

High body fat percentage and low consumption of dairy products were associated with vitamin D inadequacy among older women in Malaysia

ABSTRACT

Background: Serum vitamin D insufficiency is a public health issue, especially among older women. Sun exposure is fundamental in the production of vitamin D, but older women have less optimal sun exposure. Therefore, factors such as body composition and diet become more essential in sustaining sufficient serum levels of vitamin D. The objective of the current study is to determine factors contributing towards serum vitamin D insufficiency among 214 older women. Methods: The respondents had their body weight, height, waist circumference and body fat percentage measured, as well as interviewed for their socio-demographic characteristics, sun exposure and dietary intake. Fasting blood samples were obtained from the respondents to measure their serum 25-hydroxyvitamin D [25(OH)D] concentration. Results: There were 82.7% (95% CI: 77.6%, 87.8%) of the respondents that had serum vitamin D insufficiency (< 50 nmol/L) with an average of 37.4 ± 14.3 nmol/L. In stepwise multiple linear regression, high percentage of body fat ($\beta = -0.211$, $p < 0.01$) and low consumption of milk and dairy products ($\beta = 0.135$, $p < 0.05$) were the main contributors towards insufficient serum vitamin D levels, but not socio-demographic characteristics, other anthropometric indices, sun exposure and diet quality. Conclusion: Older women with high body fat percentage and low dairy product consumption were more likely to have serum vitamin D insufficiency. Older women should ensure their body fat percentage is within a healthy range and consume more milk and dairy products in preventing serum vitamin D insufficiency.