

Introduction

Vitamin D deficiency (25(OH) D \leq 30 nmol/L) is a significant global health concern. At far latitudes, non-ethnic population groups from lower latitudes can be at a significantly increased risk of deficiency due to increased skin pigmentation, dietary considerations, traditional clothing and genetic pre-disposition¹. The vitamin D status of ethnic minority groups has been examined extensively both in UK and European populations^{2,3}, but to-date, has not been investigated in the Irish context.

Aim

The aims of this study were to determine the vitamin D status of participants of South East Asian descent and to investigate: a). What proportion were vitamin D sufficient; b). Has this proportion changed over time.

Methodology:

- A search was conducted, using the Biochemistry Department laboratory information system of St James's Hospital, for vitamin D requests by GPs for participants of South East Asian descent. Initially 115 samples were identified from requests between February 2011 and March 2012. To investigate any change in status over time, samples requested in 2016 (*n* 86) were also selected.
- Samples for 25(OH)D analysis (the recognized marker for the nutritional status of vitamin D) included total serum 25(OH)D (D2 and D3) concentrations which were quantified by a fully validated method (Chromsystems Instruments and Chemicals GmbH; MassChrom 25-OH-Vitamin D3/D2) using liquid chromatography-tandem mass spectrometry (API 4000; AB SCIEX) and batch analyzed in the Biochemistry Department of St James's hospital Dublin. Results were tabulated according to median values (25-75th percentile) and by the percentage of samples deficient (<30 nmol/L), insufficient (30-50 nmol/L) or normal (>50 nmol/L).

25(OH)D status (%)

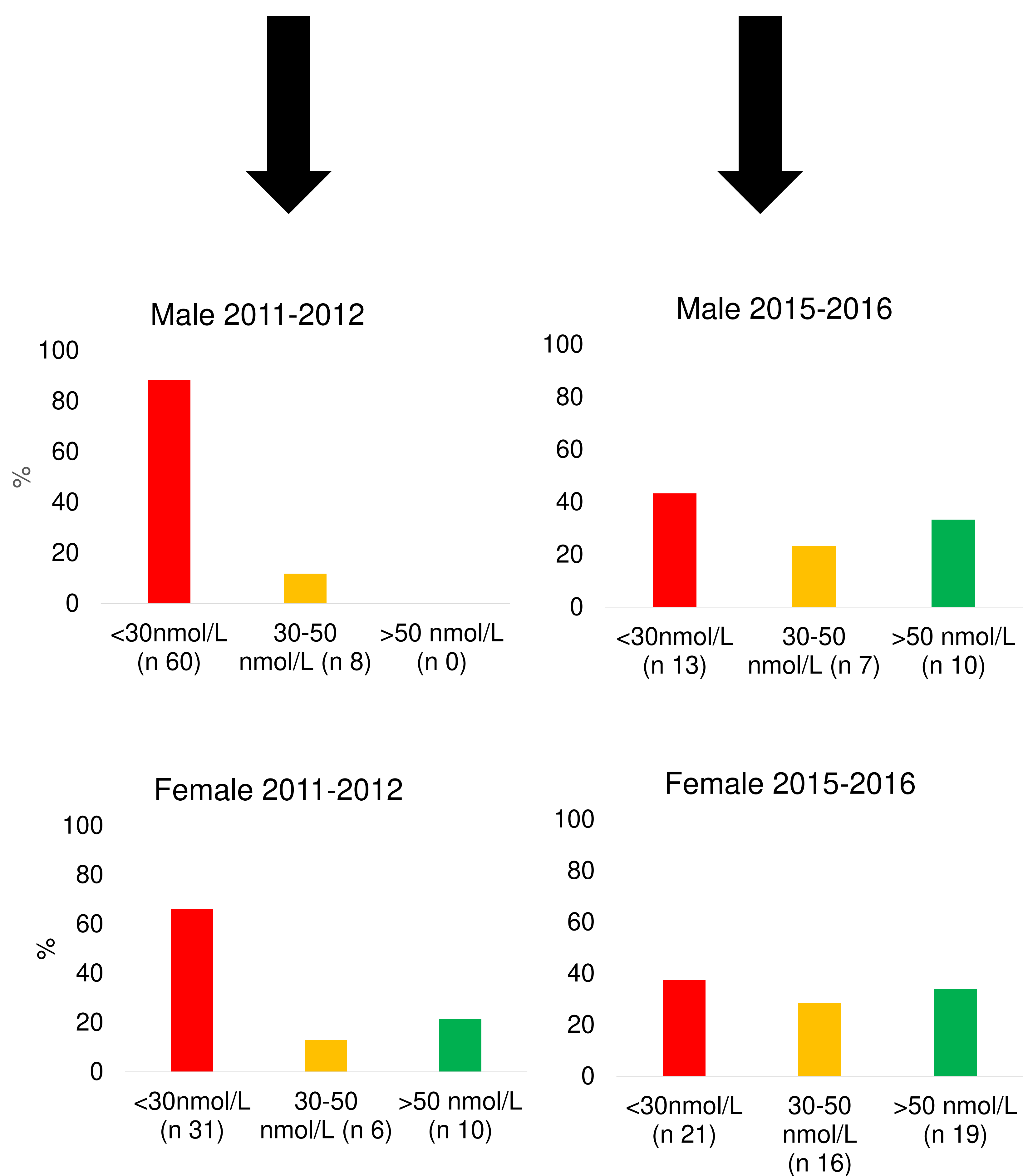
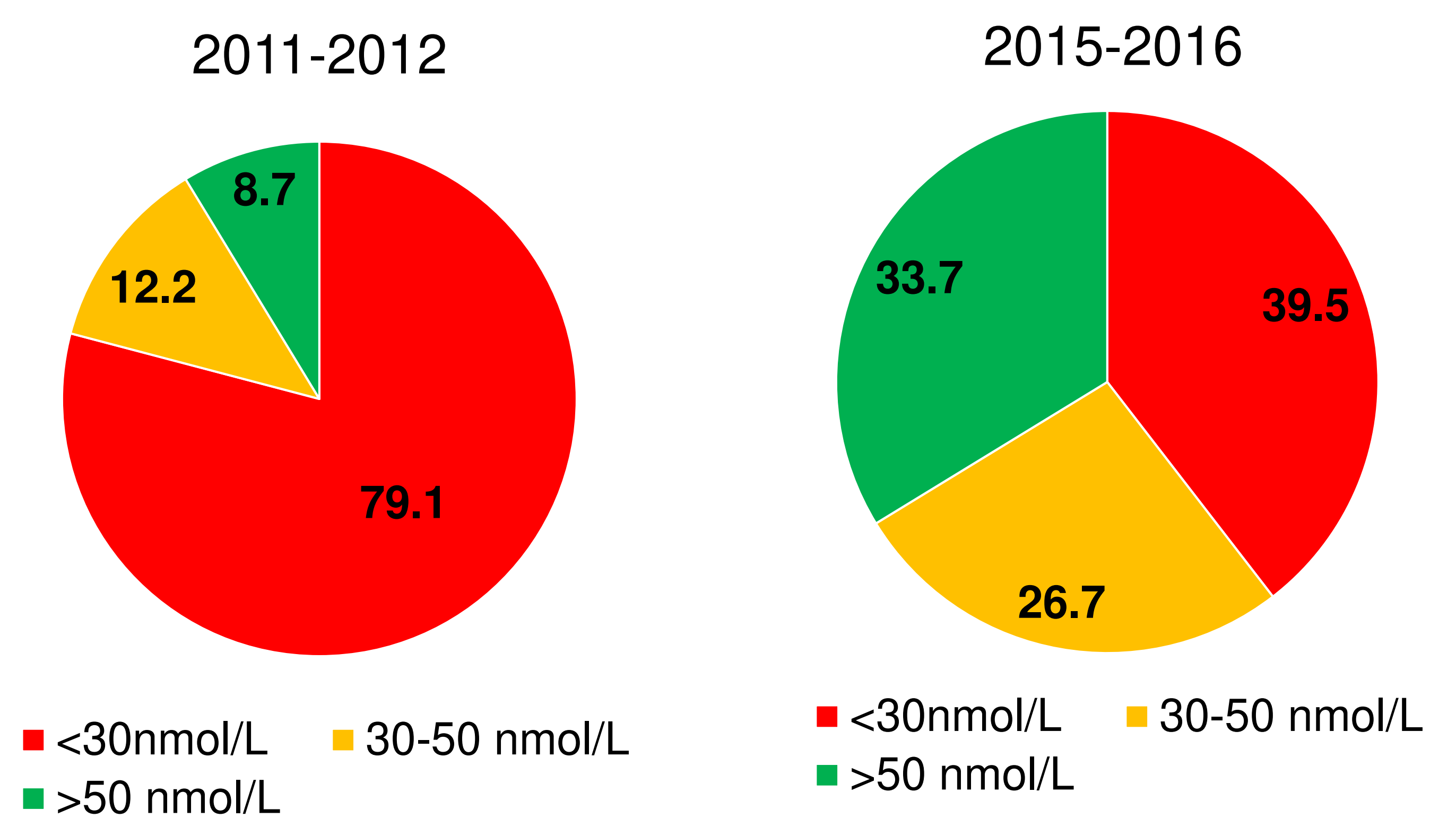


