



CODEN [USA]: IAJPBB

ISSN : 2349-7750

## INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187

<http://doi.org/10.5281/zenodo.4441479>
Available online at: <http://www.iajps.com>

Research Article

### A CROSSWISE INVESTIGATION TO ASSESS STANDARD CONSTRAINTS AND GROWTH SENTIENCE CONCERNING THE SHORTAGE OF VITAMIN D

<sup>1</sup>Dr. Ehsan Ramzan, <sup>2</sup>Fatima Rauf, <sup>3</sup>Dr Husna Jamil

<sup>1</sup>Mayo Hospital Lahore, <sup>2</sup>Benazir Bhutto Hospital Rawalpindi, <sup>3</sup>Tehsil Headquarters Hospital,  
Taxila

Article Received: November 2020    Accepted: December 2020    Published: January 2021

**Abstract:**

**Objective:** To attain standard evaluation and growth the Vitamin 'D' sentience among therapeutic students was the objective of this investigation.

**Materials and Method:** Current sentience and knowledge of the therapeutic students were gathered through a structured survey about Vitamin 'D' shortage. This crosswise investigation was carried out from December 2018 to July 2019 at Sir Ganga Ram Hospital, Lahore on therapeutic undergraduates. Results analysis was made on SPSS software (P-Value <0.05). The survey included questions concerning Vitamin 'D', sentience, health, affecting factors and management of Vitamin 'D' shortage.

**Results:** Majority of them were not aware of the related consequences of CVD, type-2 diabetes (DM) and cancers. Most of the therapeutic undergraduates were not fully aware of Vitamin 'D' shortage; whereas, students were suitably aware of the skeletal and bone-related disorders. However, students were not aware of dose, biochemical forms, Vitamin 'D' supplementation duration and nutritional shortage. Results show that 1/3<sup>rd</sup> of the respondents were well aware of the importance of intake of Vitamin 'D' through sun exposure. Positive global health results are only possible through the promotion of Vitamin 'D' knowledge and sentience. This investigation highlights that students lack in the knowledge and sentience about Vitamin 'D' importance, its global prevalence and management strategies.

**Conclusion:** This information will surely provide therapeutic professionals with standard data for better identification, diagnosis, treatment and prevention of Vitamin 'D' shortage. This investigation indicates that importance of increasing knowledge and sentience among therapeutic students about Vitamin 'D' importance, its global prevalence and management strategies. More emphasis is required on Vitamin 'D' sentience campaigns for the improvement of overall healthcare. Better health-related behavior formation is only possible through timely educational and sentience programmes.

**Keywords:** Standard and Nutrition, Vitamin 'D', Type-2 diabetes, Shortage.

**Corresponding author:**

**Dr. Ehsan Ramzan,**  
Mayo Hospital Lahore.

QR code



Please cite this article in press Ehsan Ramzan *et al*, A Crosswise Investigation To Assess Standard Constraints And Growth Sentience Concerning The Shortage Of Vitamin D., *Indo Am. J. P. Sci*, 2021; 08(1).

**INTRODUCTION:**

It has affected both populaces either urban or rural [1, 2]. Majority of global populace is not aware of the epidemic of Vitamin 'D' shortage which is almost affecting everybody including toddlers to elderly people [2]. Adults also ensue fractures and muscle weaknesses [3]. Higher risks are found among young adults; moreover, in childhood, this shortage causes retardation in growth and skeletal disorders[4]. Factors contributing to the non-sentience of Vitamin 'D' shortage are mostly dependent on its reduced knowledge and sentience among populaces all across the world. High-risk populace need to undergo educational campaigns and sentience programmes to know its related treatments and consequences [5]. Vitamin 'D' also promotes cardiovascular health along with the prevention of cancers, autoimmune disorders and type-2 diabetes [6]. Through knowledge, motivation and attitude's information is crucial for effective and targeted health behavior formation. Our investigation may form the basics of future programmes on the standard assessment of Vitamin 'D' shortage. [7]. The results of this investigation are helpful for the determination of novel strategies to promote Vitamin 'D' sentience among undergraduate therapeutic students. Thus, the objective of our investigation was to attain standard evaluation and growth Vitamin 'D' sentience among therapeutic students. Positive health behavior results are easily possible through educating children at an early age about its importance which will help them to sustain those behaviors towards the end of their life. Two-fold opportunity is possible through educating undergraduates as they are an integral part of the healthcare and capable to bring long-lasting effects in their future assignments. Future healthcare programmes totally depend on the attribution of these young professionals for the promotion of healthy behaviors and formation of social health norms.

