

Knowledge and Life Style among Female Students in Imam Abdurrahman Bin Faisal University Regarding Vitamin D

معلومات وأنماط الحياة لدى طالبات جامعة الامام عبدالرحمن بن فيصل تجاه فيتامين (د)

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Abstract: Vitamin D deficiency has been well documented in Saudi Arabia. Recent studies revealed that vitamin D3 stores are low among healthy Saudi females. This situation is confusing as Saudi Arabia is known to be one of the sunniest countries in the world. However, it is known that most Saudi females are well covered and for various reasons avoid sun exposure. **Aim of the study** was to assess the knowledge and life style among female students in Imam Abdulrahman bin Faisal university regarding Vitamin D. **Design:** A cross-sectional survey using a self-administered, structured questionnaire were used in this study. Three **tools** were used to collect data for this study namely; Socio-demographic Characteristics, Knowledge assessment tool, & Life Style Assessment tool. **Results:** students displayed minimal awareness and knowledge of vitamin D, the higher scores of knowledge was through health colleges. The students indicate unhealthy life styles related to sun exposure, medical checkup, diet, and sleep pattern.

Key words: Knowledge, Life Style, Vitamin D, Saudi Arabia, Female students

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I. Introduction

Vitamin D is a fat-soluble vitamin that is normally present in not very many types of nourishment and created endogenously when bright beams from daylight strike the skin and trigger vitamin D union (Wortsman, et al 2000). Its generation in the skin can be constrained by various components including kind of garments, utilizing sun screen, the substance of skin melanin, and the locale geography (Hickey, et al 2008, & Holick, et al 2007).

There were many studies on vitamin D done over the past 10 years and reported high frequencies of vitamin D deficiency globally (Holick, et al 2011 & Ross, et al 2011). Vitamin D is a fundamental vitamin to human being, should such a level that wellbeing experts call it the “super nutrient”. It is proficient about making a difference decrease those danger about huge numbers wellbeing problems, as well as cancers and autoimmune diseases, multiple sclerosis, rheumatoid arthritis, type diabetes and many others. In humans, the majority critical mixes in this bunch would vitamin D3 What's more vitamin D2 (Holick, 2006). Vitamin D3 and vitamin D2 might be ingested starting with the diet and supplements (Holick, 2006 & Norman, 2008). The real regular wellspring of the vitamin may be union about vitamin D3 in the skin from cholesterol by a substance response that is subject to sun exposure. Nutritional endorsements naturally consent that the sum of an individual's vitamin D is taken orally, concerning illustration of sun contact (Norman, 2008).

A diet with insufficient vitamin D over combination with insufficient sun exposure leads to osteomalacia (or rickets when it happens in children), which is a softening of the bones. In the developed world, this is uncommon illness. However, deficiency of vitamin D has progressed universally as a complaint in different age groups (Elidrissy, 2016). Also, Depression, Fatigue, Hyperparathyroidism, Obesity, Chronic Backache, Hypertension, cancers, chronic pain, diabetes, multiple sclerosis or heart disease are other complications to Vitamin D deficiency (Mark, 2009).

Vitamin D deficiency is a vital community health problem in both developing and developed countries, it reflects those most extreme general population dietary lack and standout is amongst the greater part of regular undiagnosed cases globally (Holick, 2012). It indicates to be an international complain in many age clusters, with a stated incidence of 30-80% in children and adults (Andiran, et al 2012). In addition, with incidence equal to 38.6% in Saudi Arabia (Al-Agha, et al 2016). Vitamin D deficiency is presently expected to have a pillion individuals complain from it internationally. A main reason is deficiency of sun contact, and this is obvious also

in places that has medium and low outdoor activities. Despite the fact that, a great incidence has been observed in Saudi Arabia, little is known to this point about the motives for this and therefore about decrease of methods (Lips, 2007 & Al-Mogbel, 2012).

