

# Sun Exposure and Vitamin-D among Dental Students

Geddam Soundarya Deepthi<sup>1</sup>, K. V. N. R. Pratap<sup>2</sup>, T. Madhavi Padma<sup>3</sup>, V. Shiva Kalyan<sup>4</sup>, P. Srikanth<sup>5</sup>

<sup>1</sup>Student (BDS), Department of Public Health Dentistry, Mamata Dental College, Khammam, India

<sup>2</sup>Professor & HoD, Department of Public Health Dentistry, Mamata Dental College, Khammam, India

<sup>3</sup>Professor, Department of Public Health Dentistry, Mamata Dental College, Khammam, India

<sup>4</sup>Reader, Department of Public Health Dentistry, Mamata Dental College, Khammam, India

<sup>5</sup>Lecturer, Department of Public Health Dentistry, Mamata Dental College, Khammam, India

**Abstract:** Regular sun exposure is the most natural way to get enough Vitamin-D. Vitamin-D is essential for healthy bones, vitamin D deficiency is a major public health problem worldwide in all age groups, even in equatorial region where ultra violet rays were assumed to be adequate enough to prevent this deficiency. This study was conducted among 250 dental student's male & female students in Mamata Dental College. The study revealed that more no. of participants gets exposed to sun for about 30 minutes. The major cause of vitamin D deficiency is lack of appreciation that sun exposure in moderation is main source of Vitamin-D.

**Keywords:** Sun exposure, Vitamin-D

## 1. Introduction

A steroid vitamin which promotes the intestinal absorption and metabolism of calcium and phosphorous [1]. It is also a sunshine vitamin [1]. Under normal conditions of sunlight exposure, no dietary supplementation is necessary because sunlight promotes adequate vitamin D synthesis in the skin.

Few foods naturally contain vitamin D such as oily fish like salmon, cod liver oil [2]. Vitamin- D deficiency which has now become a worldwide health problem as it can lead to bone deformity in children and bone weakness in adults [2].

Skin production of active form of vitamin D depends on exposure to sunlight. In case of absence of adequate sun exposure at least 800-1000IU, vitamin d may be needed to achieve this in children and adults. In case of vitamin D deficiency supplements become important.

Since previous studies were not conducted on general population in rural areas, but not on students who are adapted to sedentary lifestyle, exposure to morning sunlight has reduced. So, the aim of this survey is to evaluate the sun exposure and vitamin D among dental students.

## 2. Objectives

- To determine the status of vitamin D level among dental students.
- To find out optimal sun exposure for vitamin D sufficiency.

## 3. Methodology

### A. Permission

Permission was taken from head of department. Department of public health dentistry questionnaire is explained informed consent was taken prior to study from study subjects.

### B. Study Design

A cross sectional questionnaire based study was conducted among dental students of Mamata Dental college, Khammam, Telangana.

### C. Pilot study

Questionnaire framed based on related articles are distributed among 30 students to know the reliability of questionnaire.

### D. Inclusion criteria

All the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> year students and interns who are present during day of survey were included in the study. The duration of the study was from 28-05-2019 to 06-06-2019.

### E. Exclusion criteria

Students who are absent during the day of survey and students not willing to participate are excluded.

### F. Study Procedure

The study was conducted among 250 dental students. Questionnaire were distributed to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> year students and interns during their working hours 9:00Am to 4:00Pm. A Questionnaire consists of personal data and 17 questions bases on vitamin D and sun exposure among students in Mamata Dental college.

### G. Statistical Analysis

After the data is collected through the questionnaires they are entered into excel sheet and sent for analysis.

Statistical analysis was done by using spss 25. Data was analysed using descriptive statistics. Chi-square test was done to know the association among categorical variables.

#### 4. Results

Study was conducted among 250 students out of which 15.2% are males and 84.8% are females.