**MATERIALS AND METHODS:**

Current sentience and knowledge of the therapeutic students were gathered through a structured survey about Vitamin 'D' shortage. This crosswise investigation was carried out from December 2018 to July 2019 at Sir Ganga Ram Hospital, Lahore on therapeutic undergraduates. We interviewed 300 therapeutic undergraduates through a structured survey after receiving their informed consent and ethical review committee's permission to conduct the investigation. The survey included questions

concerning Vitamin 'D', sentience, health, affecting factors and management of Vitamin 'D' shortage. The question was framed to gather data about the demographics of the students along with an assessment of the knowledge and sentience in the perspective of investigation objectives. All the doubts in the minds of the undergraduates were cleared. This investigation also included questions concerning sun exposure in terms of direct exposure and passing through the glass for different times of the day. Questions were MCQs and they were answered in the given fifteen minutes time period. A pretest was also carried out on a total of ten students before applying the same on all the students. The results have been tabulated in the given tabular data. Students were randomly shortlisted and a staff not associated with the investigation conducted the survey. It showed the understanding of the students about the survey and its contents. We considered good reliability and consistency by taking the Cronbach alpha estimated value (0.7). Results analysis was made on SPSS software (P-Value <0.05). Students were also taught about the shortage of Vitamin 'D' after the completion of the survey along with its management and knowledge.

**RESULTS:**

Results show that 1/3<sup>rd</sup> of the respondents were well aware of the importance of intake of Vitamin 'D' through sun exposure. Most of the therapeutic undergraduates were not fully aware of Vitamin 'D' shortage; whereas, students were suitably aware of the skeletal and bone-related disorders. Majority of them were not aware of the related consequences of CVD, type-2 diabetes (DM) and cancers. This investigation highlights that students lack in the knowledge and sentience about Vitamin 'D' importance, its global prevalence and management strategies. However, students were not aware of dose, biochemical forms, Vitamin 'D' supplementation duration and nutritional shortage. Detailed results analysis for Vit 'D' shortage, Vit 'D' shortage in High-Risk Groups, Vit 'D' Shortage related Problems, Vit 'D' Sources, Vit 'D' Sunlight Exposure, Vit 'D' Minimum Sunlight Exposure Required, Vit 'D' RDA, Vit 'D' Supplement Intake, Vit 'D' Supplement Nutritional Shortage and Calcium Supplements for Vit 'D' Shortage is given in the tabular and graphical presentation below. Positive global health results are only possible through the promotion of Vitamin 'D' knowledge and sentience.

