Republic of Iraq

Ministry of Higher Education

And Scientific Research

University of Kerbala

College of Medicine

Vitamin D Deficiency among Female Students in the University of Kerbala and its Association with body mass index and other factors.

By

Hazim Mohammed Khaleel

M.B.CH. B

A Dissertation submitted to the College of Medicine Council, University of Kerbala, as partial fulfillment of the requirements for a higher diploma in family medicine.

Supervised by:

Professor Dr.
Ali Abdulridha Kadhim Abutiheen
Consultant family physician

Assistant Professor Dr.
Ahmed Hashim Matloob
PHD of pharmacology

2025 A.D. **1447 A.H**

بِسْمِ ٱللَّهِ ٱلرَّحْمَٰنِ ٱلرَّحِيمِ

(لَقَدْ خَلَقْنَا الْإِنسَانَ فِي أَحْسَنِ تَقْوِيمٍ)

صدق الله العلي العظيم

سورة التين، الآية (4)

Certification of the Supervisor

We certify that this thesis " Vitamin D Deficiency among Female Students in University of Kerbala and its Association with Obesity " was prepared by Hazim mohammed khaleel under our supervision at the College of Medicine/University of Kerbala.

Signature

Prof. Dr. Ali Abdulridha Kadhim Abutiheen

Consultant family physician

Signature

Ass.Prof Dr.Ahmed Hashim Matloob

PHD of pharmacology

Signature

Ass.Prof. Dr. Shahrazad S. Al Jobori

Head of Family and Community Medicine Department,

College of Medicine, University of Kerbala

Committee certification

We , the examining committee , certify that we have this thesis and have examined the student **(Hazim Mohammed Khaleel)** in its content and , at our opinion , it is adequate with standing , **excellent grade** , as a thesis for the degree of (**Higher Diploma -2 calendar year – in Family Medicine**)

Assistant Professor

Dr. Shahrazad S. Al Jobori

Collage of Medicine

University of Kerbala

(Member)

Assistant Professor

Dr. Muhand Yahya Idris

Collage of Medicine

University of Kerbala

(Member)

Professor

Dr. Ali Abdulridha Kadhim Abutiheen

Collage of Medicine

University of Kerbala

(Supervisor Member)

Assistant Professor

Dr.Ahmed Hashim Matloob

Collage of Medicine

University of Kerbala

(Supervisor Member)

Professor

Dr. Hassan Raji Jalab

Collage of Medicine

University of Al-Qadisiyah

(Chairman)

Approved by

Collage of medicine / university of kerbala as a thesis for the degree of higher diploma in family medicine

Professor

Dr Khalid Khalil Al – Araji

Dean of

Collage of medicine / university of kerbala

Dedication

To my family and my wife, who are my permanent support, and my source of strength, I am grateful for your invaluable support and love

To the college I graduated from and to all my teachers in my life those who taught me science, ethics, and humanity….

To my great country, Iraq

To my holy city, Kerbala

To my esteemed professors, in Department of Family Medicine, who taught me that knowledge has value, and persistence has a way, you were the light that illuminated the path of knowledge for me

To my dear friends,

To the companions of the path who shared with me the sweet and difficult moments, you have always been a help and laugh at all stages of this journey.

I dedicate this humble work, as a thank you all

Acknowledgment

First and foremost, I must acknowledge my limitless thanks to Allah, the ever-magnificent, the ever-thankful, for the help and blessings.

I would like to express great thanks to all female students participating in this research.

I would like to thank my wife, who has helped me complete this research.

I would like to thank my family for their support.

My sincere appreciation goes to my supervisor, Dr. Ali Abu Tiheen, for his thoughtful guidance, suggestions, invaluable help, and advice in planning and conducting this research.

My deepest thanks to Dr.Ahmed Hashim Matloob for his support and advice during our research paper.

My deepest thanks to Dr. Shahrazad S. Al-Joboori, head of the department of family and community medicine

Table of Contents

Table OF TABLE

Table of Figures

Table of Abbreviations and Acronyms

Items	Meaning
BMD	bone mineral density
25(OH)D	25-hydroxyvitamin D
BMI	body mass index
ID	Iraqi dinar
M	Million
SD	standard deviation
Vit D	vitamin D
WHO	World health organization

Abstract

Background: Vitamin D (vit D) deficiency is quite common among Iraqi females, and is gaining increasing concern. Vitamin D deficiency has been linked to a wide range of human conditions and illnesses, such as metabolic, musculoskeletal, cancer, autoimmune, and cardiovascular diseases, as well as others. While the literature indicates the association of Vitamin D deficiency with lower weight, there is no evidence that it might cause an increase in weight, particularly among young females. This study aims to assess the association of vitamin D deficiency among female university students with body mass index (BMI) and selected other factors.

Objective: To assess the relation of vitamin D deficiency with obesity among female university students and investigate other co-factors such as sun exposure, dietary habits, and physical activity that correlate with it.

Subjects and Methods: An analytic cross-sectional study was performed in the University of Kerbala from April to May, 2024. Participants comprised 200 female students, selected from three colleges (College of Nursing, College of Applied Sciences, and Engineering). Blood samples from those who consented to participate and completed the questionnaire were tested for serum 25(OH) D concentrations. Descriptive statistics were used to summarize demographic characteristics. Mann-Whitney U and Kruskal-Wallis tests were applied for group comparisons, while Spearman's rank correlation was used to assess relationships between variables. P value < 0.05 was considered statistically significant.

Results: The Students mean BMI of 25.38 ± 5.60 kg/m². Serum 25(OH) D levels showed 22.5% sufficient and 64% deficient and insufficient 13.5% vitamin D levels. Statistically significant differences were found in vitamin D levels among students from different colleges (p=0.036), with Engineering students showing the lowest levels. No association was found between vitamin D and BMI. Sun exposure duration was positively correlated with higher vitamin D levels (p=0.015). A healthy diet was also positively correlated with higher vitamin D levels.

Conclusion: More than 60% of participants have a vitamin D deficiency. There is no significant correlation between the high BMI of university-age females and vitamin D deficiency. An education program that encourages outdoor activities, Sun exposure, and a vitamin D-rich, healthy diet is highly recommended.

Chapter One

Introduction

Chapter One

1.1 Introduction

Vitamin D is an essential vitamin for the body that plays a crucial role for the metabolism of calcium. It is thought to be a hormone that functions through nuclear receptors found in the immune system, kidneys, intestines, brain, bone, and most other bodily regions. Vitamin D deficiency is linked to a wide range of human conditions and illnesses, such as diabetes, cancer, cardiovascular, respiratory, musculoskeletal, and autoimmune diseases(Al-Tuama et al., 2022; Majid et al., 2023; Maroufi et al., 2020)

The reasons for vitamin D deficiency include geographic latitude and altitude, air pollution, inadequate consumption of vitamin D-rich items, restriction of solar exposure (poor sun exposure - clothing owing to religious beliefs), having diseases including kidney or liver diseases, using some medications, and malabsorption of vitamin D (Abdelsalam et al., 2023; Martineau et al., 2017; Shady et al., 2015)

Vitamin D insufficiency tends to be clinically silent, especially in adults. While symptoms might include fatigue, persistent musculoskeletal pain, and a feeling of heaviness in the legs, primarily in the proximal limb muscles. It's possible that the pain is hyperaesthetic. Usually unimpressive, a physical examination may indicate tenderness when applying pressure to the tibia or sternum. Vitamin D is traditionally used to treat metabolic bone disease, prevent fractures, and treat secondary hypothyroidism (Maroufi et al., 2020; Vieth, 2020)

A low vit D plasma level typically results in decreased intestinal calcium absorption and a lower plasma calcium level, which in turn causes bone resorption and a decrease in bone mineral density. However, compared to underweight individuals, obese subjects had higher bone mineral density (BMDs, cortical thicknesses, and

cortical tissue mineral densities (Vieth, 2020; Vranić et al., 2019). The main risk factors for vitamin D deficiency are malabsorption syndromes, including Crohn's disease and celiac disease, insufficient exposure to sunlight, and inadequate consumption of foods high in vitamin D. (Oommen & Al-Zahrani, 2017; Parva et al., 2018).

