

A33 Associations between vitamin D-related factors (dietary, supplement usage and sun exposure level) and haemoglobin concentration among female students in Universiti Putra Malaysia (UPM)

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Vitamin D deficiency has been shown to lead to reduced iron absorption due to the upregulation of hepcidin hormone resulting in anaemia. However, it remains unclear whether dietary, vitamin D supplement intakes and sun exposure level are associated with haemoglobin (Hb) concentration. This cross-sectional study was carried out to investigate the associations between those factors and Hb concentration among 155 female students aged 19-26 years (22.40 ± 1.34). A set of questionnaires was used to determine the socio-demographic characteristics and anthropometric measurement were performed. Dietary vitamin D intake and supplement usage were determined using the Food Frequency and Lifestyle Questionnaire whilst sun exposure level (SEL) was determined using a SEL questionnaire and reported as Sun Exposure Index (SEI). Hb concentration was assessed using HemoCue© Hb 201+ Analyzer and anaemia was defined using WHO cut off points of $<12\text{g/dl}$. Pearson and spearman correlation were used to determine the associations between vitamin D-related factors and Hb concentration where appropriate with level of significance set at $p < 0.05$. Anaemia prevalence was 38.7%, with a mean \pm SD Hb concentration of 12.10 ± 1.38 g/dl. Mean \pm SD dietary and supplemental vitamin D intakes were $8.10 \pm 5.08\mu\text{g/day}$ and $13.56 \pm 6.38\mu\text{g/day}$, respectively. SEL/week was 2.08 ± 1.11 hours with BSA fraction of 0.30 ± 0.22 and SEI of 2.50 ± 1.46 . The study found associations between dietary vitamin D intake ($r=0.28$, $p=0.01$) and vitamin D supplement use ($r=0.40$, $p=0.019$) with Hb concentration. However, no significant association was observed between the SEL, BSA fraction and SEI with Hb concentration, which may be due to the fact that the SEL and SEI were considered low in overall. This study demonstrates that increased in dietary and supplements vitamin D consumption led to improved Hb concentration but warrants further investigations.