The main source of vitamin D is exposure to sunlight. The effectiveness of the alteration of 7-dehydrocholesterol to vitamin D₃ is contingent to day time, the year season, the skin color, and age. While there is a slight vitamin D found in diet evidently, there are some food that reflects alternative basis of vitamin D, such as seafood, shrimp, mushroom, egg yolk and fortified milk (Shamma, 2013 & Al Bathi, et al 2011). The reason of vitamin D deficiency in Saudi Arabian female might be associated to insufficiency of food intake and sun rays contact, in addition to skin-coloring also a concern. Insufficient contact to sun rays is indorsed by a conventional style of clothes as abaya, hijab that hiding all body exteriors when they are outside, this bounds the skin exteriors that has contact to sun (Farida, 2014). This study was carried out to assess the knowledge and life style among female students in Imam Abdurrahman bin Faisal university regarding Vitamin D.

II. Materials and Method

Design: A cross-sectional survey was used in this study, arranged questionnaire directed in January 2018. The questionnaire managed by students joined in medical and non-medical colleges, Imam Abdurrahman Bin Faisal University. Students who are willing to share in the study were selected. Clarifications are given about the purposes of the study and how to complete the questionnaire.

Setting: The study was conducted in some Colleges from Imam Abdurrahman Bin Faisal University. Includes: college of medicine, college of nursing, college of community service, college of technology and college of Islamic studies.

Sample: Participants were 604 of undergraduate students of medical and non-medical colleges who were available at the university during the time of study.

Tools: Three tools are used to collect data for this study namely:

- **Socio-demographic Characteristics**, which include age, name of the college, student performance (GPA level), educational level, and marital status, ect.
- **Knowledge assessment tool**, which include 15 questions that reflect the source of knowledge, of vitamin D importance, vitamin D sources, and complications of vitamin D deficiency.
- **Life Style Assessment tool** which include 27 questions, that reproduce life style of the sample regarding; sun exposure and protection, duration of daily sun exposure, use of sunscreen, and health practices by the subjects to improve vitamin D level such as diet, medical checkup, and sleep pattern.

Procedures: Ethical permission is obtained from the research ethical committee in the Imam Abdurrahman bin Faisal University. To test the feasibility and applicability of the tools, test-retest method was used to determine the reliability of the tool, by applying this tool on 10 subjects as a pilot who were excluded from the study. The reliability was 0.84. Tools translated into Arabic language by researchers, then, tested for translation and content validity by a group of experts who examined the tools and approved it. Finally, required corrections were done accordingly.

Data Collection: An intended questionnaire survey was conducted on undergraduate students of medical and non-medical colleges in the university and informed about the aim of the study and assured about the confidentiality of her response. Each student was contact on an individual basis, and was interviewed in a private place by the researchers used the two study tools. The average time needed to complete the tools ranged between 15 to 20 minutes. Data for this study was collected during a period of 3 months, January-March 2018. The questionnaire contained 52 questions including demographic data (10 questions), knowledge about vitamin D (15 questions), healthy lifestyle (27 questions), and student's health information resource. Demographic data consisted of questions on age, gender, marital status, educational level. Other questions evaluated the participant's knowledge and life style about sun exposure in daily routine including using sunscreen and outdoor activities, medical checkup including taking any multivitamin supplements, diet including drinking milk and milk products, sea food and soft drinks or snakes, and sleep pattern. The correct answers for knowledge questions were scored as 1 and the incorrect ones as 0. Then the knowledge questions for each participant were added to calculate the knowledge score. Also, the life style practice score was calculated in the same manner.

Statistical analysis: After data were collected, they were coded and transferred into especially design formats to be suitable computer feeding. The statistical package of social science (SPSS) version 23.0 was utilized for data analysis and tabulation all entered data were verified for errors. A *p*-value of 0.1 and 0.05 levels was used as the cut off value for statistical significance. Correlation, mean, and standard deviation were used to test the significance of some related variables in this study.

