



Comparative assessment of anemia in school going children aged between 10 to 15 years in selected Urban and Rural Schools of Belagavi - A pilot study

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Abstract

Background: Anemia is a widespread public health concern affecting school-aged children, with implications for cognitive development, physical growth, and academic performance. India exhibits significant regional disparities in anemia prevalence, influenced by factors such as nutrition, socioeconomic status, and access to healthcare.

Objective: To compare the prevalence of anemia based on clinical signs among school-going children aged 10 to 15 years in selected urban and rural schools of Belagavi.

Methodology: This cross-sectional, observational pilot study was conducted in two schools—one urban and one rural—in Belagavi. A total of 406 students (150 urban, 256 rural) were clinically screened for signs of anemia, including pallor of conjunctiva, nail beds, skin, and breathlessness on exertion.

Results: Out of 406 students, 106 (26.1%) showed clinical signs suggestive of anemia—46 (31%) from the urban school and 70 (27.3%) from the rural school. Among urban students, 31 females and 15 males were found anemic, while in rural areas, 39 females and 31 males exhibited clinical signs of anemia. Overall, female students were more affected than males.

Discussion: Contrary to earlier regional studies which reported higher anemia prevalence in rural areas, this pilot study observed slightly higher clinical anemia in urban school children. Female students, irrespective of geography, were more commonly affected. The findings suggest the need for further investigation using hemoglobin estimation and potential homoeopathic interventions.

Conclusion: This pilot study highlights a notable prevalence of clinically diagnosed anemia in both urban and rural school children, with a higher proportion among females. Future interventional studies with laboratory-based diagnostics (Hb estimation) are recommended, along with school-based anemia management programs including homoeopathic support.

Keywords: Anemia, school children, Urban, Rural, Belagavi, clinical screening, pilot study, homoeopathy

Introduction

Anemia is a pervasive public health issue that affects a significant number of children worldwide, posing serious health risks that can impede their cognitive development, physical growth, and educational performance. According to the World Health Organization (WHO), anemia is defined as a hemoglobin concentration of less than 11 g/dL in children aged 5 to 11 years and less than 12 g/dL in those aged 12 to 14 years. In India, studies estimate that around 58% of children aged 6-59 months and about 30% of school-aged children are anemic, with substantial regional variation.

The consequences of anemia in children are particularly critical during the developmental stage, as deficiencies can lead to impaired cognitive functions and overall health problems. Several factors contribute to the risk of anemia, including iron deficiency, educational background of parents, dietary habits, socio-economic status, and geographical location. Urban and rural children often experience these factors differently due to disparities in nutritional access and healthcare availability, leading to variances in anemia prevalence between the two groups. Belagavi, a district in Karnataka, serves as an illustrative backdrop for examining these disparities. The urban population tends to have better access to varied food sources

and healthcare facilities, while rural populations may face challenges such as limited access to nutritious diets and healthcare services. This pilot study aims to assess the prevalence of anemia among school-going children aged 10 to 15 years in selected urban and rural schools across Belagavi.

By identifying differences in anemia prevalence and associated risk factors, this research will provide critical insights into the health disparities faced by children in urban versus rural settings. Addressing these gaps will help formulate effective interventions tailored to mitigate anemia among school-aged children, thereby improving their health outcomes and educational achievements.

Objectives of the Study

The primary objective of this study is to Compare the Anaemia in school going children aged 10 to 15 years in selected urban and rural schools of Belagavi.

Methodology

Study Type- Cross-sectional, observational pilot study.

Study Population: Children aged 10 to 15 years were selected from urban and rural school.

Sample Size: 406 Students of two schools were screened for clinical signs of anaemia in Rural and Urban area.

Selection of sample

On basis of clinical examination for signs of anaemia (Conjunctiva, Nails, skin, breathlessness on exertion were considered for clinical diagnosis of anaemia.)

Result

	Urban school	Rural school	Total
No of students screened	150	256	406
Positive clinical findings for signs of anaemia	46	70	106
Percentage of Anaemia	31%	27.3%	

	Urban	Rural
Male	15	31
female	31	39

Discussion

It is analysed from the current pilot study that Urban school students between the age group 10 to 15 years are more likely anaemic than rural school.

Anaemia was found 31% in urban school in that 31 were female students and 27.3% in rural school in that 39 were female students. Female students were more anaemic rather than male students.

A study conducted in Belagavi showed that-A high prevalence of 57% was seen among girls and 40.5% of the boys were anaemic. Prevalence was more in rural area i.e. 52.7% compared to that of urban i.e. 43%. Mild anaemia was found to be more prevalent in both urban and rural children i.e. 28.7% and 29.7% respectively.¹

Another study conducted in Mangalore concluded that in the study of 550 children 174 children had conjunctival pallor on clinical examination. Among that 58 (33.3%) children had anemia on hemoglobin estimation. Majority of children 116 (66.7%) who had pallor on clinical examination was found as non-anemic on hemoglobin estimation.²

A study from Nagpur showed the overall prevalence of anemia among adolescent females was found to be 35.1%.³

Conclusion and recommendation for further study if any

The current survey was an observational study that evaluated the overall anaemia in school children based on their clinical examination were more in urban school rather than Rural school. Administration of Homoeopathic drugs to improve the HB% can be focus in future interventional study. If authorities of school make estimation of Hb% it will be easier to manage with medicines. According to result of this study female students of age group 10 to 15 year are more anaemic so in school. So, we recommend further study with intervention and proper investigation.

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