

# Vitamin D status among children and adolescents in an Egyptian cohort: can we predict vitamin D deficiency?

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## INTRODUCTION:

Vitamin D plays a crucial role in skeletal and extra-skeletal physiology (1). It is essential for growth, development and health. It works as a paracrine and autocrine signaling molecule that affects nearly all systems in the body (2). Vitamin D deficiency (VDD) is prevalent in many countries in all age groups, and may be overlooked due to the variable clinical presentations according to age (3).

## OBJECTIVES:

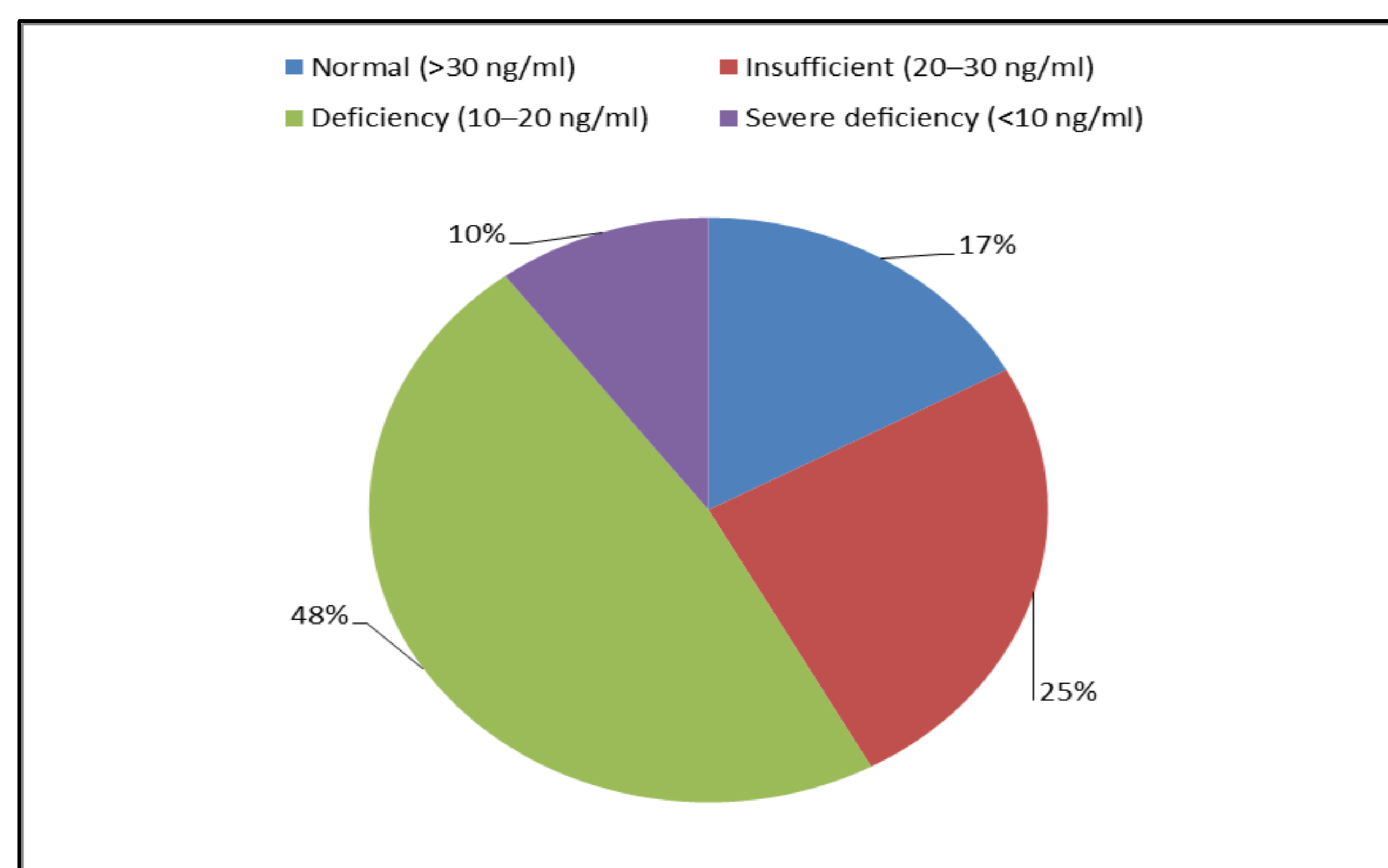
1. to assess vitamin D status among children and adolescents
2. to find out predictors of vitamin D deficiency or insufficiency among studied group

## METHODS:

Cross sectional analytical study was conducted on 88 subjects (47 children and 41 adolescents), all participants were subjected to history, clinical examination, and estimation of serum vitamin D, alkaline phosphatase (ALP), calcium (Ca) and phosphorous levels. The subjects were divided into four groups according to serum vitamin D level; vitamin D severely deficient <10 ng/ml, vitamin D deficient 10 - 20 ng/ml, vitamin D insufficient 20 - 30 ng/ml and vitamin D sufficient > 30 ng/ml

## RESULTS:

VDD was prevalent in the studied group where 58% of them showed vitamin D deficiency (10% of them were severely deficient), 25% showed insufficiency and 17% had normal vitamin D levels. Children showed 46.8% deficiency, 8.6% severe deficiency and 31.9% insufficiencies while the adolescents showed 48.8% deficiency, 21.1% severe deficiency and 17.7% insufficiency respectively. The most evident predisposing factors for VDD were BMI and inadequate sun exposure. Muscle cramps were significant among children only. Multivariable linear regression analysis revealed that BMI ( $p=0.01$ ) and fast food ( $p=0.016$ ) were associated with increased risk of VDD



**Figure 1**

Distribution of Vitamin D level categories among the studied sample

Vitamin D level category	Total (n=88) N (%)	Children (n=47) N (%)	Adolescent (n=41) N (%)
Normal (>30 ng/ml)	15 (17)	6 (12.8)	9 (22)
Insufficient (20-30 ng/ml)	22 (25)	15 (31.9)	7 (17.1)
Deficiency (10-20 ng/ml)	42 (47.7)	22 (46.8)	20 (48.8)
Severe deficiency (<10 ng/ml)	9 (10.2)	4 (8.6)	5 (12.1)

\* Values are based on Fisher's Exact Test as appropriate.

Predictors	Unstandardized Coefficients		Standardized Coefficients Beta	95% CI	p value
	B	Std. Error			
(Constant)	-5.84	21.109			0.789
BMI	-1.455	0.491	-0.742	(-2.50 - -0.408)	0.01*
Waist circumference	0.786	0.379	0.911	(-0.023 - 1.594)	0.056
Fast Food consumption (times/week)	-2.687	0.995	-0.462	(-4.809 - -0.566)	0.016*
Sun Exposure (hour/week)	0.357	0.474	0.295	(-0.654 - 1.367)	0.464
Muscle cramps	7.101	4.99	0.337	(-3.553 - 17.756)	0.176
Bone ache	-10.310	5.141	-0.489	(-21.268 - 0.649)	0.063

\* Statistical significance at  $p<0.05$

## CONCLUSION:

Vitamin D deficiency and insufficiency are prevalent among children and adolescents with gender independence.

Despite most of the cases were asymptomatic or presented with non-specific significant symptoms, obesity and fast food significantly affected vitamin D status among the studied group

## REFERENCES:

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