III. Result

A sample of 604 Saudi female university students was interviewed to assess their knowledge and life styles practice regarding vitamin D sufficiency. Table (1) represents the participant's socio-demographic characteristics for university female students. As regards student age in the studied sample, the mean age was 19.43±0.857; the distributions percentage of colleges of (nursing, medicine, community service, technology, and Islamic) were 43.7%, 12.6%, 21.8%, 14.6%, and 7.3% respectively. The majority of participants 72.2% were from third year college. Regarding students' performance, the GPA showed as 4.1-5, 3.1-4 and student's distribution were 22.5%, & 77.5% respectively. As regard marital states of the student, and family type, approximately half of participants 51% were married and 51.7% were nuclear family. Also the table shows the family income, it was nearest to half of participants 44.4% less than 20 thousands riyal Saudi per month.

Table 1- Distribution of Female Students According to their Socio-demographic data

Demographic Data	No (N=604)	%
Age:		
18-20	98	16.5%
>20	400	66.2%
	106	17.3%
Mean±SD	19.43 ± 0.857	
College Name:		
College of nursing	264	43.7%
College of medicine	76	12.6%
College of community service	132	21.8%
College of technology	88	14.6%
College of Islamic	44	7.3%
Academic level of the student:		
Second year	116	19.2%
Third year	436	72.2%
Fourth year	52	8.6%
GPA:		
4.1-5	136	22.5%
3.1-4	468	77.5%
Marital states of the student:		
Single	280	46.4%
Married	308	51%
Divorced	16	2.6%
Family type:		
Nuclear	312	51.7%
Extended	292	48.3%
Family Income RS. per month		
<20,000	268	44.4%
20000-40000	248	41.1%
>40,000	88	14.6%

Figure 1 show the source of knowledge that student reported about vitamin D, it were 33.8%, 29.1%, 14.6%, and 22.5% of the study sample reported their source of information was physician/nurse, family, book, and mass media respectively.

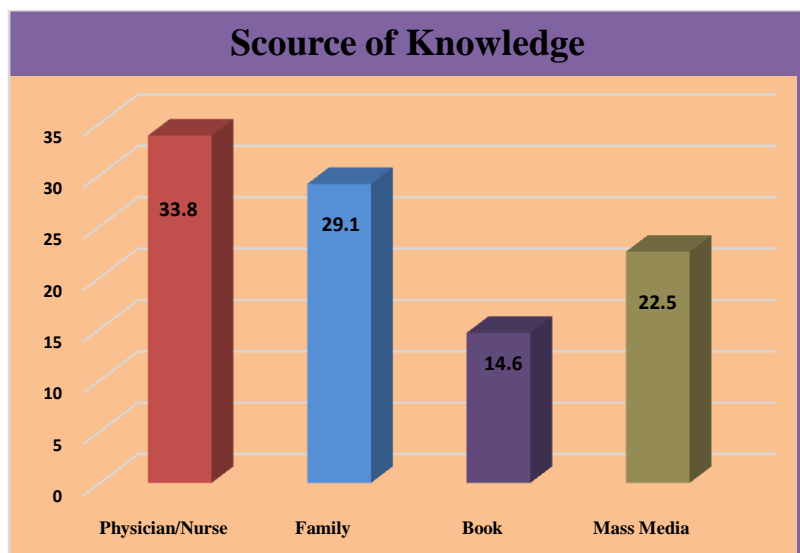


Fig-1: Distribution of female students regarding source of knowledge

Table two illustrate the students' knowledge percentage regarding vitamin D. The majority 82%, 78%, & 84.8% of students have heard about vitamin D, think it is important for their health generally, and know that it is important for bone health respectively. Although 51.7% stated some idea about food rich in vitamin D. The highest percent 66.2% of students chose 7 am to 9 am as the best time for sun exposure, with 80.8% thought that hands, arms, face and legs should be exposed to be beneficial. 44.4% reported that exposure to sun is enough for less than 30 minutes. 78.1% do not know that vitamin D is gained from the sun, while 21.9% comprehended that 50% of Vitamin D comes from exposure to the sunlight. Only 29.2%, 27.4%, and 32.8% know about, the complications of vitamin D deficiency, the normal level of Vitamin D, and taking calcium supplements helps in maintaining vitamin D levels in the body respectively.

