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Assessment of Vitamin D deficiency and associated risk factors amongst children in the age group of 6- 18 years in District Shimla, Himachal Pradesh, India

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Risk factors associated with Vitamin D deficiency (VDD) are absent at high altitudes (2000m and above) as compared to plains. Objectives : to assess the VDD amongst children in the age group of 6-18 years in Shimla, a hilly district at altitude of more than 2000 meters, India Methods : A community based cross-sectional study was conducted ,a total of 626 children in the age group of 6-18 years were enrolled from 30 clusters (schools) for the study through PPS sampling . Data on socio-demographic profile and Anthropometric measurements was recorded . Blood samples were collected and analyzed for estimation of serum 25(OH) D, intact parathyroid hormone, total calcium, inorganic phosphorus, albumin and alkaline phosphatase levels utilizing standard operating procedures as described earlier. Serum 25(OH) D level of 30ng/ml and above, 21- 29ng/ml, and <20ng/ml were classified as sufficient, insufficient and deficient, respectively. The sample size was calculated keeping in view the anticipated prevalence of 25%, a confidence level of 75%, absolute precision of 5.0 and a design effect of 2.0, a total sample size of 600 was calculated. Results: Out of 626 children studied, five eighty two (93.0%) children were vitamin D deficient (<20ng/ml). Only seven (1.1%) subjects had sufficient serum vitamin D status. The vitamin D deficient children who also had abnormally elevated PTH levels (>65 pg/ml) constituted a total of 11.7%. Conclusion Even with abundant sunshine in India, an high prevalence of vitamin D deficiency was seen in the high altitude region of Himachal Pradesh.