



## An investigation of the vitamin D Knowledge, Attitudes and Practice of UK practising doctors and nurses: the D-KAP study

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Vitamin D deficiency, defined as plasma 25-hydroxyvitamin-D <25 nmol/L, is well-documented in the UK whereby 19% aged 4–10, 37% 11–18, 29% 19–64 and 27% 65+ were recently reported as deficient<sup>(1)</sup>. Hence this is of great research interest and public health concern as vitamin D deficiency has been shown to have key implications for long-term health outcomes in humans<sup>(2)</sup>. Despite guidelines for vitamin D deficiency testing, prevention and management, many healthcare professionals (HCPs) have low self-reported vitamin D knowledge<sup>(3–7)</sup>. Most attitudes towards vitamin D appear positive<sup>(3–7)</sup>, although practices of deficiency prevention and management are limited and inconsistent<sup>(8)</sup>. However, this research is restricted to internationally practising HCPs and has not been applied to UK practising HCPs since updated vitamin D guidelines<sup>(9)</sup>. This presents concern as HCPs are responsible for health promotion and improvement, with patient nutritional status integral.

The aim of this cross-sectional study was to evaluate vitamin D knowledge, attitudes and practice of UK practising primary and secondary care HCPs. The purpose was to evidence the importance of medical and healthcare-related nutrition education for health improvement. A study-specific questionnaire was devised, validated, piloted, and distributed with multiple sampling methods. Descriptive statistics were undertaken, and backward linear regression analyses were performed to identify predictors of vitamin D knowledge and attitudes.

In total, 82 out of 147 eligible HCPs responded, comprising 23 consultant/GPs, 25 nurses, 16 specialist trainees, 10 foundation doctors and 8 core trainees, with most female (74%), practising for >5 years (68%), and without nutrition focus in their degree (71%), or additional nutrition training (73%). Average (SD) overall vitamin D knowledge (scale 0–100%) was low: 49 (16%). The job role consultant/GP was the only significant predictor ( $p=0.020$ ) of superior vitamin D knowledge: +8.863% [95% CI 1.430–16.296] ( $r^2=0.066$ ). Most respondents (94%) had positive overall attitudes towards vitamin D, with an average score of 69% (12%), but no significant predictors of attitude were identified. Most (78%) used vitamin D supplements to manage vitamin D deficiency, commonly D3 (57%), meeting clinical recommendations. However, dosing was inconsistent and lifestyle advice regarding sunlight exposure, diet and nutrition, was found to be minimal, recommended by 50% and 49%, respectively.

The present study outlines low vitamin D knowledge of UK HCPs, positive attitudes towards vitamin D and certain limitations in practices of managing vitamin D deficiency. The findings identify urgent need for HCP nutrition education to help attenuate vitamin D deficiency prevalence.

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