Table 2: Percentage of students' knowledge about vitamin D

Questions	Know	Do not No
Did you heard about Vitamin D	82	18
Did you think it is important for your health generally?	78	22
Is Vitamin D Important for bone health?	84.8	18.2
What are the main sources of Vitamin D?	14.6	85.4
Write Foods rich in Vitamin D that you know	51.7	48.3
What is the Minimum daily intake of Vitamin D for adult?	21.9	78.1
The appropriate duration of sun exposure for adequate vitamin D status	44.4	55.6
The best time for exposure	66.2	33.8
Do you know which body parts must be exposed to the sun	80.8	19.2
How much of vitamin D comes from the sun	21.9	78.1
Signs and symptoms that led to diagnosis of vitamin D deficiency	14.6	85.4
What are the Complications of vitamin D deficiency	29.2	70.8
Do you know the normal level of Vitamin D?	27.4	72.6
Is taking calcium supplements helps in maintaining vitamin D levels in the body?	32.8	67.2

Life style (sun exposure in daily routine)

Figure two shows percentages distributions of participant's life styles response to sun exposure in the daily routine, the majority of the students 80.8% are exposing to the sun daily. More than one third of them 37.1% using sunscreen 14.6% in summer while 22.5% of them use sunscreen daily and in both summer and winter.

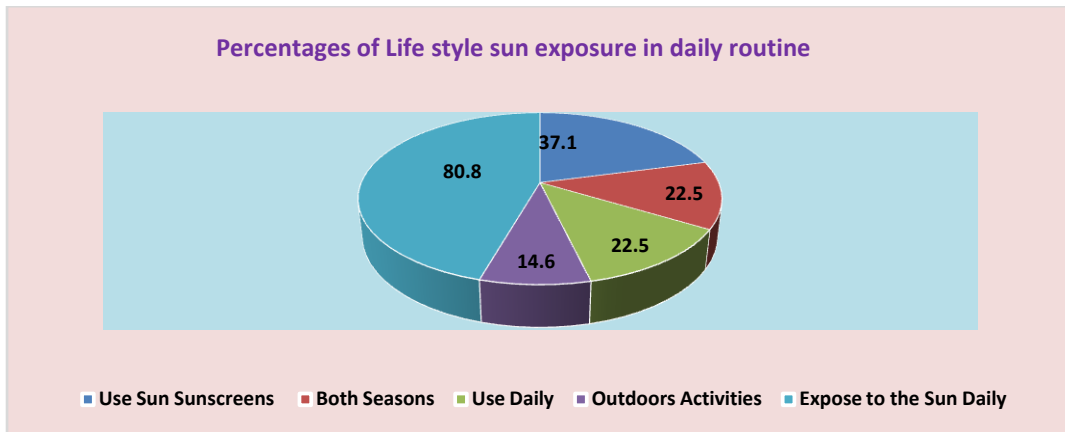


Fig 2: Percentages distributions of Participant’s life styles response to sun exposure in daily routine

Life style (Medical Checkup)

Figure three represents the percentages distributions of participant’s life styles response to medical checkup. 14.6% of female students check their level of vitamin D routinely and biannual. While 37.1% of the study sample has vitamin D deficiency, 14.6% of them has vitamin D insufficiency. More than a half of the study sample 51.7% are willing to undergo test for Vitamin D if the medical condition demands. Finally 29.8% of the participants are currently taking any multivitamin supplements.

