

A Study of the Prevalence of Vitamin D Deficiency and Association of Its Determinants in a Population From Western Province, Sri Lanka

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As in most of the South Asian countries, vitamin D deficiency is a significant nutritional problem in Sri Lanka too. But to date, only few studies have been conducted on vitamin D deficiency and its determinants in Sri Lankan adults. The aim of this study is to determine the prevalence of vitamin D deficiency in a randomly selected population in the Western province and to compare the prevalence rates with age, sex, sun exposure, skin colour and their occupation. The study was a descriptive cross-sectional study. 262 participants were randomly recruited from Colombo, Gampaha and Kalutara districts. Structured interviewer administered questionnaires were used to collect information on socio-demographic factors, medical background and use of vitamin supplements. Sun exposure was assessed by using a validated sun exposure questionnaire. Skin colour was objectively determined by using a validated skin colour chart. All the serum samples were analyzed for serum 25-hydroxyvitamin D. In order to find the prevalence of vitamin D status and statistical significance between vitamin D level and its determinants, the data were analyzed using following statistical methods, Independent sample t-test, Pearson Chi-square test and One- Way ANOVA test. The study revealed high prevalence of vitamin D deficiency (35.88%) and insufficiency (46.92%) among the selected population. There was an association between serum vitamin D levels and skin colour ($p < 0.05$). Dark skinned people had higher prevalence in vitamin D deficiency and insufficiency while most of the light skinned people had normal vitamin D levels. There was a significant association between serum vitamin D levels and gender ($p < 0.05$). The deficiency was higher in females (44.36%) than in males (26.36%). Mean vitamin D level did not seem to significantly (p value?) vary with respect to different age groups. In conclusion, there were high percentage of cases vitamin D insufficiency than vitamin D deficiency and further females were the most vulnerable group to have vitamin D deficiency than males. Skin colour and gender has shown strong association with vitamin D levels, whilst other factors did not express a significant association with vitamin D levels. Though the other factors like as sun exposure, age, occupation have not shown significant association with vitamin D levels in this study, it does not mean that these factors would ever had some impact on vitamin D deficiency. Therefore, it is recommended that retrospective studies should be performed to identify the impact of different factors on vitamin D deficiency.

Keywords: Vitamin D deficiency, descriptive cross-sectional study, Chi-square, Kalutara, serum 25-hydroxyvitamin D, t test