

Awareness and Practice of Female University Students towards Vitamin D And Its Deficiency in Majmaah, Saudi Arabia, 2017

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ABSTRACT

Background: Vitamin D deficiency is a prevalent and important worldwide health problem especially in KSA. This pandemic of hypovitaminosis D can mainly be attributed to lifestyle (for example, reduced outdoor activities) and environmental (for example, air pollution) factors that reduce exposure to sunlight, which is required for ultraviolet-B (UVB) induced vitamin D production in the skin.

Objective: This study aimed to assess the level of Awareness and Practice of Female University Students towards Vitamin D and Its Deficiency in Majmaah, Saudi Arabia, 2017.

Methodology: A descriptive cross sectional institutional based study using questionnaires included 28 questions which had been distributed randomly among female population in scientific colleges in Majmaah University of total 360 students.

Results: The mean age category of participants was (21-25 years) which account (52.2%) The majority of participants aware about vitamin d deficiency 353 (98.1). about Three-quarters of students had good knowledge 256 (71.1%) while 104 (28.8%) had poor knowledge. More than half of students 204 (56.7%) had a good practice regard Vitamin D while 156 (43.3%) had a poor practice. The estimated prevalence of

vitamin D Deficiency among female students were 126 (35%). 76 (21.1%) of them have bone and joint pain while 30(8.3%) of them have depression.

Conclusion: The majority of female students are aware of vitamin D importance in health and deficiency. over all the study found there is a good knowledge and practice toward Vitamin D and its deficiency among female students.


Keywords: Vitamin D; Vitamin D-Related Knowledge; Vitamin D-Related Practice: Majmaah; KSA.

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INTRODUCTION

Vitamin D is a prohormone that is present in two forms Ergocalciferol or vitamin D₂ which is present in plants and some fish and cholecalciferol or vitamin D₃ is synthesized in the skin by sunlight.¹ Vitamin D plays an essential role in calcium and phosphorus homeostasis, bone mineralization and skeletal growth and more recently vitamin status has been linked to cancer, cardiovascular disease, autoimmune disease and infection.² The definition of the optimal vitamin D levels of the predominant circulating 25-18 hydroxyvitamin D [25(OH) D] commonly recommended optimum of 75 nmol/l (30 ng/ml).² Vitamin D deficiency is now recognized as a pandemic.³ Despite the abundant sunshine in the Middle East, allowing Vitamin D synthesis all year round, there is low level of vitamin D among residents of the area.⁴ Older age, female sex, higher latitude, winter season, darker skin pigmentation, less sunlight exposure, dietary habits, and absence of vitamin D fortification are the main factors that are significantly associated with lower 25(OH)D

levels.⁵ A study done among Adult Saudi Females in 2014 In order to assess the Knowledge and Practice found (25.6%) of participants had correct knowledge about importance of vitamin D. Out of (46.5 %) only 29.3% of them expose to sun 10 – 30 minutes per day.⁶

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The Saudi Health interview Survey (SHIS) reported 62.65 % of female Saudis and 40.6% of male Saudis aged 15 years and above are deficient in vitamin D.⁷ The major cause of vitamin D deficiency is the lack of appreciation that sun exposure in moderation is the major source of vitamin D for most humans. Vitamin D deficiency causes rickets in children and will precipitate and exacerbate osteopenia, osteoporosis, and fractures in adults.³

Several studies have reported that lower levels of serum vitamin D are significantly associated with depression.⁸

The general aim of the study was to study the awareness and practice of female students toward vitamin D and its deficiency in Majmaah, Saudi Arabia.

The specific objectives were to measure the awareness of female students of Majmaah University towards Vitamin D regarding (general information, functions, sources, diseases and symptoms of its deficiency and risk factors for the deficiency). The second objective to estimate the prevalence of vitamin D deficiency in female students of Majmaah University. Third objective to assess the practice of female students towards vitamin D deficiency in Majmaah University

METHODS AND DATA COLLECTION

The study was conducted in Majmaah University (MU) in Majmaah, Saudi Arabia. The study used a descriptive cross sectional institutional based study. The study population was female students in all scientific collages in Majmaah University. The sample type was stratified sample and by using sample size calculation and the sample size was computed to be 360 students out of 770 female students in university.

We used questionnaires included 28 questions which distributed randomly among female students via coordinators of each department.

