

Current Health Event

Vitamin D Deficiency

Vitamin D deficiency is a public health problem that is widespread and frequently underdiagnosed. It is especially common among persons residing at more northerly or southerly latitudes where daylight hours are limited during winter months but the problem also exists among people living in regions with ample sunshine like Africa and the Middle East.

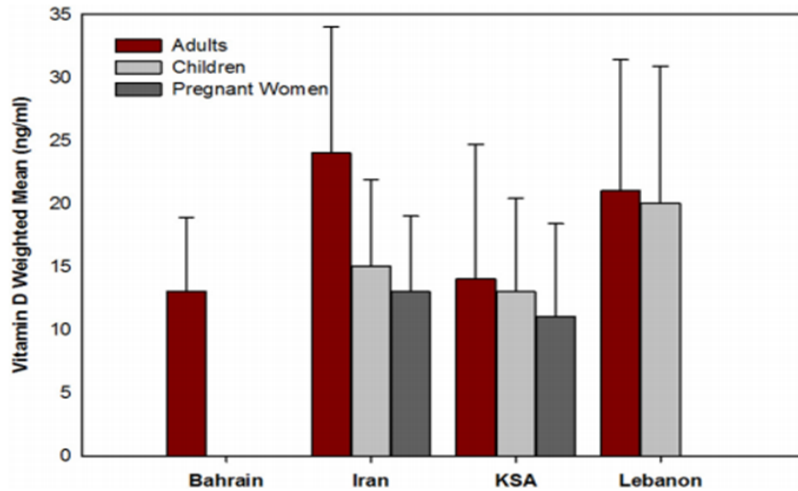
Editorial note:

Vitamin D is a micronutrient that plays an essential role in calcium and phosphorus homeostasis and is therefore critical for bone growth. A person's vitamin D status depends on the production of vitamin D in the skin under the influence of UV radiation and the intake of the vitamin through their diet or through supplements. Around 80% of vitamin D in the human body is produced in the skin and the remainder is from the diet (*WHO/FAO Guidelines on Food Fortification with Micronutrients, 2006*).

When assessing vitamin D status, the serum 25-hydroxyvitamin D (25(OH)D) concentration is used as a parameter. Globally, different 25(OH)D concentration values are used to consider vitamin D deficiency; cutoff points range between <12 ng/ml to < 20 ng/ml (IOM 2011, and EFSA 2016 respectively). Vitamin D deficiency causes Rickets in infants and children and osteomalacia in adults. Moreover, the literature points to a possible association between low vitamin D status and cardiovascular disease, respiratory illnesses, osteoporosis, and adverse pregnancy outcomes (*Roth et al, 2018*).

The Middle East and North Africa (MENA) region has some of the lowest 25(OH)D concentrations, worldwide. This is attributed to dark skin color in Africa and to conservative clothing that limits sun exposure in the Middle East (*El-Rassi et al, 2012*). A comparison of the weighted means for serum 25(OH)D levels between 4 countries in the Middle East showed that the weighted means were between 13 and 18 ng/ml in children from Iran, Lebanon, and KSA, between 11 and 13 ng/ml in pregnant women from KSA and Iran, and between 13

Figure 1: Weighted means (±pooled SD) for serum 25-hydroxy-vitamin D levels by age group in 4 countries in the Middle East (*Chakhtoura et al, 2018*)



and 24 ng/ml in adults in these 4 countries (Figure 1). According to studies about Vitamin D deficiency in the MENA region, consistent predictors of low 25(OH)D concentration across the lifecycle included female gender, increasing age, high body mass index, low intake of calcium or vitamin D supplements, low sun exposure duration, lower education or socioeconomic status, and urban residence (*Chakhtoura et al, 2018*).

In a retrospective study conducted in Lebanon, where laboratory results of 838 individuals were analyzed, 57.8% of the subjects were vitamin D deficient; 61.7% of the females and 33.9% of the males (cutoff point used <20 ng/ml) (*Khalife et al, 2017*). In order to reduce the disease burden caused by vitamin D deficiency, public health measures should include Vitamin D supplementation. In fact, in a randomized controlled trial in Lebanese adolescent girls, vitamin D supplementation for one year had a positive impact on the musculoskeletal parameters of participants (*El-Hajj Fuleihan et al, 2006*). In another study conducted in Lebanon, counseling by pharmacists was effective in increasing patient knowledge about Vitamin D (*Malaeb et al, 2016*). Hence, raising both public and professional awareness of the risk factors and consequences of Vitamin D deficiency is also needed to optimize vitamin D status in Lebanon and to improve patient compliance to vitamin D supplementation.

The WHO/FAO Guidelines on Food Fortification with Micronutrients suggest the following strategies to control micronutrient malnutrition, including Vitamin D deficiency; (1) increasing the diversity of foods consumed, (2) food fortification, (3) supplementation, and (4) public health measures.

Notifiable Diseases in Lebanon [Cumulative n° of cases among all Residents(among Syrians)] as of 15 October 2019				
Disease	2018	2019	Aug	Sep
Vaccine Preventable Diseases				
Polio	0(0)	0(0)	0(0)	0(0)
AFP	88(33)	62(12)	3(0)	4(0)
Measles	952(156)	1053(102)	13(1)	11(4)
Mumps	121(41)	93(23)	7(2)	17(4)
Pertussis	64(26)	60(19)	11(2)	6(2)
Rabies	3(1)	0(0)	0(0)	0(0)
Rubella	11(4)	14(7)	0(0)	0(0)
Tetanus	2(1)	0(0)	0(0)	0(0)
Viral Hep. B	253(28)	230(33)	30(8)	24(2)
Other Notifiable Diseases				
Brucellosis	242(26)	189(24)	34(1)	34(9)
Cholera	0(0)	0(0)	0(0)	0(0)
Hydatid cyst	8(2)	25(2)	3(1)	1(0)
Typhoid fever	237(4)	199(4)	30(1)	22(1)
Viral Hep. A	899(152)	361(106)	38(4)	51(6)
Other Notifiable Diseases				
Meningitis	420(82)	382(65)	58(9)	56(11)
Viral Hep. C	103(7)	60(5)	5(0)	7(0)