Although there is much literature that demonstrates the association between low Body mass index (BMI) and Vitamin D, there is no evidence whether the lack of Vitamin D might cause high BMI, especially among young females (Pereira-Santos et al., 2015; Svedlund et al., 2017)

Obesity is a progressively increasing risk factor worldwide and is linked to many noncommunicable diseases and represents a burden on people and the health system. The high BMI is correlated with a low concentration of vitamin D and a high concentration of parathyroid hormone in adults (Lenders et al., 2009). The low serum 25(OH) D levels seen in obese individuals have been explained by a number of theories, such as increased whole body clearance of vitamin D during inflammation linked to high BMI, catabolism of Vit. D is metabolized by the 24-hydroxylase enzyme in adipose tissue, or sequestration of vitamin D by adipose tissue. (Boonchaya-anant et al., 2014; Sosa Henríquez & Gómez de Tejada Romero, 2020). However, other studies reported no or weak correlation with BMI (Amelia Lorensia, 2022; Salih & Abdul Sahib, 2024). Addressing vitamin D deficiency requires a multifaceted approach that includes public health education, targeted screening, and individualized supplementation. In clinical practice, it is important to consider not only serum 25(OH) D levels but also patient-specific factors such as age, sex, BMI, sun exposure, dietary intake, and comorbidities. For patients with confirmed deficiency, treatment protocols typically involve high-dose

supplementation followed by maintenance therapy. However, response to supplementation can vary widely, particularly among obese individuals, suggesting that standard dosing may not be sufficient for all populations. However, the mechanisms of action that lead to the deposition of vitamin D in adipose tissue and the limited response to administration of supplements are still unknown. The association between elevated body fat levels and vitamin D concentrations is biologically plausible because vitamin D participates in the regulation of adipogenesis (de Oliveira et al., 2020; Parva et al., 2018). The influence of cultural and environmental factors on vitamin D levels cannot be overstated, especially in regions like the Middle East where traditional clothing and lifestyle practices limit cutaneous synthesis of the vitamin. In Iraq, and particularly in cities such as Karbala, where religious customs dictate full-body coverage for women, the risk of vitamin D deficiency is markedly elevated. These sociocultural practices, combined with urbanization, reduced outdoor activity, and air pollution, create a perfect storm for widespread hypovitaminosis D. As family physicians, it is essential to recognize these unique risk factors when assessing patients, particularly young women who may be asymptomatic yet biochemically deficient (Maroufi et al., 2020).

1.2 Objectives of this study

1. The aim is to assess the vitamin D deficiency among female university students

2. The correlation of vitamin D deficiency with body mass index, and identify some factors that might be correlated.

Chapter two

Subjects and Methods

Chapter two

2.1 Subjects and Methods

Type of Study: A cross-sectional study was performed at the University of Kerbala from April to May 2024. Participants comprised 200 female students from three colleges (College of Nursing, College of Applied Sciences, and Engineering).

Data collection: A random sample has been selected from the seven colleges in Hey-Al-Moadhafin campus/ University of Kerbala, the university is located in the center of Kerbala city, which consists of 17 colleges with an estimated 23000 students. The study period of most colleges is 4 years. Then, on a random approach, a class was selected after that, all female students in that class were approached. **Inclusion criteria:** Female undergraduate students who consented to participate in the study and give a blood sample were eligible for the study.

Exclusion criteria: Those who took vitamin D supplements within the last 6 months were excluded from the study.

Demographic information: After explaining the study objective and getting the written consent, each individual filled up a self-administered questionnaire containing demographic information like age, weight, height, residential status, lifestyle characteristics such as exposure to the sun, dietary habits, physical activity, and fatigue.

Sample collection: A blood sample for vitamin D was also taken from each participant by an independent laboratory female assistant, two ml from the cubital area after sterilization of the selected area with alcohol. Blood samples were collected at the University of Kerbala campus. The blood samples were transported to Al-Amal General Hospital Laboratory for analysis. Serum 25(OH) D levels were

measured using the I-Chroma II reader device, a fluorescence-based immunometric analyser with specific kits (Icromax Vit D Neo, Boditech Med, South Korea). All procedures followed standard operating protocols and were conducted by certified technicians. This device permits a quantitative and fast evaluation. It thus allows for categorization as to whether the vitamin D status of the student may be considered as either deficient with serum 25(OH) D <20 ng/mL, insufficient with vitamin D range of 20-30 ng/mL, or sufficient with serum 25(OH) D >30 ng/ml (Institute of Medicine Committee to Review Dietary Reference Intakes for Vitamin & Calcium, 2011).

Participants' height was calculated using a tape measure and a weighing body scale device. Later, the BMI in Kg/m2 was estimated, and participants were classified according to the WHO classification system into normal weight: 18.5 to 24.9, overweight: 25 to 29.9, and obesity classes: 30 and above ("Obesity: preventing and managing the global epidemic. Report of a WHO consultation," 2000). The 4-point Likert-type scale of the 10 dietary habits items questionnaire form (Likert, 1932) was scored for each item (from 0-3), giving the *Total Dietary Habits Score* ranged from 0 to 30 as follows:

Questions related to dietary intake given value of 3 to *Always* and 2 to *Sometimes,* and value of 1 *to Rarely,* and value of 0 to *Never*. Whereas a reverse score was given to questions related to bad dietary habits (value of 0 to *Always*, and 1 to *Sometimes*, and value of 2 *to Rarely,* and value of 3 to *Never*). (Cups of stimulant beverages) Given value of 3 to (4 cups and more), value of 2 to (3 cups), value of 1 to (2 cups), and value of 0 to (one cup). Question related to water intake given value of 3 to (more than 8 glasses), 2 to (6-8 glasses), value of 1 to (3-5 glasses), and value of 0 to (less than 3 glasses) (Robinson, 2014).

2.1 Statistical analysis

The data of the present study were evaluated by using the Statistical Package for the Social Sciences (SPSS 24.0 for Windows). The descriptive statistics were expressed in terms of frequency and percentage for qualitative variables, while quantitative variables were expressed as mean ± standard deviation (SD) in appropriate tables and graphs. Abnormal distributions were determined throughout the use of the Kolmogorov–Smirnov test, and the median and mean rank was expressed for not normally distributed variables. Possible association for abnormally distributed variables was determined through the use of the Mann-Whitney test to compare the means between two groups, or the Kruskal-Wallis test to compare the means among three or more groups, and Spearman's rank correlation coefficient to examine correlation between two continuous variables. Significance level was considered when $p \leq 0.05$.

2.2 Ethical Considerations

Ethical approval for the study was obtained from the Medical Research Bioethical Committee in the College of Medicine – University of Kerbala in their document registration numbered 24-17 issued on 25-3-2024. Further, the following explains the study objectives: a written consent was obtained from each participant to donate a blood sample and fill in the questionnaire. Assuring the confidentiality of their answers, their participation was voluntary.

Chapter Three

Results

Chapter Three

Results

The 200 female students illustrated a mean age of 21.99±1.99 years and a mean BMI of 25.38±5.60 (kg/m2). More than half of the study females (54%) reported high economic status, 90% were single, 64.5% came from an urban region, and smoking was reported by only 2 (1%) of them, as described in Table 1.

Table 1: Demographic characteristics of the study participants

Variables	Categories	Total No. (%)
College	Nursing	120 (60)
	Applied Sciences	60 (30)
	Engineering	20 (10)
Class	First	62 (31)
	Second	7 (3.5)
	Third	32 (16)
	Fourth	99 (49.5)
Age (years)	mean ±SD	21.99±1.99
BMI (Body Mass Index) (kg/m^2)	mean ±SD	25.38±5.60
Marital status	Single	180 (90)
	Married	20 (10)
Residence	Urban	129 (64.5)
	Rural	71 (35.5)
Economic status	High income > 1.5M ID	108 (54)
	Medium 0.5M-1.5M ID	88 (44)
	Low income < 0.5M ID	4 (2)
Chronic diseases	Yes	9 (4.5)
	No	191 (95.5)
Smoking status	Yes	2 (1)
	No	198 (99)

Based on BMI categories 29.5% of them were overweight and 16.5% were obese as shown in figure 1.