Table – I: Detail of Variables

	Variables	No	%
Vit 'D' Shortage	Epidemic Proportions	45	17.8
	Rare	21	8.3
	High-Risk Groups	60	23.8
	Urban Populace	119	47.2
Vit 'D' Shortage High-Risk Groups	Fair Skinned Patients	23	9.1
	None of the above	16	6.3
	Infants, Lactating and Pregnant Women	192	76.1
	Elderly	15	5.9
	Diabetes Patients	6	2.3
Vit 'D' Shortage related Problems	Cancer	1	1.1
	Autoimmune Disorders	4	1.5
	None of the above	2	0.7
	Skeletal and Bone Disorders	238	94.4
	Type-2 diabetes	2	0.7
	CVD	1	0.3
Vit 'D' Sources	Egg (Yolk)	21	8.3
	None of the above	10	3.9
	Green Leafy Vegetables	43	17
	Sunlight passing through Glass	83	48
	Milk	57	22.6
Vit 'D' Minimum Sunlight Exposure Required	One hr/day	87	34.5
	30 min/twice a week	81	32.1
	Two hrs/day	51	20.2
	4 hrs/twice a week	24	8.7
	None of the above	11	4.3
Vit 'D' Sunlight Exposure	Arms and Legs Exposure to Sun (10 am to 2 pm)	107	42.4
	Sunlight passing through Glass (10 am to 2 pm)	46	18.2
	Arms and Legs Exposure to Sun (2 to 4 pm)	9	3.5
	Arms and Legs Exposure to Sun (7 to 10 am)	79	31.3
	None of the above	11	4.3
Vit 'D' RDA	1000 IU	55	21.8
	2000 IU	13	5.1
	600 IU	62	24.6
	800 IU	84	33.3
Vit 'D' Supplement Intake	Yes with (Serum 25-hydrovit 'D')	61	24.2
	Yes without (Serum 25-hydrovit 'D')	132	52.3
	No	58	23
	Either of the above	22	8.7

Vit 'D' Supplement Nutritional Shortage	None of the above	5	1.9
	Alfacalcidol	19	7.5
	Cholecalciferol	101	40
	Calcitriol	105	41.6
Calcium Supplements for Vit 'D' Shortage	No	88	34.9
	Yes	164	65

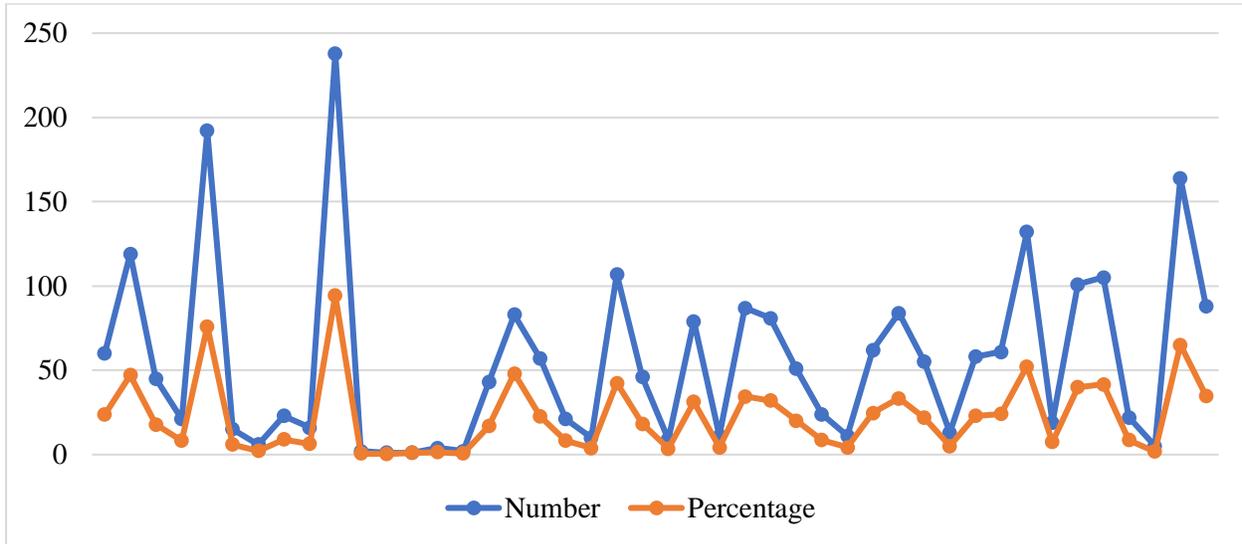


Table – II: Classification Details

Classification		Value (ng/mL)
US Society of Endocrine	Shortage	>20
	Insufficiency	21 to 29
	Sufficiency	>30
	Toxicity	>150
IOM	Severe Shortage	<5
	Shortage	<15
	Sufficiency	>20
	Toxicity Risk	>50

