJ, Lee HJ, Jang HB, Park JY, Kang JH, Park KH, et al. Effects of maternal education on diet, anemia, and iron deficiency in Korean school-aged children. BMC Public Health. 2011;11:870. doi:10.1186/1471-2458-11-870. PMID:22087564.

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