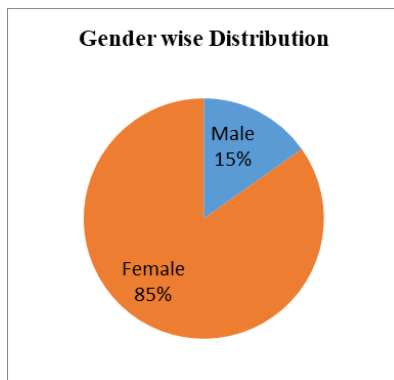
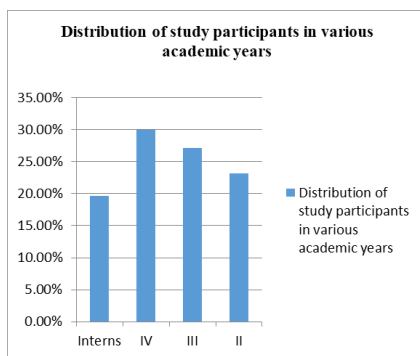


Fig. 1. Socio-demographic data

Study was done on 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> years and interns. Out of which 23.2% are 2<sup>nd</sup> Bds, 27.2% are 3<sup>rd</sup> Bds, 30% are 4<sup>th</sup> Bds, 19.6% are interns.



Majority i.e., 40% answered that vitamin d is cholecalciferol, few i.e., 0.8% of students answered it as ergocalciferol.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	cholecalciferol	102	40.8	40.8	40.8
	calcitriol	50	20.0	20.0	60.8
	Ergocalciferol	2	.8	.8	61.6
	All the above	96	38.4	38.4	100.0
	Total	250	100.0	100.0	

18.8% students answered '10-20 mgrms', 30% students answered as '400-800IU/day', 48.8% students answered as both 'a&b', 2.4% students answered as 'none of the above' for the question about daily intake of Vitamin-D.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10-20mgrms	47	18.8	18.8	18.8
	400-800IU/day	75	30.0	30.0	48.8
	Both a &b	122	48.8	48.8	97.6
	None	6	2.4	2.4	100.0
	Total	250	100.0	100.0	

46.4% students reacted as '30 mins', 8.4% students reacted as more than 1hr for the question how long they are usually exposed to sunlight each day.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30 min	116	46.4	46.4	46.4
	1 hr	45	18.0	18.0	64.4
	>30 min	68	27.2	27.2	91.6
	> 1 hr	21	8.4	8.4	100.0
	Total	250	100.0	100.0	

78% of the students answered as 'sun protection factor', 13.2% of the students answered as 'solar protection factor', 8.8% students answered as 'both A&B' for the question what is SPF.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sun protection Factor	195	78.0	78.0	78.0
	Solar protection Factor	33	13.2	13.2	91.2
	Both A and B	22	8.8	8.8	100.0
	Total	250	100.0	100.0	

#### 5. Discussion

The present study was conducted to determine the status of vitamin D among dental students. The main goal of the study is to find out optimal sun exposure for vitamin D sufficiency.

Almost 46.4% of the study participants in the study had sun exposure of 30min which differed from previous study that was conducted in West Bengal, Kolkata.

The study revealed that participants are aware that vitamin D is synthesised in the body and PTH secretes vitamin D as well. On the contrary most of them lack the knowledge regarding the vitamin D deficiency/ insufficiency.

Current analysis shows participants were aware of the vitamin D and its daily intake. Most of the students are also well aware of sun protection factor and its benefits.

Majority of the female admitted that they have never experienced occupational sun exposure unlike females, males have given a varied opinion on their experience on occupational sun exposure where half of male participants believed that they have experienced occupational sun exposure and rest half have never experienced anything as such.

#### 6. Conclusion

Throughout evolution humans have depended on the sun for vitamin D requirement. The recommendation for the avoidance of all sun exposure has put the world's population at risk of vitamin D deficiency. The chances of increase in skin cancers resulted in promotion of never exposing the sun to direct sunlight without sun protection. This so called sun safe message has resulted in marked increase in the risk of vitamin D deficiency. Awareness or proper knowledge is prerequisite for

daily practice, proper information, education, and communication. Materials regarding various aspects of sun exposure and vitamin D should be prepared with due consultation of field experts and disseminated to increase the awareness among the community.

### **References**

- [1] Shobhit Garg, Aparajita Dasgupta, Swanya Prabha Maharana, Bobby Paul, Lina Bandyopadhyay, Aitra Bhattacharya. Sun Exposure and Vitamin D in Rural India: A Cross-Sectional Study.
- [2] Wedad Z. Mostafa, Rehab A. Hegazy. Vitamin D and the skin: Focus on a complex relationship: A review.
- [3] Michael F. Holick and Tai C. Chen. Vitamin D deficiency: a worldwide problem with health consequences.
- [4] Chittari V. Harinarayan, Michael F. Holick, Upadrasta V. Prasad, Palavali S. Vani and Gutha Himabindu. Vitamin D status and sun exposure in India.