

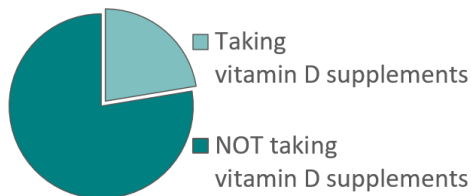
## Is vitamin D deficiency (VDD) a problem in the UK?

Cassandra Springate (Research Consultant)

Due to a lack of research, and no agreed threshold for defining VDD, there is no straightforward answer to this question, however **experts suggest VDD may be a problem in the UK<sup>1</sup>**. In children, VDD causes weaker bones, deformations and stunted growth, and in adults it is associated with muscle weakness, bone pain, fatigue and depression <sup>2</sup>.

Expert opinion seems to be that VDD is a **public health crisis**, in adults and children.<sup>1</sup>  
**BUT...**

Proportion of children, eligible for vitamin D supplementation, taking supplements <sup>3</sup>



Data from a cohort of 125 children under 16 years with nutritional rickets in the UK presenting to secondary care.

**Dr Högler and Dr Uday**

Institute of Metabolism and Systems Research, Birmingham University

“The UK has **vitamin D supplementation policies** for risk groups including infants, pregnant women and the dark-skinned population. However, these are **outdated and poorly implemented.**” <sup>1</sup>

It was **difficult to find incidence data for children with VDD** in the UK, with the best available evidence being a survey of nutritional rickets which excluded a lot of children with VDD from the cohort <sup>3</sup>. **Data on VDD in adults was more readily available** and demonstrates the widespread issue in the general population as well as in high-risk groups.

### Distribution of vitamin D status in the UK: a cross-sectional analysis of UK Biobank <sup>4</sup>

#### Objective

- ❖ To investigate the factors associated with the **distribution of serum vitamin D deficiency** in a large national **UK adult cohort**.

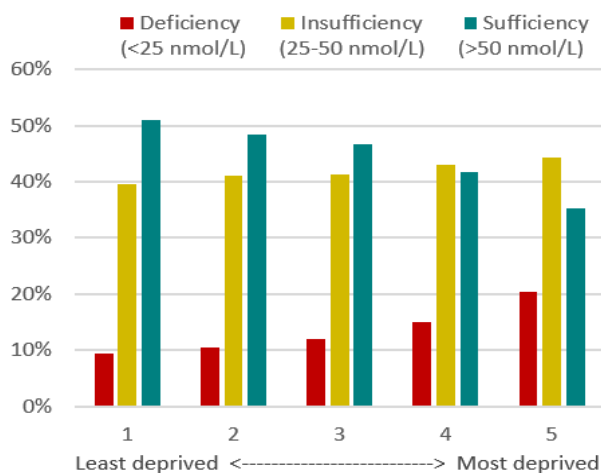
#### Methods

- Cross-sectional study obtaining data from the **UK Biobank**, a prospective database recording health and well-being data of adults recruited between 2006 and 2010.
- **449,943 participants aged 40 to 69 years** with measured serum vitamin D status were eligible for the analysis.
- Demographics were recorded by questionnaire.

#### Results

- ✓ Factors associated with **increased odds of VDD**: male sex, abnormal BMI, non-white ethnic background, smoking and being more socioeconomically deprived.
- ✓ Factors associated with **decreased odds of VDD**: increasing age, taking vitamin D supplements and alcohol.

Percentage of participants according to vitamin D status and index of multiple deprivation <sup>4</sup>



#### Final remarks:

- Several risk factors exist for VDD and should be considered with health policies.
- Even within the least deprived population samples, **only 50.9% had vitamin D sufficiency >50 nmol/L**.
- **Lockdown and shielding at home** due to COVID-19 restrictions are **likely to have exacerbated** the public health issue as lack of sunlight is a key risk factor.
- **Children** are also at risk, but **surveillance data is very limited**.
  - We conducted systematic searches of biomedical literature and policy documents and found a **glaring lack of incidence/prevalence data of VDD in children**.
  - To get help buying food/milk if you're pregnant or have children under the age of 4 go to <https://www.healthystart.nhs.uk/>

#### References

- 1) Högler, W. & Uday, S. "Vitamin D supplementation in the United Kingdom: time for change". Perspectives. <https://www.birmingham.ac.uk/research/perspective/vitamin-d-supplementation.aspx> (July 2021)
- 2) <https://www.nhs.uk/conditions/vitamins-and-minerals/vitamin-d/>
- 3) Julies, P., et al. (2020). "Nutritional rickets under 16 years: UK surveillance results". Archives of Disease in Childhood, 105(6), 587-592.
- 4) Lin, L.Y., Smeeth, L., Langan, S., & Warren-Gash, C. (2021). "Distribution of vitamin D status in the UK: a cross-sectional analysis of UK Biobank". BMJ Open, 11, 38503.