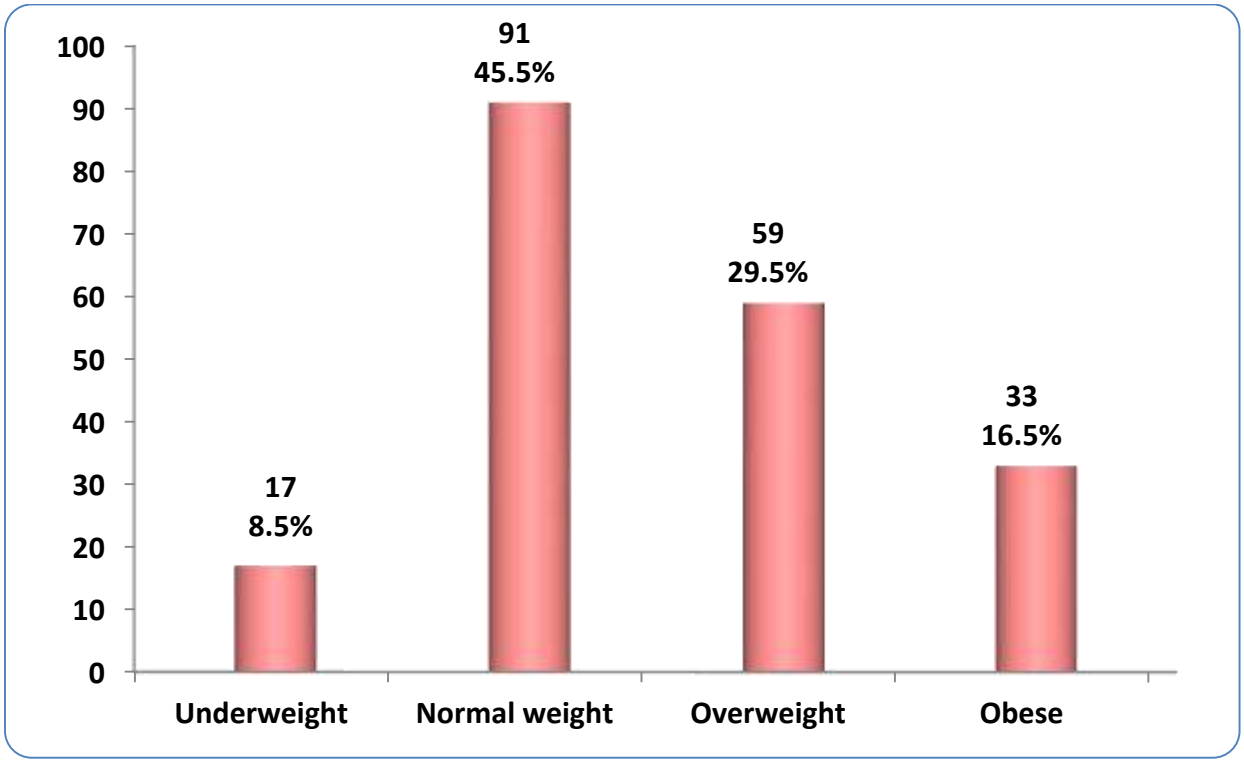

Figure 1: Body Mass Index categories among study participants

In relation to physical activity, more than half of the study females (54.5%) reported that they *never or rarely* engaged in walking or physical activity. While the direct sun exposure (Hands and Face) for one hour per day was reported by three quarters of the study participants, exposure for more than one hour per day was reported by 43 females (21.5%) and sun exposure for less than one hour per day was reported by only 8 participants (4%) as showed in table 2.

Table 2: Physical activity and sun exposure among study participants

Variables	Categories	Total No. (%)
Walking	Always	24 (12)
	Sometimes	67 (33.5)
	Rarely	78 (39)
	Never	31 (15.5)
Intensity of physical activity (n=169)	Light	70 (41)
	Moderate	97 (58)
	Intense	2 (1)
Types of physical activity	Outdoor activity	122 (61)
	Indoor activity	78 (39)
Duration of sun exposure per day	< One hour	8 (4)
	One hour	149 (74.5)
	> one hour	43 (21.5)
	mean ±SD	1.25±0.66

In regard to symptoms of vitamin D deficiency, the results showed that physical pain was positive in 81% of study females, whereas 96% of study participants reported that they always or sometimes had fatigue and tiredness. The study revealed that 76 participants (38%) reported that they *always or sometimes* use dietary supplements of vitamin D, whereas 124 participants (62%) reported that they *never or rarely* use dietary supplements of vitamin D. Previous vitamin D test was reported by 101 participants (50.5%) as shown in table 3.

The measurement of serum 25(OH) D of the study females concluded that 45 participants (22.5% of the total) were categorized as having sufficient vitamin D status, 27 participants (13.5%) as having insufficient, and 128 (64%) as deficient vitamin D status, as in Figure 2.

Table 3: Symptoms of vitamin D deficiency and Vitamin D supplements among study participants

Variables	Categories	Total No. (%)
Physical pain	No pain	38 (19)
	Simple	68 (34)
	Moderate	80 (40)
	Severe	14 (7)
Fatigue and tiredness	Always	58 (29)
	Sometimes	134 (67)
	Never	8 (4)
Menstrual cycle	Regular	160 (80)
	Irregular	40 (20)
Use of dietary supplements of vitamin D Previously > 6 Months	Always	38 (19)
	Sometimes	38 (19)
	Rarely	30 (15)
	Never	94 (47)
Previous vitamin D test	Yes	99 (49.5)
	No	101 (50.5)

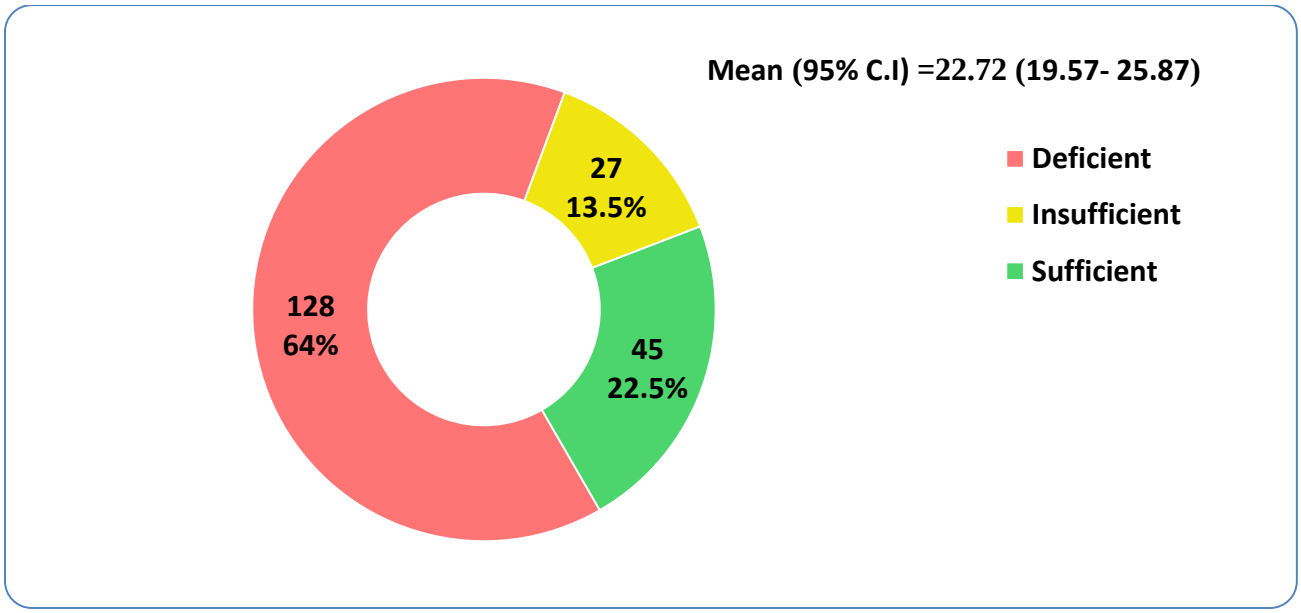

Figure 2: Vitamin D status among study participants

Regarding the ten-item dietary habits questionnaire, the study revealed that 83.5% of the study participants reported that they always or sometimes consume fruits and vegetables, followed by meat, legumes, milk, and fish (73.5%, 73.5%, 73% and 68.5% respectively). Ice cream, sweets, and soft drinks were consumed always or sometimes by 67%, 62% and 57% of the study participants as described in Table 4 and Figure 3. The mean Dietary Habits Score which is a metric used to assess the quality of population diet, was 17.73±2.96 out of a total of 30.

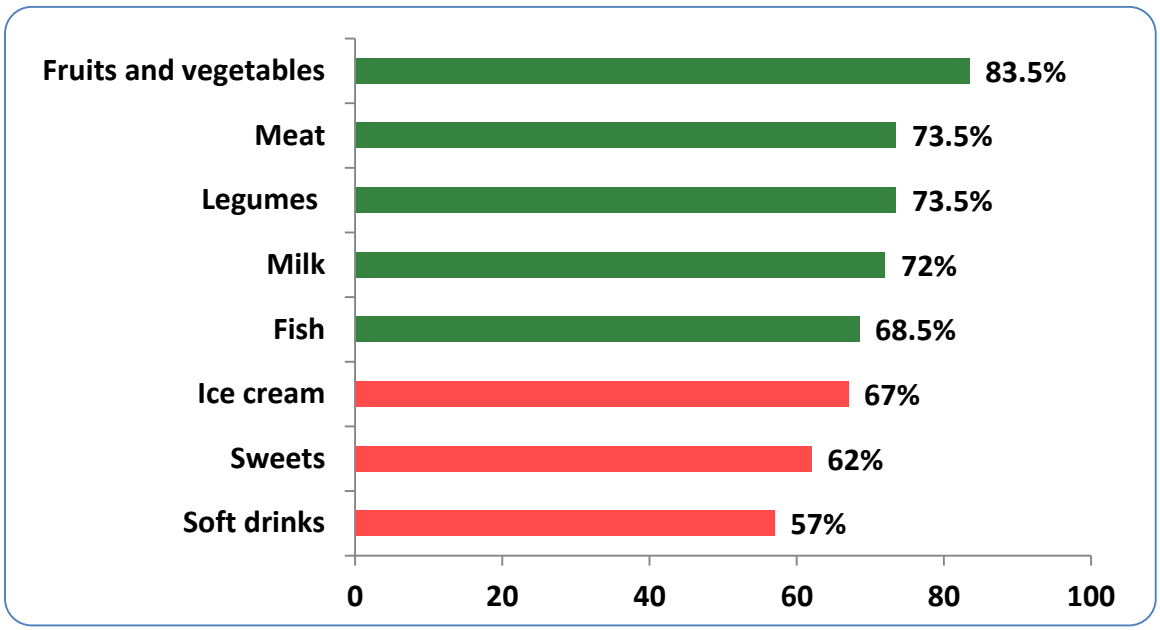

Figure 3: Proportions of food items consumed always or sometimes by study participants