Three tools were developed to collect data for this study: The first tool was Sociodemographic questionnaire, which included age,

education level, college and marital status. The second tool was Knowledge Assessment Questionnaire, which included 9 questions such as function of vitamin D, source of vitamin D, groups at risk and sun exposure. The third tool was Practice Assessment Questionnaire which included 10 questions, such as sun exposure, duration of daily sun exposure, if she has vitamin D deficiency, symptoms of vitamin D deficiency and vitamin D supplementation. Each student took 5-10 minutes to answer the questionnaire. The knowledge scored out of 9 and the total score for knowledge computed for each student.⁶ The knowledge score have been classified as a good knowledge who score from 5-9 or poor knowledge less than 5 according to total correct answers then percentages were calculated.

The data analyzed by using SPSS statistical software package version 18. Data was presented using descriptive statistics in the form of frequencies and percentages for categorical variables, Knowledge score and percentage were presented in the form of means and standard deviations. Chi-square test used to test association. $P \leq 0.05$ was considered statistically significant.

The participants were aware about the aim of the study, and they informed that the participation is voluntary. The study protected the confidentiality of participants, the names of the students not requested respecting their autonomy and privacy. Informed (consents) were taken from the students. Before data collection and Ethical Approval from the administration of each college and from University Ethical Committee had been took before the conduction of the study.

Table 1: General data of female university students in Majmaah, Saudi Arabia, 2017

		n	Percentage%
Age	18 – 20	169	46.9%
	21 – 25	188	52.2%
	>25	3	0.8%
Marital Status	Single	332	92.2%
	Married	27	7.5%
	Divorced	1	0.3%
Student Major	Preparatory Year	100	27.8%
	College of Medicine	30	8.3%
	College of Nursing	40	11.1%
	College of Laboratory Science	37	10.3%
	College of Physiotherapy	51	14.2%
	College of Computer Science and Information Technology	102	28.3%
At Which Year	Preparatory Year	100	27.8%
	First Year	46	12.8%
	Second Year	50	13.9%
	Third Year	61	16.9%
	Fourth Year	103	28.6%

Table 2: Symptoms of vitamin D deficiency among students in Majmmaah University 2017

	YES N(%)	NO N(%)	P value
Bone and joint pain	145(40.3%)	215(59.7%)	P=0.000
Depression	55(15.3%)	305(84.7%)	P=0.002
Delay movement	24(6.7%)	336(93.3)	P=0.003
Weak growth	20(5.6%)	340(94.4%)	P=0.011

RESULTS

Sociodemographic Data

The number of female students was 360 as shown in table (1). The median age was 21-25 (52.2%) most of them are single (92.2%).

