

A comparative study of vitamin D status, dietary vitamin D intake, supplementation use and habitual sunlight exposure in South Asians and Caucasians living in South Yorkshire (UK) – Pilot study

A high prevalence of vitamin D (25(OH)D) deficiency in UK-dwelling South Asians in the UK has been previously reported (1-2). The Scientific Advisory Committee on Nutrition (SACN) report of 2016 called for more information regarding the vitamin D requirements in South Asians (3). Contributors to deficiency can vary by geographical location (1) and so there is a clear need to establish rates of and risk factors for deficiency in local South Asians to allow for more targeted local public health strategies.

To our knowledge this is the first prospective study to be carried out in South Yorkshire to determine prevalence of vitamin D deficiency with concurrent assessment of risk factors for deficiency (such as, dietary Intake of vitamin D, supplementation use and habitual sunlight exposure) in local South Asians compared to Caucasians.

On completion, this study will be a comparative, observational study of approximately 60 healthy participants – 30 South Asians and 30 Caucasians aged between 19-49 years living in South Yorkshire, UK. There are two study time points: at the end of the winter period (between February and March) when total 25(OH)D concentrations in the UK are at a nadir and during the summer (between June and July) to assess repletion. Results presented are cross-sectional pilot data after recruitment from the initial winter recruitment period (February-March 2022). Capillary blood samples were taken to allow for the measurement of total 25(OH)D by a manual enzyme immunoassay (ImmunoDiagnostic Systems, UK). Participants completed a four-day diet diary (including collecting data on supplement use) to determine vitamin D intake and completed a questionnaire on habitual sunlight exposure. Dietary data was analysed using Nutritics nutritional analysis software (Nutritics, 2022). Mann-Whitney U tests were conducted to assess for statistically significant differences between groups.

Preliminary analysis after the first recruitment phase shows that total 25(OH)D was lower in the South Asian group (n= 7, median: 38.1 nmol/l, IQR: 16.2-73.0) compared to the Caucasian group (n = 9, median: 53.9 nmol/l, IQR: 36.8-72.2), although this was not statistically significant at this early

stage in recruitment ($Z = -.900$, $P = .408$). Dietary vitamin D intake was lower than the RNI of 10ug/day in the South Asian (Median: 2.0 ug/day, IQR: 1.4-4.6) and Caucasian (Median: 0.9 ug/day, IQR: 0.5-9.9) groups ($Z = -.732$, $P = .524$).

This pilot data indicates low concentrations of vitamin D in the local South Asian community living in South Yorkshire (UK) at the end of the winter period. The study will continue recruitment during the summer and following winter period, with full study findings to report on rates of deficiency and contributors to deficiency in local South Asians to help inform on local public health strategies that may be required in this sub-group.

References

1. Darling AL, Blackburn DJ, Ahmadi KR et al. (2018) Public Health Nutr 21, 2678–2688
2. Darling A, Blackburn, D, Ahmadi, K et al (2021). Br Journal Nutr, 125(4), 448-459.
3. Scientific Advisory Committee on Nutrition (2016) Vitamin D and Health. [Available at: <https://www.gov.uk/government/publications/sacn-vitamin-d-and-health-report>]