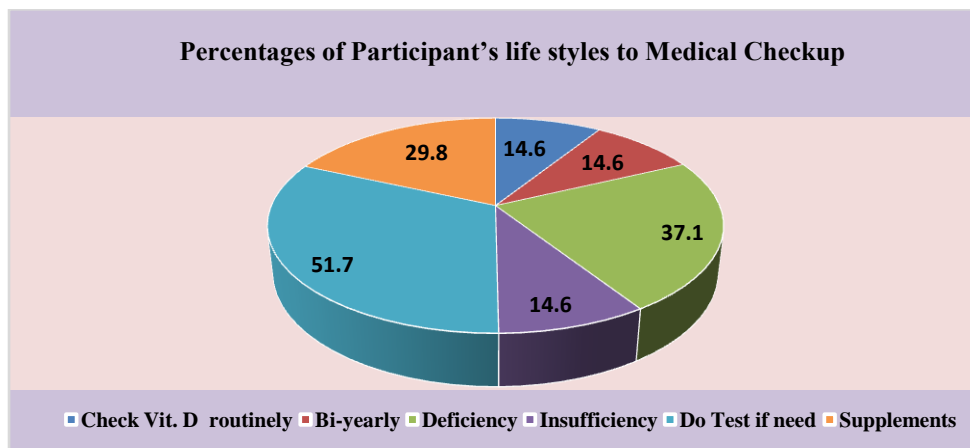


Fig 3: Percentages distributions of Participant’s life styles response to Medical Checkup

Figure four shows percentages distributions of participant’s life styles response to diet, more than half of the study participants 56.3% never drink milk, 37.1% do not eat cottage cheese, 29.8% of them do not eat sea food, 21.9% never eat yogurt, and only 5.2% of the students do not eat snakes. On the other hand, 14.6% of the study participants drink soft drinks twice or three times a day.

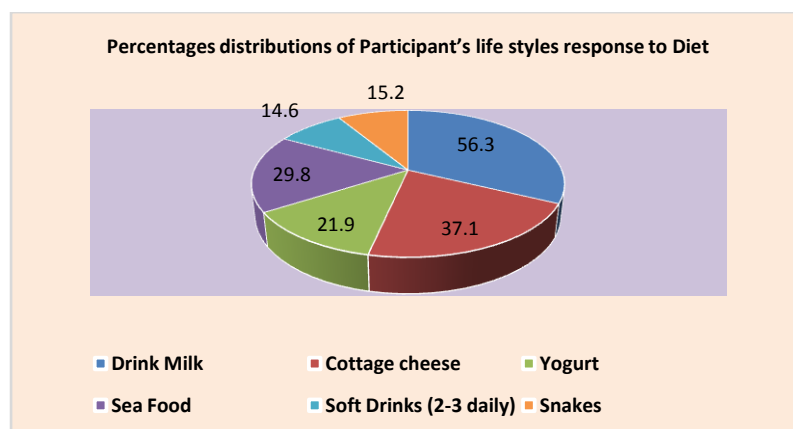


Fig 4: Percentages distributions of Participant’s life styles responses to Diet

Figure 5 represents the percentages distributions of participant’s life styles responses to sleep pattern, 44.3%, 33.8%, & 21.9% of the study participants sleep 6-8 hours daily, sleep less than 4 hours daily, and sleep from 4 to 6 hours daily respectively. As regard sleep quality last month, participants showed very good, fairly good, fairly bad, and very bad as 29.1%, 14.6%, 26.5%, and 29.8% respectively. More than a half 52.5% of the study participants are taken medicine to help them sleep.

