

# Vitamin D Deficiency Among The Elderly: Insights From Qatar

[10.5339/qfarc.2014.HBPP0808](https://doi.org/10.5339/qfarc.2014.HBPP0808)

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## Abstract

**Background:** Vitamin D(VitD) deficiency is associated with co-morbidities in the elderly. VitD deficiency remains an under recognized problem in the general population and is poorly defined in elderly patients. In a geriatric population, VitD deficiency has been associated with poor muscular, physical and cognitive physical performance as well as falls and fractures. VitD deficiency is significantly associated with older age and elderly patients who need hospitalization for a longer duration are more susceptible. Advanced age and low exposure to sunlight are the major factors associated with VitD deficiency. VitD also plays a role in insulin secretion and therefore is associated with type 2 DM (T2DM). Earlier studies suggested a significantly higher risk of T2DM in VitD deficient patients. There are no studies in the elderly population in the Gulf region. Therefore, the present study was designed to assess the prevalence of VitD deficiency and the associated risk factors among a geriatric population in Qatar.

**Objectives:** To investigate the prevalence of VitD deficiency among the elderly in Qatar. **Design:** A retrospective study conducted between April 2010 and April 2012 that involved chart reviews. **Settings:** All patients in geriatrics facilities including Rumailah hospital, skilled nursing facility and home healthcare services in Qatar. **Participants:** geriatric patients of age  $\geq 65$  years. **Measurements:** Patient characteristics and outcomes were analyzed and compared according to the severity of VitD deficiency. **Correlation of VitD with co-morbidities was analysed.** Mean follow-up period was 6 months. **Results:** A total of 889 patients were enrolled; the majority (66%) was females and the mean age was  $74.9 \pm 8.7$  years. Patient comorbidities included hypertension (76.5%), diabetes mellitus (63%), dyslipidemia, (47.5%), dementia (26%) coronary artery disease (24%) and cerebrovascular accident (24%). The mean baseline serum Vit D level was  $24.4 \pm 13.5$  International Unit; 72% of patients had VitD deficiency: mild (31%); moderate (30%) and severe (11%). Patients with severe VitD deficiency had significantly higher HbA1c levels compared with patients with optimal VitD ( $P=0.03$ ). High Density Lipoprotein Cholesterol levels (HDL-Cholesterol) were significantly lower in severe VitD deficiency patients compared with optimal VitD patients ( $p=0.04$ ). There was a positive correlation between HDL-C and Vit D level ( $r=0.17$ ,  $P=0.001$ ) whereas, HbA1c levels showed negative correlation with VitD ( $r=-0.15$ ,  $P=0.009$ ). **Conclusions:** A high prevalence of VitD deficiency (72%) was observed among the elderly in Qatar. Lower VitD was associated with higher HbA1c and lower HDL-C levels. Further studies are warranted to evaluate whether VitD supplementation controls DM and low HDL-C levels among the elderly.