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Research Article

**A CROSS-SECTIONAL TO KNOW PREVALENCE OF
HYPOVITAMINOSIS D IN HEALTHY ADULTS OF SOUTHERN
PUNJAB AND ITS PERCENTAGE OF RISK IN ADULTS**Dr Khawar Bilal¹, Dr Asif Ali¹, Dr Muhammad Kashif Rana¹¹ Nishtar Hospital, Multan.

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Abstract:*Objective: To determine the hypovitaminosis D prevalence and risk in healthy Pakistani adults.**Study Design: A cross-sectional multicentre study.**Place and Duration: In two major Hospitals of Southern Punjab, Nishtar Hospital, Multan and Bahawal Victoria Hospital, Bahawalpur from July 2017 to January 2018. Patients of different age group visited various departments.**Methodology: In this study, 244 healthy adults between the ages of 16-62 visited the two major hospitals of Nishtar and BVH as a patient assistant and met the criteria for participation and exclusion. After the written permission was received, a survey was conducted on age, gender, occupation, exposure to sun, exposed area, type of housing used, eating habits and clothing. By electrochemiluminescence assay, Serum 25-OH vitamin D3 levels were checked and deficiency of vitamin D was considered when $<20 \mu\text{g} / \text{ml}$. In all these patients alkaline phosphatase and serum calcium phosphorus were checked.**Findings: Of the 244 persons aged 16-62 years, women were 193 (79%). The volunteers were mostly married (73%), most of them lives in apartments (48.5%). Mostly sun exposure was 1-2 hours / day (42%). The majority wears outfits in different colors (73%) and in 41% fabric. 186 (75.99%) subjects were exposed to Vitamin D deficiency and significant exposure to sunlight, exposed deep, Vitamin D consumed diet and large area of clothing color. While serum was positive for calcium, vitamin D showed a significant negative correlation with serum phosphorus and alkaline phosphatase.**Conclusion: The hypovitaminosis D prevalence in healthy Pakistanis is at peak and Sun exposure the duration is the most important determinant of hypovitaminosis D.**Key words: healthy individuals, hypovitaminosis D, risk factors.***Corresponding author:****Dr. Khawar Bilal,**

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INTRODUCTION:

Epidemiological studies indicate that the risk of vitamin D {25 (OH) D} subtypes is linked with osteoporotic fractures and malignant breast, colon, ovarian and prostate. Studies (OH) D is an endemic entity not defined in the United States or in the United States. At one point, lack of vitamin D in South Asia was thought to be very rare. A study in healthy individuals in 2008 shows that hypovitamin D prevalence was 91 percent, and then various studies from different parts of Pakistan showed that Pakistanis had a lack of vitamin D in all groups. Furthermore, in many studies conducted in different countries, the vitamin D deficiency prevalence was observed in the Asian people. In the local population very few people were aware of Vitamin D deficiency. In healthy adults, there is no data published which gives information about vitamin D deficiency prevalence in the local people. The aim of this study was to test the vitamin D deficiency (<250 ng / ml to 20 ng / ml) hypothesis in asymptomatic adults in general. The secondary goal was to determine the lifestyle factors of adults representing the determinants of hypovitaminosis D in the study participants.

MATERIALS AND METHODS:

This cross-sectional multicentre study was held in two major Hospitals of Southern Punjab, Nishtar Hospital, Multan and Bahawal Victoria Hospital, Bahawalpur from July 2017 to January 2018. Patients of different age visited various departments. There is no difference in the study area that could significantly affect the vitamin D level under sunlight. In this study, 244 healthy adults aged 16-62 years were admitted. Hospitalized patients go as assistants.

Exclusion criteria are: * Unexplained pain and musculoskeletal system pain, general pain of bones,

bone deformities and painful palpitation, symptoms and signs of deficiency of vitamin D such as proximal myopathy.

* Parathyroid, Thyroid, gonadal disease or adrenal.

* Metabolic bone disease History

* Cancer

* kidney and Liver disease

* Diabetes Mellitus

* Hysterectomy

* The use of drugs that effect the condition of vitamin D, p. vitamin D supplements, calcium supplements, estrogen, progesterone and antiepileptics.

* Pregnancy and breastfeeding * Inactivity for week or more. Age, occupation, gender, exposed skin location, sun exposure details, clothing, eating habits and type of living. In the morning, blood samples were taken on an empty stomach, venous puncture with disposable syringes and blood was taken up to 5 ml. Blood samples were separated from the venous pool two hours after complete centrifugation, collected in tubes and kept at 20 ° C until analyzed. SPSS version 15 was used for data Analysis. When variables continuously are expressed as discrete variables, mean ± standard deviation are expressed as a percentage and Chi-square test is used for analysis, if necessary. P <0.05 was taken significant statistically. Pearson correlation analysis was performed between other variables and vitamin D and p value less than 0.01 was taken significant statistically.

RESULTS:

Hypovitaminosis D prevalence was high in healthy subjects. The characteristics of descriptive statistics and the subjects are shown in Tables I and II, respectively.

