

## SHORT COMMUNICATION

# Frequency of Vitamin D Deficiency in Children Aged 3–12 Years at a Tehsil Headquarter Hospital, Pakistan

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Pak Pediatr J 2026; 50(1):

### ABSTRACT

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Received for publication: April.8, 2025  
Revised received: Dec. 16, 2025  
Revision accepted: March 05, 2026

**How To Cite This:** Noor B, Iqbal H, Suliman M, Hayat T  
Frequency of Vitamin D Deficiency in  
Children Aged 3–12 Years at a Tehsil  
Headquarter Hospital, Pakistan

**DOI:**  
<https://doi.org/10.66347/ppj.v50i1.546>

This Cross Sectional study was conducted at Special Care Baby Unit (Nursery) KTH Peshawar, KPK from 1<sup>st</sup> January 2019 to 31<sup>st</sup> July 2019 to determine the frequency and outcome of Hypoxic Ischemic Encephalopathy admitted in Nursery, Khyber Teaching Hospital Peshawar, KPK. A descriptive cross-sectional study was carried out in neonatal unit, in our study we took all HIE babies of either gender, admitted in Nursery for and were observed during their stay in hospital and data was collected and compiled to assess the clinical outcome of such babies. 730 babies admitted for the management of HIE/Birth Asphyxia, accounting 22% of the total admissions, 677 HIE were full term and 53 were premature according to grading HIE, 1 were (17%). HIE 2 were (58.32%) and HIE3 admitted (21.36%). Outcome in term of mortality mild asphyxia 3%, moderate asphyxia, 16% and severe asphyxia 83%. It was concluded that Morbidity and mortality can be reduced through an early recognition of Birth Asphyxia and in time referral to tertiary level Hospitals.<sup>1,2,3</sup>

**Key Words:** Birth Asphyxia, Morbidity, Mortality, Nursery, Outcome

### INTRODUCTION

Vitamin D plays a vital role in calcium–phosphorus homeostasis, bone mineralization, immune modulation, and neuromuscular function in children<sup>3,4</sup>. Deficiency during childhood is associated with rickets, impaired growth, recurrent infections, and long-term skeletal complications. Despite adequate sunlight in many regions, vitamin D deficiency remains highly prevalent, particularly in developing countries.

Urbanization, reduced outdoor activity, excessive screen time, dietary inadequacy, and limited food fortification have contributed to persistent hypovitaminosis D in children<sup>3,4,5</sup>. Data from semi-urban and rural healthcare facilities, especially Tehsil Headquarter (THQ) hospitals, remain limited. This study aimed to determine the frequency of vitamin D deficiency among children

aged 3–12 years presenting to a THQ hospital and to identify associated risk factors.

### MATERIAL AND METHODS

A descriptive cross-sectional study was conducted at the Pediatric Outpatient Department of Tehsil Headquarter Hospital Dogar from July to December 2024. Ethical approval for the study was granted by the hospital Ethical Committee dated 3<sup>rd</sup> Jan 2025. Children aged 3–12 years attending the OPD were enrolled using consecutive sampling. Those receiving vitamin D supplementation or having chronic systemic, endocrine, hepatic, renal, or malabsorptive disorders were excluded.

Serum 25-hydroxyvitamin D [25(OH)D] levels were measured using a chemiluminescent immunoassay. Vitamin D status was classified as deficient (<20 ng/mL), insufficient (20–30 ng/mL),

or sufficient (>30 ng/mL). Data regarding sun exposure, dietary intake, screen time, and residence were collected using a structured questionnaire. Ethical approval and written parental consent were obtained.

## RESULTS

A total of 400 children were included, with a mean age of  $7.5 \pm 2.8$  years; 52.5% were male. Overall, 240 children (60%) were vitamin D deficient, 110 (27.5%) insufficient, and only 50 (12.5%) had sufficient levels, resulting in 87.5% having suboptimal vitamin D status.

Vitamin D deficiency was more common among urban children (70%) compared to rural children (50%). Limited sunlight exposure (<30 minutes/day), poor intake of vitamin D – rich foods, and excessive screen time (>3 hours/day) were frequently observed among deficient children<sup>6</sup>.

**TABLE 1: Vitamin D status distribution**

Vitamin D status	Frequency (n)	Percentage
Deficient	240	60.0
Insufficient	110	27.5
Sufficient	050	12.5
Total	400	100.0

## DISCUSSION

This study demonstrates an alarmingly high prevalence of vitamin D deficiency among children aged 3–12 years, consistent with findings from Pakistan and other developing countries. The predominance of deficiency in urban children underscores the impact of lifestyle changes<sup>4,6</sup>, reduced outdoor activity, and environmental factors on vitamin D synthesis.

Dietary inadequacy and excessive screen time emerged as modifiable risk factors. These findings align with previous studies emphasizing the combined role of nutritional and behavioral factors in pediatric hypovitaminosis D. The high burden observed at a secondary-level healthcare facility

highlights the need for early interventions at the community level<sup>5</sup>.

## CONCLUSION

Vitamin D deficiency is highly prevalent among children presenting to a Tehsil Headquarter Hospital Dogar. Routine screening, promotion of outdoor physical activity, dietary improvement, and appropriate supplementation should be prioritized to prevent long-term skeletal and health complications<sup>2,3</sup>.

**Source of funding:** None

**Conflict of interest:** None

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### Author's Contribution

**BN:** Proposed topic, basic study design, methodology and manuscript writing

**HI:** Data collection, statistical analysis and interpretation of result etc.

**MS:** Literature review & referencing and quality insurer

**TH:** Data collection

*All the authors have approved the final manuscript draft and accept the responsibility of research integrity.*