**DISCUSSION:**

The key factors for the maintenance of levels of Vitamin 'D' are bone homeostasis, phosphate metabolism and calcium. Most of the students (94%) were aware of the skeletal and bone disorders as reported in the previous studies [2]. People are not aware of the Vitamin 'D' shortage all over the globe irrespective of geographical locations, populaces and age groups [8]. However, in this case, students were not aware of the relation of Vitamin 'D' shortage with all the mentioned diseases and disorders. Vitamin 'D' is also available in diets like cod liver oil, egg yolk,

salmon, sun-dried mushrooms etc. apart from sun exposure. Students must know about the fortified sources and dietary intakes rich in Vitamin 'D'. Students also lacked in the knowledge about the availability of Vitamin 'D' in replicant diets and supplements as mentioned in other studies as well [9]. Studies have also shown the evidence of infections, mental disorders, autoimmune disorders, T2DM and CVD among those regions which show a shortage of Vitamin 'D' [10]. Outdoor activities provide ample chances to get an intake of Vitamin 'D' directly from the Sun. Air pollutants, urbanization and other

contributing factors have reduced sun exposure which attributes in the shortage of Vitamin 'D'. Moreover, it is an established fact that sunlight passing through the glass and entering the home is not suitable for building Vitamin [11]. 'D' We may overlook Vitamin 'D' in Asian countries as they have ample exposure to sunlight throughout the year in comparison to other countries and regions [12]. IOM study shows that 1/3<sup>rd</sup> of the students were aware of Vitamin 'D' dietary intake and RDA recommendation for health optimization among both males and females especially for their bone health [13]. Unfortunately, most of the students were not aware of his fact along with the effect of time of the day on the proportion of levels of Vitamin 'D' intake. The dependency of time and hours spent in the sunlight for Vitamin 'D' levels building. Students must know its effect on the skin, Vitamin 'D' synthesis, time of the day, exposure duration, sunscreen use, clothing style and skin pigmentation [14]. Long-term consequences such as toxicity and Vitamin 'D' shortage can be avoided through ample sunlight exposure and adequate Vitamin 'D' supplements [15]. Vitamin 'D' shortage either cholecalciferol or ergocalciferol may be treated with a weekly dose of 50,000 IU for eight weeks along with bi-monthly supplements [16]. Nonviability of sunlight and suitable diet may cause adequacy and absence of Vitamin 'D'. Endocrine Society of the USA also classified Vitamin 'D' (25- hydroxycholecalciferol) levels of serum among adults for an indication of scarcity of Vitamin 'D' (Table – II). There is a need to emphasize more on the sentience of Vitamin 'D' levels apart from RDA concerning regions, age, sex, pregnancy status and diseases [17]. More investigation work will even help in the collection of evidence-based standard assessment. High-risk groups need more focused treatment and management of shortage of Vitamin 'D' [18]. Students would identify the solution of issues to take corrective measures at the community level for what they were unaware of. The silent outbreak of Vitamin 'D' shortage needs to be arrested essentially before it is too late and it leads to other related disease conditions.

### CONCLUSION:

This information will surely provide therapeutic professionals with standard data for better identification, diagnosis, treatment and prevention of Vitamin 'D' shortage. This investigation indicates that importance of increasing knowledge and sentience among therapeutic students about Vitamin 'D' importance, its global prevalence and management strategies. More emphasis is required on Vitamin 'D' sentience campaigns for the improvement of overall healthcare. Better health-related behaviour formation

is only possible through timely educational and sentience programmes.