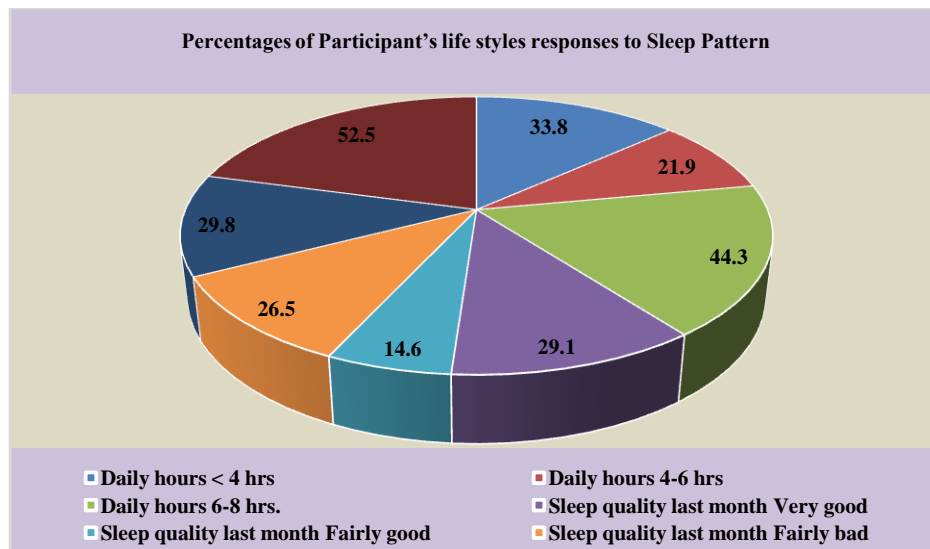


Fig 5: Percentages distributions of Participant’s life styles responses to Sleep Pattern

Figure six showed the percentages distributions of participant’s as quality of overall health, 14.6% of the study participants in poor health and the same percent in fair health. On the other hand, 38.8%, & 37.1% of them reported excellent or good health.

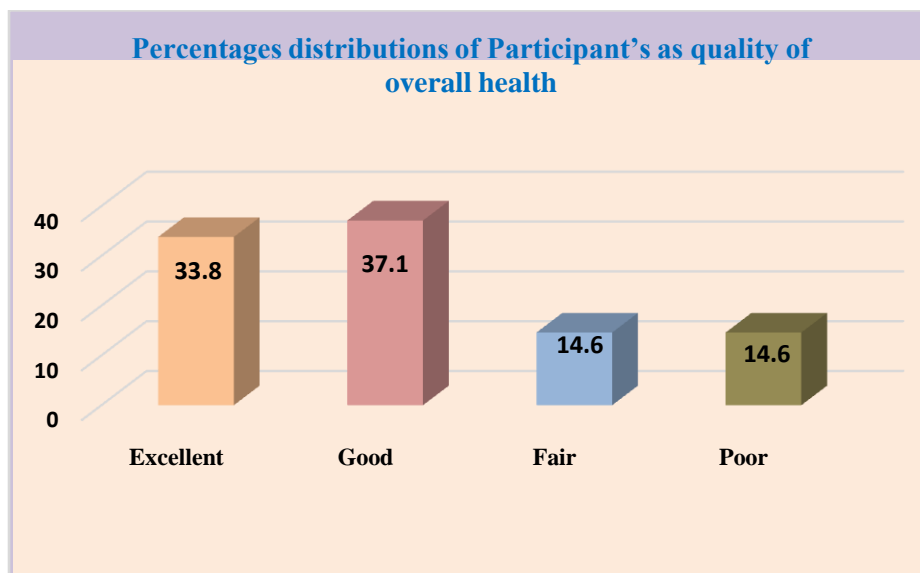


Fig 6: Percentages distributions of Participant’s as quality of overall health

Figure7 shows percentage of student’s knowledge regarding vitamin D in different colleges. Among all colleges, the health collages (college of medicine and college of nursing) indicates the majority of their distributions as a higher scores knowledge regarding vitamin D, (10.5, 35.8) respectively. While the non-health colleges (college of community service, college of technology and college of Islamic) displayed the majority of their distributions as a poor scores knowledge regarding vitamin D, (9, 7.1, 2) respectively.