Table 4: Dietary habits and Dietary Habits Score among study

Variables	Categories	Total No. (%)
Soft drinks	Always	20 (10)
	Sometimes	94 (47)
	Rarely	66 (33)
	Never	20 (10)
Milk	Always	56 (28)
	Sometimes	88 (44)
	Rarely	48 (24)
	Never	8 (4)
Fruits and vegetables	Always	90 (45)
	Sometimes	77 (38.5)
	Rarely	33 (16.5)
Meat	Always	77 (38.5)
	Sometimes	70 (35)
	Rarely	33 (16.5)
	Never	20 (10)
Sweets	Always	48 (24)
	Sometimes	76 (38)
	Rarely	39 (19.5)
	Never	37 (18.5)
Legumes	Always	67 (33.5)
	Sometimes	80 (40)
	Rarely	53 (26.5)
Fish	Always	55 (27.5)
	Sometimes	82 (41)
	Rarely	40 (20)
	Never	23 (11.5)
Ice cream	Always	43 (21.5)
	Sometimes	91 (45.5)
	Rarely	38 (19)
	Never	28 (14)
Cups of stimulants beverages (tea, coffee)	1	73 (36.5)
	2	54 (27)
	3	40 (20)
	4 and more	33 (16.5)
Water intake (glasses)	< 3	15 (7.5)
	3 – 5	79 (39.5)
	6 – 8	57 (28.5)
	> 8	49 (24.5)
Dietary Habits Score	mean ±SD	17.73±2.96
	C.I for mean	17.31 - 18.14

In regard to the association of socio-demographic characteristics and Vitamin D level among study participants, there was a statistically significant difference in vitamin D level among the three colleges (p=0.036), i.e., participants of the Engineering College revealed a significantly lower level of vitamin D compared to participants from Nursing and Applied Sciences colleges. The study concluded that there was no significant association between the level of vit D and BMI (Spearman's rank correlation coefficient -0.031) as illustrated in Table 5.

Table 5: Relationship of the socio-demographical characteristics and Vitamin D level among the female students.

Characteristics	Categories	Vitamin D (ng/mL)		P value
		Median	Mean Rank	
College	Nursing	15.00	103.50	0.036*
	Applied Sciences	18.15	105.01	
	Engineering	10.15	68.98	
Class	First	12.25	86.20	0.063
	Second	19.60	113.00	
	Third	24.60	118.36	
	Fourth	15.00	102.80	
Age (years)	Spearman's rank correlation coefficient		0.082	0.247
BMI (kg/m^2)	Spearman's rank correlation coefficient		-0.031	0.674
Marital status	Single	15.00	99.77	0.591
	Married	15.95	107.10	
Residence	Urban	15.60	103.71	0.290
	Rural	12.70	94.67	
Economic status	High	16.40	103.65	0.675
	Medium	13.55	96.41	
	Low	16.15	105.25	

* Significant P value of less than 0.05.Mann-Whitney test or Kruskal-Wallis test or Spearman's correlation was used for abnormally distributed variables.

Regarding the association of physical activity with Vitamin D level among the study participants, the outdoor activity demonstrated significantly higher level of vitamin D compared to indoor activity (p=0.015). The study showed that there was significant positive correlation between vitamin D level and duration of sun exposure (Spearman's rank correlation coefficient= 0.141), i.e. the higher duration of sun exposure, the higher vit D level as illustrated in table 6.

Table 6: Association of physical activity and sun exposure with Vitamin D level among study participants

Characteristics	Categories	Vitamin D (ng/mL)		P value
		Median	Mean Rank	
Walking	Always/ Sometimes	13.90	96.88	0.420
	Never/ Rarely	17.50	103.52	
Types of physical activity	Outdoor activity	17.00	111.10	0.001*
	Indoor activity	10.45	83.92	
Duration of sun exposure	Spearman's correlation coefficient		0.141	0.046*

* Significant P value of less than 0.05. Mann-Whitney test or Spearman's correlation was used for abnormally distributed variables.

The analysis of data revealed that a previous vitamin D test was significantly associated with higher vitamin levels ($p<0.001$). Regarding the association of Dietary Habits Score with vitamin D level, the study concluded that there was a significant positive correlation between vitamin D level and healthy diet (Spearman's rank correlation coefficient 0.215), i.e., the higher Dietary Habits Score, the higher vitamin D level, as described in Table 7 below.

Table 7: Association of symptoms of vitamin D deficiency and Dietary Habits Score with vitamin D level among study participants

Characteristics	Categories	Vitamin D (ng/mL)		P value
		Median	Mean Rank	
Physical pain	No or simple pain	16.80	107.06	0.089
	Moderate or severe	14.75	93.11	
Menstrual cycle	Regular	15.70	103.38	0.159
	Irregular	12.40	88.96	
Use dietary supplements of vitamin D>6months	Always/ Sometimes	15.25	109.46	0.086
	Never/ Rarely	15.00	86.51	
Previous vitamin D test	Yes	21.00	119.77	< 0.001*
	No	10.70	81.61	
Dietary Habits Score	Spearman's correlation coefficient		0.215	0.002*

* Significant P value of less than 0.05.Mann-Whitney test or Spearman's correlation was used for abnormally distributed variables.

Chapter Four

Discussion

Chapter Four

Discussion

Vitamin D deficiency has gained increasing attention over the last two decades by health professionals around the world, and in Iraq as well. Even the general people are concerned with it. We could do only 200 sample test because the data collection was at the time of final exams and most of the students refused doing the test. The current study tries to shed some light on vitamin D deficiency, and it revealed that 64% of participants had insufficiency of vitamin D, and only 22.5% were within the normal range. This high prevalence of vitamin D deficiency has also been reported in other regions close to Iraq circumstances like Saudi Arabia, Iran, and UAE with more than 70% and at the same time, related to multiple risk factors, including sun exposure, dietary intake, and physical activity(Al Zarooni et al., 2022; Md Isa et al., 2022) Furthermore, it has been believed that some of these factors are also associated with High BMI levels, which have been reported to be highly prevalent globally and in the Middle East (Abiri et al., 2023; Karaca Çelik et al., 2024)The high prevalence rate of BMI is nearly the same as our study, which was more than 25%. However, there were no discernible correlations between vitamin D levels and BMI. The current study's findings, which show no significant correlation between BMI and vitamin D status, are consistent with certain earlier research, particularly that done in Western countries, where obesity has been more frequently linked to decreased vitamin D levels (Majid et al., 2023; Salih & Abdul Sahib, 2024; Vranić et al., 2019).

Among various studies that discussed the relation between BMI and vitamin D status, results were similar. However, there was no relationship between BMI with vitamin D levels, which is being advocated by a meta-analysis and systematic review by Pereira et al (Pereira-Santos et al., 2015), which concluded that though obesity is

linked to lower levels of vitamin D, the relationship is weak, with the possible underlying mechanisms still under discussion. The widely accepted "sequestration hypothesis" postulates the storage of vitamin D in adipose tissue and thus its reduced bioavailability in obese people. The hypothesis holds some doubts, but with evidence from studies like the study from (Pereira-Santos et al., 2015), which take into account just BMI, vitamin D status may not be appropriately predicted. Likewise, the results of a study by Oomen et al (Oommen & Al-Zahrani, 2017), which was conducted in Saudi Arabi, indicated a weak positive correlation between BMI and vitamin D levels in adult females.