### REFERENCES:

1. J. F. McKenzie, B. L. Neiger, and R. Thackeray, *Planning, Implementing and Evaluating Health Promotion Programs*, Pearson Benjamin Cummings, San Francisco, Calif, USA, 5th edition, 2009.
2. L. H. Vu, J. C. Van der Pols, D. C. Whiteman, M. G. Kimlin, and R.E. Neale, "Knowledge and attitudes about Vitamin D and impact on sun protection practices among urban office workers in Brisbane, Australia," *Cancer Epidemiology, Biomarkers and Prevention*, vol. 19, no. 7, pp. 1784–1789, 2010.
3. M. F. Holick, "High prevalence of Vitamin D inadequacy and implications for health," *Mayo Clinic Proceedings*, vol. 81, no. 3, pp. 353–373, 2006.
4. A. Mithal, D. A. Wahl, J.-P. Bonjour et al., "Global Vitamin D status and determinants of hypoVitaminosis D," *Osteoporosis International*, vol. 20, no. 11, pp. 1807–1820, 2009.
5. J. M. Pettifor, "Vitamin D &/or calcium shortage rickets in infants & children: a global perspective," *Indian Journal of Therapeutic Investigation*, vol. 127, no. 3, pp. 245–249, 2008.
6. T. Hagenau, R. Vest, T. N. Gissel et al., "Global Vitamin D levels concerning age, gender, skin pigmentation and latitude: an ecologic meta-regression analysis," *Osteoporosis International*, vol. 20, no. 1, pp. 133–140, 2009.
7. M. I. K. von Bothmer and B. Fridlund, "Gender differences in health habits and motivation for a healthy lifestyle among Swedish university students," *Nursing and Health Sciences*, vol. 7, no. 2, pp. 107–118, 2005.
8. E. T. Edmonds, *Osteoporosis knowledge, beliefs, and behaviours of college students: utilization of the health belief model*, Abstracts International Section A: Humanities and Social Science, vol. 70, pp. 2908, 2009.
9. D. Von Ah, S. Ebert, A. Ngamvitroj, N. Park, and D.-H. Kang, "Predictors of health behaviours in college students," *Journal of Advanced Nursing*, vol. 48, no. 5, pp. 463–474, 2004.
10. W. C. Kung and K.-K. Lee, "Knowledge of Vitamin D and perceptions and attitudes toward sunlight among Chinese middle-aged and elderly women: a populace survey in Hong Kong," *BMC Public Health*, vol. 6, article 226, 2006.
11. M. F. Holick and T. C. Chen, "Vitamin D shortage: a worldwide problem with health

- consequences,” *The American Journal of Clinical Nutrition*, vol. 87, pp. 1080S–1086S, 2008.
12. M. F. Holick, “Therapeutic progress: Vitamin D shortage,” *New England Journal of Medicine*, vol. 357, no. 3, pp. 266–281, 2007.
  13. J. M. Pettifor, “Vitamin D Shortage and nutritional rickets in children in Vitamin D,” in *Vitamin D*, D. Feldman, J.W. Pike, and F. H. Glorieux, Eds., pp. 1065–1084, Elsevier Academic Press, Boston, Mass, USA, 2nd edition, 2005.
  14. R. K. Marwaha, N. Tandon, D. R. H. K. Reddy et al., “Vitamin D and bone mineral density status of healthy schoolchildren in northern India,” *American Journal of Clinical Nutrition*, vol. 82, no. 2, pp. 477–482, 2005.
  15. R. P. Heaney, “Bone health,” *The American Journal of Clinical Nutrition*, vol. 85, pp. 300S–333S, 2007.
  16. S. Boland, “A standard assessment of university students’ Vitamin D knowledge,” *Electronic Thesis and Dissertation Repository*, Paper 1504, 2013.
  17. A. Haase, A. Steptoe, J. F. Sallis, and J. Wardle, “Leisure-time physical activity in university students from 23 countries: associations with health beliefs, risk sentience, and national economic development,” *Preventive Medicine*, vol. 39, no. 1, pp. 182–190, 2004.
  18. L. W. Green and M. W. Kreuter, *Health Program Planning: An Educational and Ecological Approach*, McGraw-Hill, New York, NY, USA, 4th edition, 2005.