

## **Associations of serum 25-hydroxyvitamin D with adiposity and at-risk lipid profile differ for indigenous (Orang Asli) male and female adults of Peninsular Malaysia**

### **ABSTRACT**

Background: Low vitamin D status, adiposity, and at-risk lipid profile are associated with adverse health consequences. This study aimed to assess serum 25(OH)D concentration of Indigenous (Orang Asli) adults and to determine the associations between serum 25(OH)D with adiposity and lipid profile, respectively. Methods: This cross-sectional study was conducted among 555 (164 men, 391 women) Orang Asli adults aged 18-65 years of Jah Hut sub-tribe in Krau Wildlife Reserve (KWR), Peninsular Malaysia. Demographic and socio-economic information were obtained using interviewer-administered questionnaire. Participants were also assessed for serum 25-hydroxyvitamin D (25(OH)D) concentration, adiposity indices (BMI, WC, WHtR, WHR, %BF) and lipid parameters (TC, LDL-C, HDL-C, TG). Data were analyzed using binary logistic regression via SPSS. Results: The prevalence of suboptimal 25(OH)D concentration was 26.3%, comprising 24.9% insufficiency (50 to <75 nmol/L) and 1.4% deficiency (<50 nmol/L). While men (14-30.5%) were associated with a more proatherogenic lipid profile than women (6.1-14.3%), more women were with central obesity (M: 19.5-46.3%; F: 34.5-49.1%) and suboptimal (<75 nmol/L) vitamin D status (M: 11.6%; F: 32.4%). While suboptimal 25(OH)D concentration was significantly associated with higher odds of at-risk LDL-C ( $p < 0.01$ ) and obesity (WC, WHtR) ( $p < 0.05$ ) in men, no significant association was observed for women. Nonetheless, it should be noted that there were only 19 men with suboptimal (<75 nmol/L) vitamin D status. Conclusions: While suboptimal vitamin D status was relatively low in Orang Asli adults, the prevalence of obesity and undesirable serum lipids were relatively high. The sex-specific associations between vitamin D status with adiposity indices and serum lipids warrant further investigation.

**Keyword:** Vitamin D; Adiposity; Lipid profile; Indigenous peoples