Table-I: Basic characteristics of study subjects (n=244)

Gender	n (%)			
		Duration of sun exposure	0 hour / d	13(5.3)
Male	51(20.9)			
Female	193(79.1)			
Married			<1hour / d	88(36.1)
Yes	177(72.5)			
NO	67(27.5)			
Vitamin D in diet			1 - 2 hour / d	103(42.2)
Low	218(89.3)			
Adequate	26(10.6)		>2hour / d	40(16.4)
Residence		Color of Clothes	Black	51(20.9)
Covered Houses	79(32.4)		White	17(7.0)
Houses with open Space	49(20.1)		Others	176(72.10)
Apartments	116(47.5)	Type of Fabrics	Synthetic	16(6.6)
Area of skin exposed			cotton	40(16.4)
Whole body	30(12.3)		Mixed	88(36.1)
Covered			Variable	100(41)
Face Exposed	85(34.8)			
Face & Hands Exposed	102(41.8)			
Face, Hands & Forearm exposed	27(11.1)			

The cases were between 16-62 years and the mean age was 33.62 ± 12.64 years. Of the 244 people, 193 were women (79%).

Table-II: Descriptive statistics (n=244)

	Minimum	Maximum	Mean \pm S.D
Age of patient (Years)	16	62	33.62 ± 12.64
Serum Vitamin D (mg/ml)	4	60	15.65 ± 9.91
Serum Calcium (mg/dl)	7.4	10.9	8.82 ± 0.66
Serum Phosphate (mg/dl)	2.3	6.5	3.81 ± 0.69
Serum Alkaline phosphate (1.U/L)	37	375	143.61 ± 77.13

The majority of the cases were at home (177%), the majority (47.5%) were at home, and frequently they became open in the open air and face (41.8%). Mostly, exposure to sun was 1-2 hours (42%). The majority of subjects used variable color variable

fabric (41%) (41%). (20%) and 22 (9%) dietary insufficiency incidences, including dietary habits, including 218 D (89.3%) and 26 (10.7%) had normal vitamin D levels in 76.2% of the studied population (Table III).)

Table-III: Vitamin d levels (n=244)

Vitamin D Level	Frequency(%)
Insufficiency	36(14.8)
Deficiency	186(76.2)
Normal	22(9.0)
Total	244(100.0)

Statistically, there was no difference in vitamin D levels between men and women (Table IV).

Table-IV: Vitamin D level. Male and Female difference. (n=244)

		Gender		P-value
		Male	Female	
Vitamin D level	Insufficiency	10 (19.6%)	26 (13.5%)	0.267
	Deficiency	36 (70.6%)	150 (77.7%)	0.283
	Normal	5 (9.8%)	17 (8.8%)	0.826
Total		51 (100%)	193 (100%)	

Table V shows the correlation between clinical, laboratory variables and vitamin D levels (25). Vitamin D levels did not correlate with marital status, age, type of residence gender difference and type of tissue, but there was a remarkable relationship

between vitamin D and exposure to sunlight and color of clothes. Among the laboratory variables, vitamin D showed a negative correlation with alkaline phosphatase, serum calcium and serum phosphorus was positive.

Table-V: Correlation of serum 25(OH) Vitamin D with clinical and lab variable (n=244)

Variable	r	p
Age	0.023	0.725
Gender	-0.104	0.105
Duration of sun Exposure	0.34	<0.001
Area of skin Exposed	0.564	<0.001
Vitamin in diet	0.565	<0.001
Type of fabrics	0.090	0.161
Colour of fabrics	0.333	<.001
Type of Residence	0.057	0.372
Serum Calcium	0.28	<0.001
Serum Phosphorus	-0.24	<0.001
Serum Alkaline Phosphatase	-0.32	<0.001

DISCUSSION:

Despite the abundant sunshine throughout the year, the prevalence of hypovitaminosis D was surprisingly high among Pakistanis living in Rawalpindi (76%). This result is supported by many previous studies in countries with sufficient sunlight. Turkey Will Be? A, Lebanon, India, China, Jordan, Iran, Tunisia and Saudi Arabia, have a high ratio of between 45% and 96%. In some of these studies, the hypovitaminosis prevalence is due to factors such as ultraviolet B rays, multiparitenin, dress factor, restriction of exposure to sunlight and exposure to sunlight, and dietary factors that prevent sun pollution. air. In the local population, avoidance of the sunlight, darkening of the skin and

the whole body, especially women who are afraid to traditionally open their faces and hands, are the main factors contributing to outdoor or whole body coverage. Male subjects also avoid exposure to the sun during the summer months due to high temperatures in this region of the world, but at the same time they have misconceptions about the harmful effects of sunlight and lack of information about vitamin D source. The sun affects the effect on vitamin D and the importance of exposure to sunlight in vitamin D synthesis. Exposure to sunlight has been the most important vitamin D levels determinant in the studied population. As seen in other studies, the exposed skin area and duration of sun exposure

correlated strongly with vitamin D levels in this study. It is not surprising that hypovitaminosis D is so widespread in this country because dark skin requires less exposure to the sun and more exposure to the sun to produce vitamin D in the same amount. The dietary factor is another determinant of high prevalence. . Most of our participants consumed food rich in vitamin D-vitamin content. Due to lack of information about the quantity, the actual estimate of vitamin D consumption was not possible. Consumption of diet by participants and availability of vitamin D database for use in Pakistan. In addition, there is no dietary supplement with vitamin D in Pakistan, and studies of calcium and vitamin D supplementation among study subjects also contributed to a high prevalence, but some studies have not shown such a relationship. a meaningful correlation.

CONCLUSION:

It is finally considered that the healthy local population has a high vitamin D deficiency prevalence and that the main factor contributing to this is minimum sun exposure because it avoids sunlight and is located outside the face of the whole body. Other factors in the open air hands can also play a little role. To overcome this, it is recommended that exposure to sunlight and consciousness be recommended to ensure that foods rich in vitamin D are taken at a high level at a large scale and that a program for the enrichment of foods and vitamin D is initiated food level.

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