The correlation between sun exposure and vitamin D levels is a long-standing one, and this study merely upholds the view that insufficient sun exposure is a major cause of vitamin D deficiency, affecting more than two-thirds of the samples. A systematic review and Meta-analysis by Salih et al (Salih & Abdul Sahib, 2024) also stresses the fact that little sun exposure adds a huge portion to the prevalence of vitamin D deficiency. This due to the effect of UV beam of sunlight in which approximately 270-300 nm interact with 7- dehydrocholestrol in the skin, thus effective in stimulating Vitamin D production when the UV index greater than 3 which is about 20 minutes' exposure around 8-10am. This is coherent with what happens in the rest of the world, especially in areas with cultural or environmental factors that limit sun exposure (Elwafa et al., 2025; Salih & Abdul Sahib, 2024) However, though they said that been exposed to the sun for 1 hr or more. But they are covered and probably only a small part of their body, including the face and palms of hands, are exposed to the sun.

The study found that no significant relationship exists between water intake and vitamin D levels. This is in line with the existing literature that established that amounts of water consumed were not associated with vitamin D levels. Generally,

water intake is not viewed as a common major determinant of vitamin D status since in addition to the generation from ultraviolet irradiation in sunlight, there are also dietary sources and supplementation sources of vitamin D. There is very little literature available on the linkage of the hydration status of the body with Vitamin D metabolism; this study also goes on to confirm the prevailing opinion that it is the quantity of water intake that does not influence Vitamin D levels significantly.

There was no significant association between the menstrual status and vitamin D levels reported in the present study. However, Hormonal changes have been reported to affect vitamin D metabolism as well as cyclic variations more precisely. For example, a study by Harmon et al. (Harmon et al., 2020) pointed out that estrogen has a role in the metabolism of vitamin D; this indicates that, according to the menstrual irregularity or any hormonal imbalance, the status of vitamin D might alter in females. The association needs further analysis, as hormonal changes during menstruation might affect mechanisms of absorption and metabolism of Vitamin D, especially in the younger female population.

In this study we conducted in Kerbela, there was a clear correlation between food patterns in women of college age and vitamin D deficiency. This result is consistent with the body of current research, which implies that low dietary consumption of foods high in vitamin D, such as eggs, fatty fish, and fortified dairy products, could be the cause of the high frequency of vitamin D deficiency in this population. Poor dietary habits among academic females cause women to have abnormal eating patterns, which may lead to insufficient vitamin D consumption. This emphasises the importance of healthy dietary habits to change eating patterns to avoid health problems connected to deficiencies in students in Kerbela. (Alharbi et al., 2023; Naja et al., 2023; Zhang et al., 2022).

The high prevalence of vitamin D deficiency reported in this study is representative of global trends, especially in populations with limited sun exposure or dietary intake of vitamin D. Isa et al (Md Isa et al., 2022) reported that vitamin D deficiency was still an issue growing wide, particularly in those regions where cultural practices, like the donning of clothes that limit sun exposure, or lifestyles of indoor living, hold as a predominant factor. These findings are in line with studies from the Middle East and South Asia. The rates are similar because the low sun exposure and dietary habits do not give preference to the same vitamin D-rich foods (Alharbi et al., 2023; Naja et al., 2023)

Physical complaint was, however, common among the participants (96% reported feeling fatigued sometimes). The study found no significant correlation between fatigue with vitamin D levels. This finding is in agreement with other research, such as that by Al Zarooni et al (Al Zarooni et al., 2022), which concluded that fatigue can be the presenting complaint for vitamin D deficiency but is not pathognomonic. However, other aspects that could contribute to fatigue, rather than vitamin D status, may include stress levels, quality of sleep, psychological factors, medical conditions and the general lifestyle of the individual may induce feeling of fatigue even in normal level Vitamin D (Tornero-Aguilera et al., 2022)

Limitations

The study didn't look at inflammatory markers or hormone levels that might be involved in the link between fat and vitamin D. Clothes and skin exposure were not measured. The amount of time spent in the sun was measured, but the total surface area exposed to sunlight (which is important for making vitamin D) was not measured. This is especially important in a religious city like Kerbala. Geographical and seasonal differences were not taken into account: the study only ran from April to May, so changes in sunshine and weather during different seasons were not taken

into account. Finally, the measurement of waist circumference couldn't be measured for purpose of BMI measurement because of religious issues.

Chapter Five

Conclusions

&

Recommendations

Chapter Five

5.1 Conclusions

1. Less than a quarter of students have sufficient vitamin D, while more than 60% of participants have a vitamin D deficiency.
2. There is no significant correlation between the high BMI of university-age females and vitamin D deficiency.
3. Higher vitamin D levels were higher among those who do physical activity, had longer durations of sun exposure, previously did a vitamin D test, and had better dietary habits.

5.2 Recommendations

1. Encouraging safe sun exposure at home for 10-15 minutes daily with increasing uncovered area (Head, Shoulders, and Legs)

2. Enhancing dietary intake of vitamin D-rich foods

3. Integrating physical activity modules in student wellness programs.

4. Future research should adopt longitudinal and multicenter approaches to explore causality and broader generalizability.

5. Outdoor activities, Sun exposure and vit D rich healthy diet are highly recommended

References

References:

Abdelsalam, M., Nagy, E., Abdalbary, M., Alsayed, M. A., Ali, A. A. S., Ahmed, R. M., Alsuliamany, A. S. M., Alyami, A. H., Althaqafi, R. M. M., Alsaqqa, R. M., Ali, S. I., Aljohani, B., Alghamdi, A. A., Alghamdi, F. A., & Alsulaimani, A. A. (2023). Prevalence and Associated Factors of Vitamin D Deficiency in High Altitude Region in Saudi Arabia: Three-Year Retrospective Study. *Int J Gen Med*, *16*, 2961-2970. https://doi.org/10.2147/ijgm.S418811

Abiri, B., Ahmadi, A. R., Amini, S., Akbari, M., Hosseinpanah, F., Madinehzad, S. A., Hejazi, M., Rishehri, A. P., Naserghandi, A., & Valizadeh, M. (2023). Prevalence of overweight and obesity among Iranian population: a systematic review and meta-analysis. *J Health Popul Nutr*, *42*(1), 70. https://doi.org/10.1186/s41043-023-00419-w

Al-Tuama, N., Almusawi, Z., Abood, H., Abutiheen, A., & Al-tuama, K. (2022). The Association Between Vitamin D Deficiency and Childhood Asthma. *1*, 115-120. https://doi.org/10.4103/jpdtsm.jpdtsm_13_22

Al Zarooni, A. A. R., Nagelkerke, N., Al Marzouqi, F. I., & Al Darmaki, S. H. (2022). Risk factors for vitamin D deficiency in Abu Dhabi Emirati population. *PLoS One*, *17*(2), e0264064. https://doi.org/10.1371/journal.pone.0264064

Alharbi, A. F., Ali, M., Alrefaey, Y. I., Filimban, H. A., Alhwaity, A. S., Alamoudi, A., & Khan, M. A. (2023). Association Between Serum Vitamin D Levels and Body Mass Index Status: A Cross-Sectional Study at King Khalid Hospital, Jeddah, Saudi Arabia, From 2019 to 2020. *Cureus*, *15*(10), e46927. https://doi.org/10.7759/cureus.46927

Amelia Lorensia, R. V. S., Irene Andriana Inu. (2022). *Comparison of vitamin D status and physical activity related to obesity among tertiary education students* (Vol. Volume: 12). Issue: 4. https://japsonline.com/bib_files/abstract.php?article_id=japs3626

Boonchaya-anant, P., Holick, M. F., & Apovian, C. M. (2014). Serum 25-hydroxyvitamin D levels and metabolic health status in extremely obese individuals. *Obesity (Silver Spring)*, *22*(12), 2539-2543. https://doi.org/10.1002/oby.20877

de Oliveira, L. F., de Azevedo, L. G., da Mota Santana, J., de Sales, L. P. C., & Pereira-Santos, M. (2020). Obesity and overweight decreases the effect of vitamin D supplementation in adults: systematic review and meta-analysis of randomized controlled trials. *Rev Endocr Metab Disord*, *21*(1), 67-76. https://doi.org/10.1007/s11154-019-09527-7

Elwafa, A., Hawad, A., & Mrami, S. (2025). The Prevalence of Vitamin D Deficiency among Students of Faculty of Engineering and Technical Sciences in Brack Al-Shatti. *Wadi Alshatti University Journal of Pure and Applied Sciences*, *2*(1), 84-89. https://doi.org/10.63318/

Harmon, Q. E., Kissell, K., Jukic, A. M. Z., Kim, K., Sjaarda, L., Perkins, N. J., Umbach, D. M., Schisterman, E. F., Baird, D. D., & Mumford, S. L. (2020). Vitamin D and Reproductive Hormones Across the Menstrual Cycle. *Hum Reprod*, *35*(2), 413-423. https://doi.org/10.1093/humrep/dez283

Institute of Medicine Committee to Review Dietary Reference Intakes for Vitamin, D., & Calcium. (2011). The National Academies Collection: Reports funded by National Institutes of Health. In A. C. Ross, C. L. Taylor, A. L. Yaktine, & H. B. Del Valle (Eds.), *Dietary Reference Intakes for Calcium and Vitamin D*. National Academies Press (US)

Copyright © 2011, National Academy of Sciences. https://doi.org/10.17226/13050

Karaca Çelik, K. E., Morales-Suárez-Varela, M., Uçar, N., Soriano, J. M., İnce Palamutoğlu, M., Baş, M., Toprak, D., Hajhamidiasl, L., Erol Doğan, Ö., & Doğan, M. (2024). Obesity prevalence, nutritional status, and physical activity levels in Turkish adults during the COVID-19 pandemic [Original Research]. *Frontiers in Nutrition*, *Volume 11 - 2024*. https://doi.org/10.3389/fnut.2024.1438054

Lenders, C. M., Feldman, H. A., Von Scheven, E., Merewood, A., Sweeney, C., Wilson, D. M., Lee, P. D., Abrams, S. H., Gitelman, S. E., Wertz, M. S., Klish, W. J., Taylor, G. A., Chen, T. C., & Holick, M. F. (2009). Relation of body fat indexes to vitamin D status and deficiency among obese adolescents. *Am J Clin Nutr*, *90*(3), 459-467. https://doi.org/10.3945/ajcn.2008.27275

Likert, R. (1932). A Technique for the Measurement of Attitudes. *Archives of Psychology*, *140*.