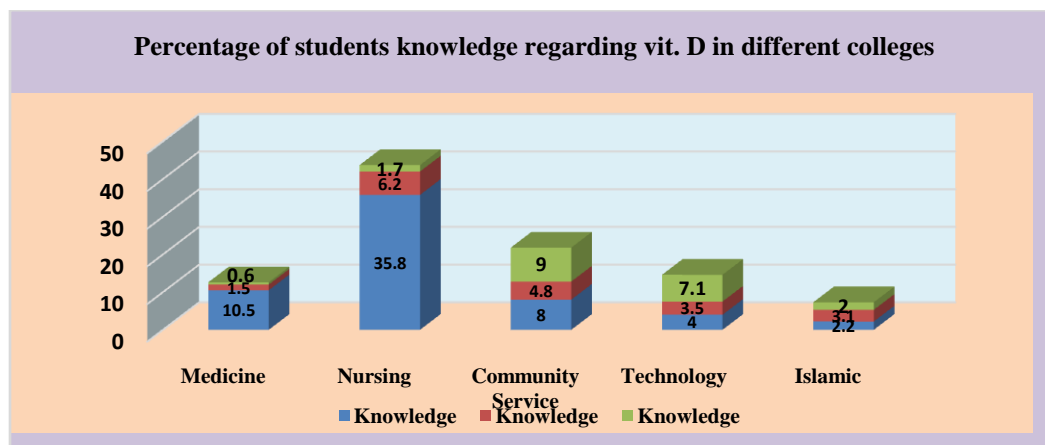


Fig. 7: Percentage of student's knowledge regarding vitamin D in different colleges

IV. Discussion

Vitamin D deficiency is a vital public health problem in developing and developed countries, it is considered to be the most common nutritional deficiency and one of the most common undiagnosed medical conditions worldwide. In the current study, it was found that majority of the female university students have heard about vitamin D and because of the sample was from different specialties and colleges, the main source of their knowledge was from different ways even from physician or nurse, family, book, and/or media. Also, only about half of the study participants know about food that rich with vitamin D, more than two third of students know the best time for sun exposure, and majority of them know the body parts that should be exposed to the sun for completely beneficially. More than two third of the study participants do not know the complications of vitamin D deficiency, the normal level of Vitamin D, and taking calcium supplements helps in maintaining vitamin D levels in the body. While the majority of the study participants do not know also the normal level of Vitamin D.

Several researches universally evaluated the awareness among people regarding vitamin D. The current study supported by Al-Saleh et al. study which state that in most parts of the Middle East, including Saudi Arabia, one of the main causes of vitamin D deficiency is the lack of sun exposure due to indoor lifestyle in both children and adults. Additionally, other study done by Kensarah and Azzeh of school children from Makkah (KSA), found higher incidence of vitamin D deficiency in females which mainly caused by restriction of sunlight exposure. While study conducted by Kung et al. showed that 62.3% did not like being exposed to sun (Kung & Lee, 2016).

Validating a propensity that has been identified in the literature, the current study specifies a relationship between female student's life style and vitamin D insufficiency or deficiency in Saudi Arabia. Less than one fifth of the participants of female students check their level of vitamin D biannually. More than one half of the participants has even vitamin D insufficiency or deficiency, and bad eating life style such as never drink milk, cottage cheese, or even eat sea food. On the other hand, there is 14.6 percent from the study participants drink soft drinks twice or three times a day which is not healthy as well. Also, the study represent that less than half of students are sleeping normal hours daily in quality, and the others taken medicine to help them to sleep. Outdoor life and clothing style are important determinants of vitamin D status. In this study only 14.6% of the participants do outdoor activities.

V. Conclusion

According to Saudi law, the female where clothing that completely covers the skin, which leading them to no exposure to the sun that lead to Vitamin D deficiency. Moreover, Saudi Arabian female student has been experiencing a diet evolution in food choices from the typical traditional diet to the fast food pattern due to the students spent most of their time at university campus. As a consequence, the dietary habits of female students have been affected; thus, vitamin D deficiency are increasingly being observed among them.

Recommendation

1. Increase awareness of students about Vitamin D and its complications, healthy food.
2. Health education program in the universities are recommended to promote healthy life styles and nutritional habits and change the unhealthy.

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