Table 1. Participant characteristics

	2010-2011 n 115	2015-2016 n 86
Age (yrs)	31.0 (26.0, 35.0)	34.0 (28.0, 40.2)
<18 <i>n</i> (%)	6 (5.2)	0
18-50 <i>n</i> (%)	102 (88.7)	77 (89.5)
>50 <i>n</i> (%)	7 (6.1)	9 (10.5)
Male <i>n</i> (%)	68 (59.1)	30 (34.9)
Season sampled <i>n</i> (%)		
Winter	49 (42.6)	12 (14.0)
Spring	12 (10.4)	22 (25.6)
Summer	26 (22.6)	18 (20.9)
Autumn	28 (24.3)	34 (39.5)

Conclusions

In this sample of Irish adults and children of South Asian descent, alarmingly, over 79% were vitamin D deficient, which is over 6 times the current deficiency rate for Caucasian Irish adults in 2011-2012. This slightly improved in 2015-2016 to a 39.5% deficiency rate which is still comparatively high to the Caucasian Irish population.

Given the importance of vitamin D for bone health outcomes, this sub-population could be at a significantly increased risk of rickets, impaired bone metabolism and osteoporosis. Currently, there is no unique vitamin D intake or vitamin D status maintenance guidelines recommended for adults of non-Irish descent. These findings provide useful data to help inform public health policy regarding endemic vitamin D deficiency within this group.

References

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- Webb AR, Kazantzidis A, Kift RC, *et al.* (2018) *Nutrients* **4**, 457
- Brooke-Wavell K, Kahn AS, Taylor R, *et al.* (2008) *Ann Hum Biol* **35**, 386-393