Majid, M. A., Hassan, W. N., & Ridha, A. F. (2023). Prevalence of 25-Hydroxyvitamin D (Vitamin D) Deficiency in a Group of Infertile Women from Baghdad City. *Biochem Res Int*, *2023*, 6597730. https://doi.org/10.1155/2023/6597730

Maroufi, N. F., Pezeshgi, P., Mortezania, Z., Pourmohammad, P., Eftekhari, R., Moradzadeh, M., Vahedian, V., & Nouri, M. (2020). Association between vitamin D deficiency and prevalence of metabolic syndrome in female population: a systematic review. *Horm Mol Biol Clin Investig*, *41*(4). https://doi.org/10.1515/hmbci-2020-0033

Martineau, A. R., Jolliffe, D. A., Hooper, R. L., Greenberg, L., Aloia, J. F., Bergman, P., Dubnov-Raz, G., Esposito, S., Ganmaa, D., Ginde, A. A., Goodall, E. C., Grant, C. C., Griffiths, C. J., Janssens, W., Laaksi, I., Manaseki-Holland, S., Mauger, D., Murdoch, D. R., Neale, R.,…Camargo, C. A., Jr. (2017). Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data. *Bmj*, *356*, i6583. https://doi.org/10.1136/bmj.i6583

Md Isa, Z., Mohd Nordin, N. R., Mahmud, M. H., & Hashim, S. (2022). An Update on Vitamin D Deficiency Status in Malaysia. *Nutrients*, *14*(3). https://doi.org/10.3390/nu14030567

Naja, F., Khaleel, S., Alhajeri, M. E., Ajlan, B. Y., Abulfateh, N. M., Alawadhi, A. G., Bowah, M. H. J., & Al-Jawaldeh, A. (2023). The Bahraini food based dietary guidelines: a holistic perspective to health and wellbeing. *Front Public Health*, *11*, 1182075. https://doi.org/10.3389/fpubh.2023.1182075

Obesity: preventing and managing the global epidemic. Report of a WHO consultation. (2000). *World Health Organ Tech Rep Ser*, *894*, i-xii, 1-253.

Oommen, A., & Al-Zahrani, I. H. (2017). Association of obesity with vitamin D deficiency and the clinical implications. *International Journal of Research in Medical Sciences*, *3*(11), 3262-3265. https://doi.org/10.18203/2320-6012.ijrms20151173

Parva, N. R., Tadepalli, S., Singh, P., Qian, A., Joshi, R., Kandala, H., Nookala, V. K., & Cheriyath, P. (2018). Prevalence of Vitamin D Deficiency and Associated Risk Factors in the US Population (2011-2012). *Cureus*, *10*(6), e2741. https://doi.org/10.7759/cureus.2741

Pereira-Santos, M., Costa, P. R., Assis, A. M., Santos, C. A., & Santos, D. B. (2015). Obesity and vitamin D deficiency: a systematic review and meta-analysis. *Obes Rev*, *16*(4), 341-349. https://doi.org/10.1111/obr.12239

Robinson, J. (2014). Likert Scale. In A. C. Michalos (Ed.), *Encyclopedia of Quality of Life and Well-Being Research* (pp. 3620-3621). Springer Netherlands. https://doi.org/10.1007/978-94-007-0753-5_1654

Salih, G. J., & Abdul Sahib, S. (2024). Prevalence and Associated Risk Factors of Vitamin D Deficiency Among Female Adolescents in Sulaimaniyah, Iraq: A Community-Based Cross-Sectional Study. *Journal of Contemporary Medical Sciences*, *10*(5). https://doi.org/10.22317/jcms.v10i5.1633

Shady, M. M., Youssef, M. M., Shehata, M. A., El-Din, E. M., & ElMalt, H. A. (2015). Association of Serum 25-Hydroxyvitamin D with Life Style and Dietary Factors in Egyptian Prepubescent Children. *Open Access Maced J Med Sci*, *3*(1), 80-84. https://doi.org/10.3889/oamjms.2015.006

Sosa Henríquez, M., & Gómez de Tejada Romero, M. J. (2020). Cholecalciferol or Calcifediol in the Management of Vitamin D Deficiency. *Nutrients*, *12*(6). https://doi.org/10.3390/nu12061617

Svedlund, A., Pettersson, C., Tubic, B., Magnusson, P., & Swolin-Eide, D. (2017). Vitamin D status in young Swedish women with anorexia nervosa during intensive weight gain therapy. *Eur J Nutr*, *56*(6), 2061-2067. https://doi.org/10.1007/s00394-016-1244-7

Tornero-Aguilera, J. F., Jimenez-Morcillo, J., Rubio-Zarapuz, A., & Clemente-Suárez, V. J. (2022). Central and Peripheral Fatigue in Physical Exercise Explained: A Narrative Review. *Int J Environ Res Public Health*, *19*(7). https://doi.org/10.3390/ijerph19073909

Vieth, R. (2020). Vitamin D supplementation: cholecalciferol, calcifediol, and calcitriol. *Eur J Clin Nutr*, *74*(11), 1493-1497. https://doi.org/10.1038/s41430-020-0697-1

Vranić, L., Mikolašević, I., & Milić, S. (2019). Vitamin D Deficiency: Consequence or Cause of Obesity? *Medicina (Kaunas)*, *55*(9). https://doi.org/10.3390/medicina55090541

Zhang, Y., Lin, S., Li, J., Song, X., Chen, G., & Pei, L. (2022). Interaction of Passive Smoking and Diet Habits on Vitamin D Deficiency among Women of Reproductive Age in Rural Central China. *Nutrients*, *15*(1). https://doi.org/10.3390/nu15010126

World Health Organization. Fact sheets/ Obesity and Overweight. Last updated on March 1, 2024. accessed on 14/4/2025. Available at https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

Appendix

Appendix

Questioners

استبيان حول نقص فيتامين د D بين الطالبات في جامعة كربلاء وعلاقته بمؤشر كتلة الجسم وعوامل اخرى

عزيزتي الطالبة، هذا البحث يهدف إلى دراسة نقص فيتامين د بين طالبات الجامعة وعلاقته مع زيادة الوزن. لما له من أهمية في حياة الطالبات وصحتهن.

علما ان هذا الاستبيان من دون اسم وطوعي، وسيتم الحفاظ على خصوصية وسرية المعلومات. مشاركتك مهمة وهي دليل على وعيك. لن يستغرق هذا الاستبيان سوى دقائق قليلة من وقتك.

