



ORIGINAL RESEARCH PAPER

Paediatrics

SERUM 25-HYDROXY VITAMIN D LEVELS IN CHILDREN WITH RECURRENT WHEEZING UNDER FIVE YEARS OF AGE: PRELIMINARY DEMOGRAPHIC ANALYSIS

KEY WORDS: Recurrent Wheezing, Preschool Children, Demographic Comparability, Vitamin D

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ABSTRACT	<p>Background: Recurrent wheezing is among the most common respiratory presentations in preschool children and may serve as an early indicator of asthma. Before assessing biochemical correlations such as vitamin D status, establishing demographic comparability between cases and controls is crucial.</p> <p>Objectives:</p> <ul style="list-style-type: none"> Primary Objective: To describe the demographic characteristics (age and sex distribution) of children with recurrent wheezing (<5 years) compared with healthy controls. Secondary Objective: To determine whether cases and controls were demographically comparable, ensuring validity for subsequent analyses. <p>Methods: A hospital-based observational cross-sectional study was conducted in the Department of Pediatrics, NIMS&R Hospital, Jaipur, between May 2023 and October 2024. A total of 130 children (<5 years) were enrolled: 65 recurrent wheezers and 65 age- and sex-matched controls. Demographic variables were recorded using a structured proforma. Statistical analysis was performed using SPSS v25. Results: The mean age was 34.6 ± 12.2 months in cases and 33.8 ± 11.5 months in controls (p=0.68). Male distribution was 41/65 (63.1%) in cases vs. 39/65 (60.0%) in controls (p=0.71). Age group distribution (1–2, 2–3, 3–4, 4–5 years) showed no significant difference (p=0.834). Conclusions: Cases and controls were demographically comparable, strengthening the study design and ensuring validity of subsequent clinical and biochemical analyses. Full vitamin D results will be presented in future reports.</p>

INTRODUCTION
 Wheezing is one of the most frequent respiratory symptoms in children under five years, with a global prevalence of 30–50%. In India, this burden is compounded by environmental risk factors and nutritional deficiencies. Recurrent wheezing is particularly significant as it often precedes asthma.

For clinical research validity, demographic comparability between cases and controls is critical to minimize confounding. This preliminary communication reports the demographic characteristics of children enrolled in an ongoing study investigating serum 25-hydroxy vitamin D levels in recurrent wheezing.

METHODS
Study Design and Setting:
 A hospital-based observational cross-sectional study was conducted at the Department of Pediatrics, NIMS&R Hospital, Jaipur.

Participants:

- Cases: Children aged 6 months–<5 years with ≥3 wheezing episodes in the preceding 12 months.
- Controls: Age- and sex-matched children attending the hospital for non-respiratory illnesses.

Exclusion Criteria: Children with congenital anomalies, chronic lung or heart disease, immunodeficiency, metabolic disorders, or recent vitamin D supplementation were excluded.

Sample Size: Based on feasibility and previous Indian studies, 130 children were included (65 cases and 65 controls).

Ethical Considerations: The study was approved by the Institutional Ethics Committee, NIMS University. Informed written consent was obtained from parents/guardians.

Data Collection and Analysis: Demographic details (age,

sex) were collected using a structured proforma. Data were analyzed with SPSS v25. Continuous variables were compared with Student's t-test; categorical variables with chi-square test. A p-value <0.05 was considered statistically significant.

RESULTS
 A total of 130 children (<5 years) were enrolled: 65 recurrent wheezers and 65 controls.

- Mean age: 34.6 ± 12.2 months (cases) vs. 33.8 ± 11.5 months (controls), p=0.68.
- Sex distribution: Males: 41/65 (63.1%) vs. 39/65 (60.0%), p=0.71.
- Age group distribution: No significant difference across groups (p=0.834).

Table 1. Demographic Characteristics of Study Participants

Variable	Cases (n=65)	Controls (n=65)	p-value
Mean age (months)	34.6 ± 12.2	33.8 ± 11.5	0.68
Males (%)	41 (63.1%)	39 (60.0%)	0.71
Age groups			0.834
12–24 months	14 (21.5%)	13 (20.0%)	—
24–36 months	17 (26.2%)	19 (29.2%)	—
36–48 months	16 (24.6%)	15 (23.1%)	—
48–60 months	18 (27.7%)	18 (27.7%)	—

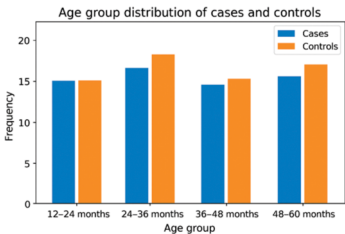


Figure 1. Age Group Distribution of Cases and Controls (Simple Bar Chart Showing Near-identical Distribution).

DISCUSSION

This analysis confirms that children with recurrent wheezing and healthy controls were comparable in terms of age and sex distribution. Such comparability minimizes potential bias and enhances the reliability of subsequent biochemical analyses.

Similar demographic patterns have been reported in Indian pediatric wheezing studies, which frequently demonstrate a male predominance and clustering in the 2–4 year age group. Our findings support the robustness of the sampling strategy and provide a sound foundation for further evaluation of vitamin D status.

CONCLUSION

The cases and controls in this study were demographically comparable. This strengthens the validity of subsequent clinical and biochemical comparisons, particularly serum 25-hydroxy vitamin D levels, which will be reported in future communications.

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