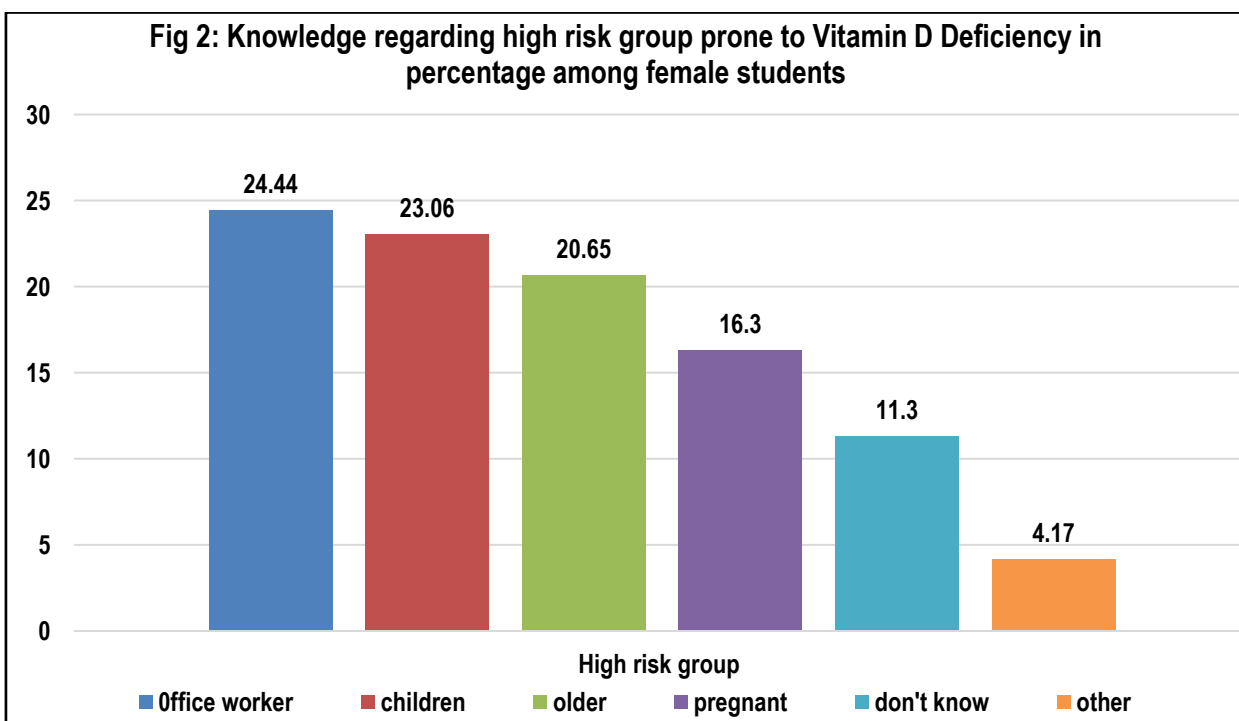
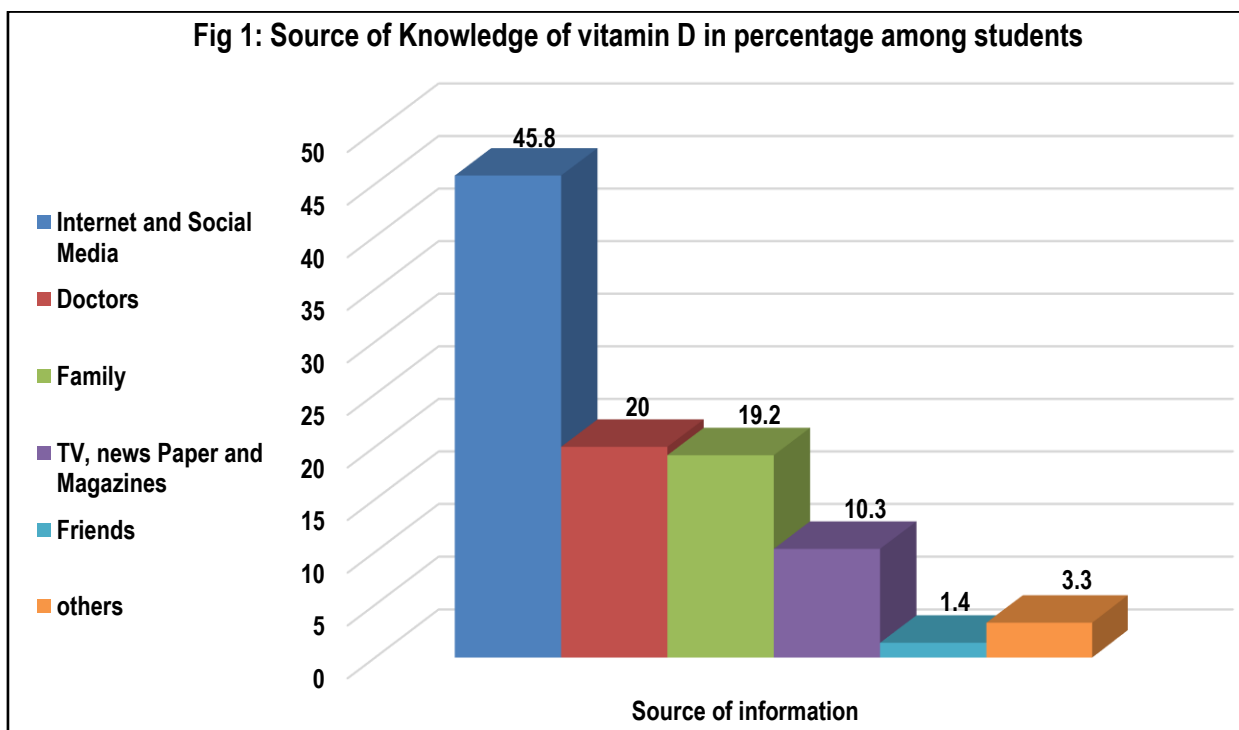
Knowledge

Regarding the awareness the majority were familiar with vitamin d deficiency which accounted to 353 (98.1%) where 6 (1.7%) of students did not heard about vitamin d deficiency and only 1 (0.3%) student do not know what is vitamin d deficiency. Most of the participants were aware about the importance of vitamin D, 355 (98.6%) of them agreed that vitamin D is important to the health and 259 (81.9 %) of them know about the function of

vitamin D. The main source of information as illustrated in (figure1).

The majority of students had a good knowledge 256 (71.1%). The mean knowledge score was 5.22 ± 1.32 out of 9 which considered as a good score the minimum score among students was 1 and maximum score was 9. The mean knowledge percentage was $58.06 \pm 14.68\%$.