كما سيتم سحب نموذج دم في حال موافقتكم.. راجين المشاركة **الباحث**

ضعي إشارة صح (√) في الاختيار المناسب لكي

ت					
	العمر ◯ سنة			رقم العينة : ◯	
1	الكلية:			القسم :	
2	المرحلة	الأولى ◯	الثانية ◯	الثالثة ◯	الرابعة ◯
3	الحالة الاجتماعية	عزباء ◯	متزوجة	مطلقة ◯	ارملة ◯
4	*ملاحظة: إذا كانت الإجابة للفقرة السابقة(متزوجة). هل لديك أطفال؟ نعم ◯ لا ◯ اذا كانت الإجابة (نعم) لطفا انتقلي الى الفقرة التالية				
5	هل ترضعين الطفل؟	نعم ◯	لا ◯		
6	السكن	قسم داخلي ◯	السكن مع الاهل ◯	سكن مشترك مع الطالبات ◯	سكن خارج المحافظة ◯
7	الحالة الاقتصادية	جيدة ◯	متوسطة ◯	ضعيفة ◯	
8	عنوان السكن	مدينة ◯		ريف ◯	

ت	السؤال
9	هل ترتدين الحجاب؟ نعم ◯ لا ◯
10	هل تمارسين الرياضة؟ دائما ◯ أحيانا ◯ نادرا ◯ كلا ◯
11	اذا كنتي تمارسين الرياضة .ما هو نوع الرياضة:
12	ما طبيعة النشاط البدني اليومي؟ شديد ◯ متوسط ◯ بسيط ◯
13	صعود الدرج ◯ حركة داخل المنزل ◯ حركة خارج المنزل ◯
14	هل تتعرضين الى الشمس من دون الحجاب؟ إذا كانت الإجابة بنعم لطفا انتقلي الى الفقرة التالية نعم ◯ لا ◯
15	كم عدد ساعات التعرض للشمس يوميا؟ ◯ ساعة

ت	السؤال
16	هل لديك امراض مزمنة؟ اذا كانت الإجابة بنعم لطفا انتقلي الى الفقرة التالية نعم ◯ لا ◯
17	نوع المرض المزمن :
18	الادوية المستخدمة لعلاج المرض المزمن :
19	هل تعانين من الآم في الجسم؟ شديدة ◯ متوسطة ◯ بسيطة ◯ لا توجد ◯
20	هل تعانين من الخمول والتعب؟ دائما ◯ أحيانا ◯ ابدا ◯
21	هل سبق ان عملت تحليل لنقص فيتامين د سابقا؟ نعم ◯ لا ◯ ان كانت الإجابة نعم متى اخر مرة؟
22	هل تستخدمين ادوية مكملات غذائية تحتوي على فيتامين د لأكثر من 6 أشهر؟ ؟ دائما ◯ أحيانا ◯ نادرا ◯ ابد ◯
23	هل الدورة الشهرية منتظمة؟ نعم ◯ لا ◯

ت	اسئلة حول نوع الغذاء				
24	هل تتناولين المشروبات الغازية؟	دائما ◯	أحيانا ◯	نادرا ◯	ابدا ◯
25	هل تتناولين الحليب ومشتقاته ؟	دائما ◯	أحيانا ◯	نادرا ◯	ابدا ◯
26	هل تتناولين الفواكه والخضروات؟	دائما ◯	أحيانا ◯	نادرا ◯	ابدا ◯
27	هل تتناولين اللحوم؟	دائما ◯	أحيانا ◯	نادرا ◯	ابدا ◯
28	هل تتناولين الحلويات ؟	دائما ◯	أحيانا ◯	نادرا ◯	ابدا ◯
29	هل تتناولين البقوليات ؟	دائما ◯	أحيانا ◯	نادرا ◯	ابدا ◯
30	هل تتناولين الأسماك ؟	دائما ◯	أحيانا ◯	نادرا ◯	ابدا ◯
31	هل تتناولين الايس كريم والشكولاتة ؟	دائما ◯	أحيانا ◯	نادرا ◯	ابدا ◯

ت	أسئلة حول المنبهات
32	هل تتناولين الشاي او القهوة؟ اذا كانت الإجابة بنعم لطفا انتقلي الى الفقرة التالية نعم ◯ لا ◯
33	كم عدد الاكواب التي تشربينها في اليوم؟ ◯كوب

ت	أسئلة حول التدخين
34	هل تدخنين السكائر او الاركيلة؟ اذا كانت الإجابة بنعم لطفا انتقلي الى الفقرة التالية نعم ◯ نوعا ما ◯ لا ◯
35	كم عدد السكائر التي تدخنينها في اليوم؟ ◯ سيكارة الاركيلة : يوميا ◯ بين فترة واخرى ◯

ت	اسئلة حول شرب الماء
36	كم عدد الاكواب التي تشربينها يوميا من الماء؟ ◯كوب / كأس (يمكن وضع صفر ان كنت لا تشربين الماء)

هل توافقين على اعطاء نموذج اختبار للدم لغرض قياس مستوى فيتامين د؟

هل لديكي إضافة او مقترح؟

موافقة **غير موافقة**

رقم العينة:

التوقيع

جمهورية العراق

وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية الطب
معاون العميد للشؤون العلمية
شعبة شؤون الدراسات العليا

العدد: د/16/ 483

التاريخ: 25/ 1 /2024

أمر اداري

م/اقرار مشروع بحوث طلبة الدراسات عليا/دبلوم عالي/طب اسرة

إشارة الى ما جاء في محضر مجلس الكلية بالجلسة الرابعة المنعقدة بتاريخ (2023/12/5) والمصادق عليها من قبل رئاسة جامعة كربلاء /أمانة مجلس الجامعة بكتابهم المرقم (ج/1938 في 2023/12/24) ,واستناداً للصلاحيات المخولة لنا تقرر:

- اعتماد خطط ومشاريع بحوث طلبة الدراسات العليا/دبلوم عالي/طب الاسرة وأسماء السادة التدريسيين المشرفين على خطط مشاريع البحوث حسب الجدول ادناه واعتباراً من تاريخ كتاب مصادقة أمانة مجلس الجامعة على محضر مجلس الكلية.

أ.د.علي عبدالرضا كاظم ابوطحين
معاون العميد للشؤون العلمية
2024/1/25

الدكتورة
شهرزاد شمخي الجبوري
2024/1/21

*نسخة منه:
- مكتب السيد العميد المحترم للتفضل بالاطلاع مع التقدير.
- مكتب معاون العميد للشؤون العلمية المحترم للتفضل بالاطلاع مع التقدير.
- فرع طب الاسرة والمجتمع. للتفضل بالاطلاع لتبليغ السادة المعنيين.
- الحسابات..للتفضل بالاطلاع ...واتخاذ ما يلزم.
- شعبة الدراسات العليا/اضابير الطلبة.
- الصادرة.

جمهورية العراق

وزارة التعليم العالي والبحث العلمي
جامعـــة كربـــــلاء
كلية الطب
معاون العميد للشؤون العلمية
شعبة شؤون الدراسات العليا

العدد: د ع/ 483 / 1

التاريخ: 2024/ 1 /25

جامعة كربلاء كلية الطب

الصـــادر

ت	اسم الطالب	عنوان البحث	اسم المشرف
1	حازم محمد خليل	Vitamin D deficiency among female's students in university of kerbala and its association with obesity	أ.د. علي عبدالرضا كاظم أبوطحين بورد / طب اسرة جامعة كربلاء/كلية الطب م.د. أحمد هاشم مطلوب دكتوراه / ادوية جامعة كربلاء/كلية الطب
2	نبا مرتضى عبد	Knowledge, attitude and practices about acne vulgaris among secondary school female students in kerbala city center ,2024	أ.م.د.بشير عقيل مسلم العلي بورد / طب مجتمع جامعة كربلاء/كلية الطب م.د. مرس باسم رحيم بورد / جلدية جامعة كربلاء/كلية الطب
3	زينة علي حسين	Assessment of emotional distresses among women with recent miscarriage in kerbala 2024	أ.م.د.بشير عقيل مسلم العلي بورد / طب مجتمع جامعة كربلاء/كلية الطب أ.م.د. نورا صباح رسول بورد / نسائية وتوليد جامعة كربلاء/كلية الطب
4	ورود نعمان هادي	The impact of kangaroo mother care on newborn health of preterm infants at al-zahraa teaching hospital in AL-Najaf Aal-ashraf city, 2024	أ.د. علي عبدالرضا كاظم أبوطحين بورد / طب اسرة جامعة كربلاء/كلية الطب أ.د. علاء جمعة النصراوي بورد / أطفال جامعة الكوفة / كلية الطب
5	زينب فائق ياسين	Early complications of caesarian sections among women delivered in four hospitals in kerbala ,2023	أ.م.د. شهرزاد شمخي طائل بورد / طب مجتمع جامعة كربلاء/كلية الطب م.د. أزهار مهمي حمود بورد / نسائية وتوليد جامعة كربلاء/كلية الطب

University of Kerbala
College of Medicine
Medical Research Bioethical Committee
No: 24-17
Date: 25/3/2024

ETHICAL APPROVAL LETTER

Hazim Mohammed khaleel
Family & Community Medicine dept.\ College of Medicine \ University of Kerbala

Title of Project: ***"Vitamin D Deficiency among Female's Students in University of Kerbala and its Association with Obesity"***

This is to certify that proposal provided have satisfactorily addressed the research bioethical guidelines..

