



Vitamin D Deficiency in UK Children: An Emerging Epidemic

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Abstract

Vitamin D deficiency among children in the United Kingdom has re-emerged as a significant public health concern. Associated with severe outcomes like rickets, impaired growth, and other complications, its prevalence continues to rise despite existing guidelines. This review synthesizes evidence from three key UK-based studies to explore the prevalence, risk factors, and current strategies for prevention and management.

Keywords: *Vitamin D deficiency, children, UK, rickets, supplementation, prevalence, public health.*

Introduction

Vitamin D is essential for bone development, immune regulation, and overall health in children. In recent years, the UK has seen a concerning rise in cases of vitamin D deficiency and associated conditions such as nutritional rickets. The aim of this review is to examine recent UK-based research to better understand the scope of the issue and suggest strategies for intervention.

Study 1: Prevalence and Predictors of Vitamin D Insufficiency in Children

A cross-sectional study by Absoud et al. (2011) examined serum 25(OH)D levels in 1,102 children aged 4 to 18 years across Great Britain. The study found that 35% of children had serum vitamin D levels below 50 nmol/L. Risk factors included older age (especially 14–18 years), non-white

ethnicity, lower socioeconomic status (e.g., income support), obesity, and reduced outdoor activity. Seasonal variation was notable, with levels significantly lower in winter and spring.

Study 2: Nutritional Rickets Surveillance Study

A prospective surveillance study by Mughal et al. (2020) investigated nutritional rickets in children under 16 years between 2015 and 2017. The study reported an annual incidence of 0.48 per 100,000 children, with most cases occurring in children under five years old. The majority were boys and of South Asian or Black ethnicity. Despite being eligible, over 77% of affected children were not receiving vitamin D supplements. Clinical features included delayed motor development, bone pain, and in severe cases, cardiomyopathy.

Study 3: RCPCH Guidance on Vitamin D Supplementation

The Royal College of Paediatrics and Child Health (RCPCH) issued guidance in 2018 emphasizing the importance of routine vitamin D supplementation. The guidelines recommend 8.5–10 mcg of vitamin D daily for infants (0–1 year) unless they consume more than 500 mL of fortified formula milk, and 10 mcg daily for children aged 1–4 years. The document also encourages supplementation for older children, especially during winter months when sunlight exposure is limited.

Discussion

All three sources highlight the widespread prevalence of vitamin D deficiency among UK children, particularly among specific high-risk groups. There is a clear mismatch between clinical recommendations and actual supplement uptake. The role of ethnicity, socioeconomic status, lifestyle, and seasonal changes are significant in determining vitamin D status. Public health efforts must focus on education, increased accessibility of supplements, food fortification, and better implementation of guidelines in clinical practice.

Figure 1 Summary of Key Findings from Selected UK Studies

Study	Population	Key Findings	Risk Factors
Absoud et al. (2011)	1,102 children (4–18 yrs)	35% <50 nmol/L vitamin D	Age, ethnicity, income, activity
Mughal et al. (2020)	Children <16 yrs	0.48 per 100,000 rickets cases/year	Ethnicity, male gender, lack of supplements
RCPCH (2018)	Infants and children	Clear guidelines on supplementation	-

Conclusion

Vitamin D deficiency in children is an emerging epidemic in the UK, with serious health implications if left unaddressed. Greater awareness, early screening, targeted public health interventions, and adherence to supplementation guidelines are essential to mitigate this growing problem. More robust surveillance and research are also needed to assess long-term outcomes and intervention efficacy.

Declarations

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Ethical Approval: Not applicable. This article is a review of previously published studies.

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