The knowledge regarding the high-risk group prone to Vitamin D Deficiency as in (figure2) almost one fourth of students answered office workers as high-risk group (24.44%) which is represent a correct answer; while (23.06%), (20.65%), (16.3%) answered children, older, pregnant as high risk group respectively.

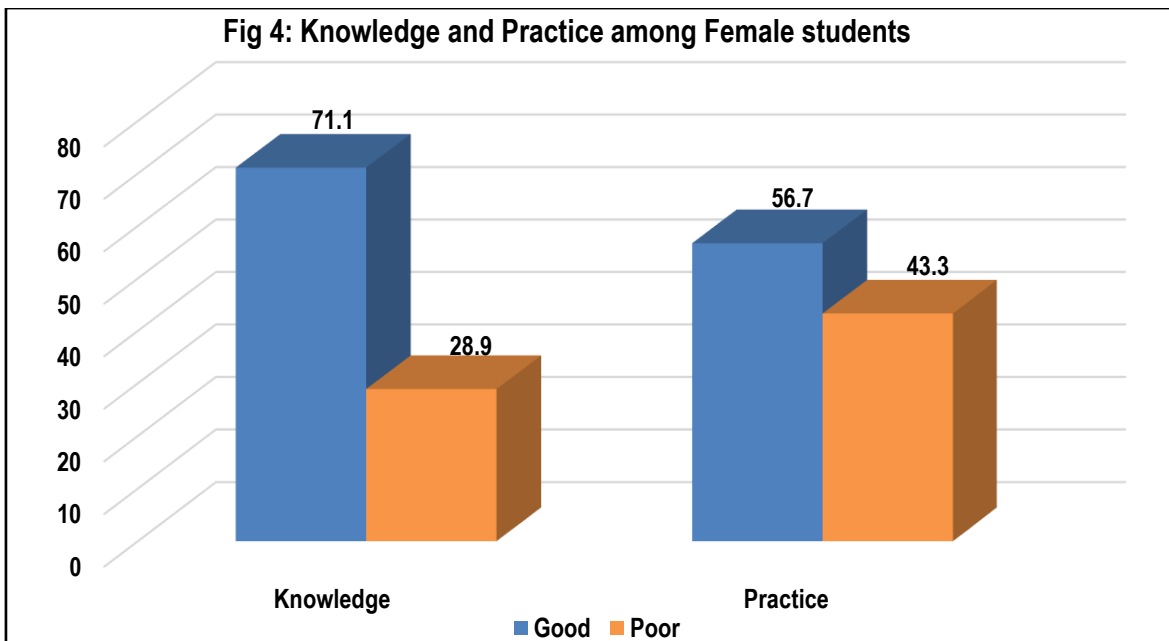
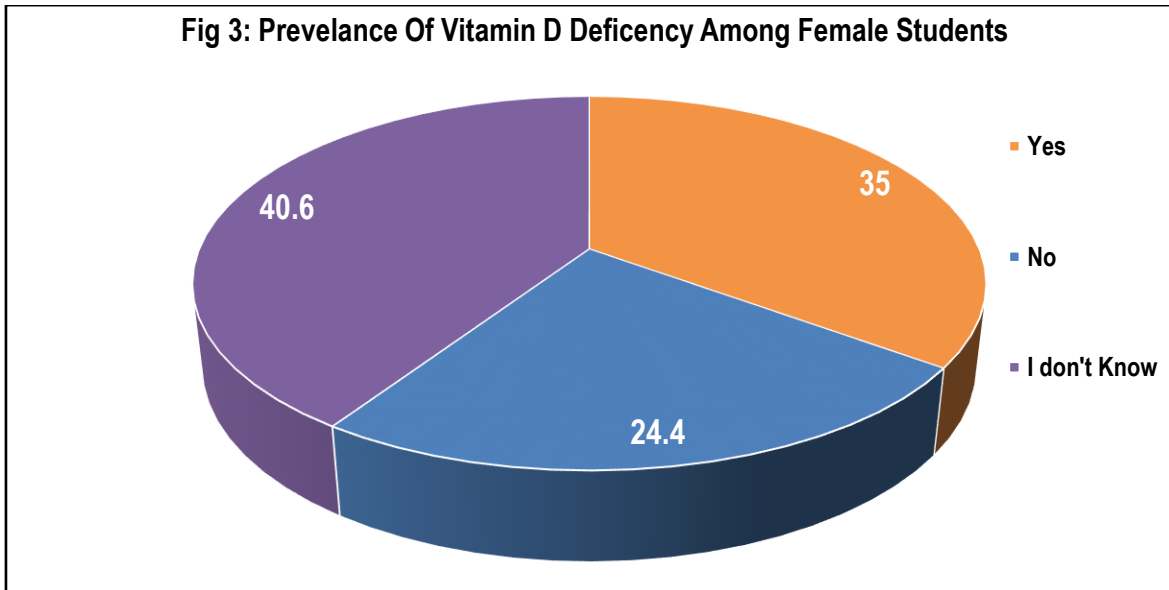


Practice of Vitamin D

(Figure3) shows the estimated prevalence of vitamin D Deficiency among female students to medical history. Only (21.1%) of the students take vitamin D supplements.