Please consider the following requirements of approval:

1. Approval will be valid for one year. By the end of this period, if the project has been completed, abandoned, altered, discontinued or not commenced for any reason, you are required to announce to the Committee. And you should inform the committee if the study extends over one year.
2. You must notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.
3. Informed consent should be taken from all the patients or their Guardians prior to intervention. And always consider the confidentiality of personal information and/or opinions, and they must never be obligated to participate and explaining the procedure risks and benefits
4. At all times you are responsible for the ethical conduct of your research in accordance with the standard bioethical guidelines. In agreement with WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Participants.
5. The Committee should be notified if you will be applying for or have applied for internal or external funding for the above project.
6. All participants must be informed about the research issue and objectives prior to taking blood samples which should be voluntary.
7. Not any cost or money for the investigations or others should be charged on participants.

Professor Dr. Ali A. Abutiheen
Chair, Medical Research Bioethical Committee
College of Medicine – University of Kerbala

جمهورية العراق

وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية الطب
معاون العميد لشؤون العلمية
شعبة شؤون الدراسات العليا

العدد: 499 / 1612
التاريخ: 2024/ 1 / 25

جامعة كربلاء كلية الطب الصادر

الى/جامعة كربلاء/كلية الهندسة
كلية التمريض
كلية العلوم الطبية التطبيقية
كلية التربية الرياضية والبدنية
م/ تسهيل مهمة

تحية طيبة :

يرجى تفضلكم بتسهيل مهمة طالب الدراسات العليا/دبلوم عالي /طب الاسرة (سنتان تقويميتان) في فرع طب الاسرة والمجتمع **(حازم محمد خليل)** في مشروع البحث الموسومة :

((Vitamin D deficiency among female's students in university of kerbala and its association with obesity))

لغرض جمع عينات البحث , شاكرين تعاونكم معنا خدمة للحركة العلمية في بلدنا العزيز.

... مع التقدير ...

أ.د. علي عبدالرضا كاظم ابو طحين
معاون العميد للشؤون العلمية
2024/1/25

**نسخة منه:
- مكتب السيد العميد المحترم للتفضل بالاطلاع مع التقدير.
- مكتب معاون العميد للشؤون العلمية المحترم للتفضل بالاطلاع مع التقدير.
- فرع طب الاسرة والمجتمع للتفضل بالاطلاع مع التقدير.
- شعبة الدراسات العليا/المعني
- الصادرة.

Republic of Iraq
Ministry of higher education & scientific research
University of Kerbala
College of Nursing

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية التمريض
وحدة الشؤون العلمية

العدد: 1090/ع/ع
التاريخ: 2024/5/5

الى / جامعة كربلاء /كلية الطب/شعبة شؤون الدراسات العليا

م/ تسهيل مهمة

نهديكم اطيب التحيات ...

اشارة الى كتابكم المرقم د/499/6/ في 2024/1/25 لامانع لدينا من تسهيل مهمة طالب الدراسات العليا /دبلوم عالي /طب الاسرة (حازم محمد خليل) في مشروع البحث .

.... مع وافر الاحترام التقدير....

أ.م.د سلمان حسين فارس الكريطي
العميد
2024/ 5/5

نسخة منه الى/////
- مكتب معاون العميد للشؤون العلمية المحترم ... للتفضل بالاطلاع مع التقدير.
- الشؤون العلمية للحفظ مع الأوليات .
- الصادرة

اسراء

العنوان : العراق - محافظة كربلاء المقدسة – حي الموظفين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq website: nursing.uokerbala.edu.iq

Republic of Iraq
Ministry of Higher Education
And Scientific Research
University of Karbala
College of Applied Medical Sciences
Section of Scientific Affairs

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية العلوم الطبية التطبيقية
وحدة الشؤون العلمية

العدد / ع / 6 / 126 التاريخ : 18 / 3 / 2024

إلى/ جامعـــة كربـــــلاء/كلية الطب –شعبة شؤون الدراسات العليا

م/تسهيل مهمة

تحية طيبة ...

اشارة الى كتابكم ذي العدد د/499/6 في 2024/1/25 ،نود اعلامـــكم بعدم ممانعة كليتنا من تسهيل مهمة طالب الدراسات العليا/دبلوم عالي (حازم محمد خليل) في مشروع البحث ، للتفضل بالاطلاع مع التقدير .

أ.م.د. هدى عبد الرضا الهاشمي

معاون العميد للشؤون العلمية

2024 / 3 /18

نسخه منه الى:

- الصادرة.

http://ams.uokerbala.edu.iq amsc@uokerbala.edu.iq العراق –كربلاء–جامعة كربلاء /مجمع حي الموظفين

Certificate of Partcipation

This is to certify that

Dr. Hazim Mohammed Khaleel

has attended the
2nd Al-Mustaqbal International Conference of Sciences and Health Techniques (MICSHT 25) organized by the College of Health and Medical Techniques, Al-Mustaqbal University, Held on Babylon, Iraq April 22–23, 2025.

This certificate also acknowledges their contribution through the publication of the research article:

(*"Vitamin D deficiency among female's students in University of Kerbala and its association with obesity"*)

Prof Dr. Hasan Shakir Majdi
President of Al-Mustaqbal University

الملخص

الخلفية:

يُعد نقص فيتامين د (Vitamin D) شائعًا جدًا بين الإناث في العراق، وهو مصدر قلق متزايد. وقد تم ربط نقص فيتامين د بمجموعة واسعة من الحالات والأمراض، مثل الاضطرابات الأيضية، وأمراض العضلات والعظام، والسرطان، وأمراض المناعة الذاتية، وأمراض القلب والأوعية الدموية وغيرها. ورغم أن الأدبيات العلمية تشير إلى ارتباط نقص فيتامين د بانخفاض الوزن، لا توجد أدلة على أنه قد يسبب زيادة في الوزن، خاصة لدى الفتيات الشابات. تهدف هذه الدراسة إلى تقييم انتشار نقص فيتامين د بين طالبات الجامعة، وفحص علاقته بمؤشر كتلة الجسم (BMI) وبعض عوامل نمط الحياة المختارة.

الهدف:

تقييم العلاقة بين نقص فيتامين د والسمنة لدى طالبات الجامعة، والتحقيق في عوامل أخرى مثل التعرض لأشعة الشمس، والعادات الغذائية، والنشاط البدني التي قد تكون مرتبطة به.

المواد والطرق:

أُجريت دراسة تحليلية مستعرضة في جامعة كربلاء خلال شهري نيسان وأيار من عام 2024. شملت المشاركات 200 طالبة من ثلاث كليات (كلية التمريض، وكلية العلوم التطبيقية، والهندسة). تم أخذ عينات دم من المشاركات اللاتي وافقن على المشاركة وأكملن الاستبيان، لاختبار تركيز فيتامين د-25) هيدروكسي فيتامين .(D تم استخدام الإحصاء الوصفي لتلخيص الخصائص الديموغرافية. كما استُخدمت اختبارات مان-ويتني وكروسكال-واليس للمقارنة بين المجموعات، بينما استُخدم معامل ارتباط سبيرمان لتقييم العلاقات بين المتغيرات. اعتُبر مستوى الدلالة الإحصائية عند قيمة P أقل من 0.05.

النتائج:

كان متوسط مؤشر كتلة الجسم لدى الطالبات 25.38 ± 5.60 كجم/م². أظهرت مستويات فيتامين د أن 22.5% لديهن مستويات كافية، بينما 64% يعانين من نقص. وُجدت فروق ذات دلالة إحصائية في مستويات فيتامين د بين الطالبات من الكليات المختلفة($p=0.036$) ، وكانت طالبات كلية الهندسة هن الأقل في المستوى. لم تُلاحظ علاقة بين فيتامين د ومؤشر كتلة الجسم. وُجد ارتباط إيجابي بين مدة التعرض للشمس وارتفاع مستويات فيتامين د .($p=0.015$) كما وُجد ارتباط إيجابي بين النظام الغذائي الصحي وارتفاع مستويات فيتامين د.

الاستنتاج:

أكثر من 60% من الطالبات يعانين من نقص فيتامين د. لا توجد علاقة ذات دلالة إحصائية بين ارتفاع مؤشر كتلة الجسم لدى الطالبات في عمر الجامعة ونقص فيتامين د. يُوصى بشدة بوضع برنامج تثقيفي يشجع على الأنشطة الخارجية، والتعرض لأشعة الشمس، وتناول نظام غذائي صحي غني بفيتامين د.

جمهورية العراق
وزارة التعليم العالي
والبحث العلمي
جامعة كربلاء
كلية الطب

نقص فيتامين د بين الطالبات في جامعة كربلاء وعلاقته بمؤشر كتلة الجسم وعوامل أخرى

قدمت من قبل

حازم محمد خليل

رسالة

مقدمه إلى مجلس كلية الطب / جامعة كربلاء وهي جزء من متطلبات نيل درجة دبلوم عالي

في طب الاسرة

إشراف

البروفيسور الدكتور
علي عبد الرضا كاظم أبو طحين
استشاري طب الاسرة

أ.م.د. أحمد هاشم مطلوب
اختصاص علم الادوية

2025 م

1447هـ