In order of assessment of the practice of vitamin D the majority have a good practice which account (56.7%) of participants (figure 4). The main reasons for not exposing to sun was (26.39%) due to

work or weather problems and (7.22%) because of fear of skin cancer and sun burn. Frequency for exposure for exposing daily was (19.2%) representing a good practice. Major time interval for who exposed from 10a.m to12p.m were (14.4%) which is a good practice. Regarding the duration for sun exposure for 10 to 30 min (21.7%) which is a good practice.



DISCUSSION

In response to the question about familiarity of vitamin D, This study showed better general knowledge compared with those in a previous study conducted in Saudi Arabia in 2011, showed that their participants had minimal awareness of vitamin D.⁹

Regarding the source of information of the participants the majority of the participants (45.8%) gained their knowledge regarding vitamin D from the internet and social media where in a previous study that conducted in Saudi Arabia showed that the most source of the participants' information was from the doctor (37.4%).⁶ The poor knowledge regarding vitamin D may be due the source of information as there are some sources that provide

misinformation, and the most reliable source is from the doctors and the least reliable source is from the internet and social media. Office workers are more prone to have Vitamin D deficiency, which was selected by the majority of participants (24.4%). Previous studies suggested that the most risk factor to develop vitamin D deficiency was the lack of exposure to the sun where most of office workers who spend their day indoor without exposing to the sun make them most prone category to vitamin D deficiency.

In order to assess the practice of the participants towards vitamin D the estimated prevalence was (35%) said that they have vitamin

D deficiency. Where In the Saudi Health Interview Survey (SHIS) 62.65% of female Saudis are deficient in vitamin D.⁷ This study showed that less than half of female students in Majmaah university have vitamin D deficiency compared with a study conducted in different schools in Jeddah, KSA between (2003 - 2004) where 81% had low vitamin D levels.¹⁰ which may related to better practice in female students in Majmaah university.

The participants in this study showed better knowledge regarding the time and duration of exposure compared with a study done in Saudi Arabia in 2011 revealed that most participants were aware that sun exposure is beneficial but unclear about the duration of the exposure and the time of the day affecting intensity.⁹ The participants who identified the sea food as rich in vitamin D about (49.2%), egg and dairy products (59.7%) and vegetables and fruits about (61.7%). This study had higher proportion of participants correctly identified the sources of vitamin D compared with a previous study conducted in KSA in 2014, showed that only (29.7%) of participants answered the source of vitamin D correctly.⁶

(71.1%) of the participants had good knowledge score, the participants in this study have better knowledge comparing with a study conducted in Sharjah, UAE found the mean knowledge score in vitamin D and its deficiency was 16.7 out of 43 (39%).¹¹ In aim to assess the presence of vitamin D deficiency among female student in Majmaah. This study showed significant association between vitamin D deficiency and bone and joint pain ($p=0.000$) and between vitamin D deficiency and depression ($p=0.002$). Bone and joints pain was the most common complaint in the participants which present in 145 (40.3%) students, 76 (21.1%) of them have vitamin D deficiency. Several studies have reported that lower levels of serum vitamin D are significantly associated with depression. In this study depression was present in 55 (15.3%) students, 30 (8.3%) of them have vitamin D deficiency. According to a study which was conducted in Korea 2017, in line with this study showed that vitamin D deficiency was a significant independent predictor of depression after adjusting for confounding factors (adjusted odds ratio, 6.15; 95% confidence interval, 2.02–8.75; $P = 0.001$).⁸

CONCLUSION AND RECOMMENDATIONS

Almost all of the participants heard about vitamin d deficiency and more than one third of female students said they have Vitamin D deficiency by according to medical history. Overall the female students in Majmaah University had a good knowledge and a good practice regarding vitamin D and its deficiency. We recommend encouraging female students to use fortified food whit vitamin D, to increase awareness of vitamin D by conducting regular health education program, to encourage students to expose to sun by preparing more open spaces inside the campus and to provide mandatory supplementation of vitamin D to all child bearing age female.

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