Original Article

Assessment of Vitamin D among University Students during Covid-19 Period

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ABSTRACT

Objective: Pakistan has one of the highest rates of vitamin D deficiency but the research on vitamin D related knowledge, attitudes, and habits among Pakistan's healthy youth during COVID-19 period has not been done sufficiently. This type of study was necessary to determine the vitamin D levels, dietary routines and prevalence of vitamin D deficiency among university students of Hyderabad.

Study Design: Cross Sectional study

Place and Duration of Study: This study was conducted at the University of Sindh over the period of 5 months from September 2021 to December 2021.

Materials and Methods: In the university students during the COVID-19 Pandemic a Pre structured questionnaire was distributed with questions regarding the daily routine and diet. A total of 145 students took part in the survey. The students were divided into three age groups: 18-20, 21-23, and 24-26 years old. Out of the 145 individuals, 82 (57%) were female and the remaining 63 (43.4%) were male.

Results: 90% students were unaware of Vitamin D and more than 50% were not taking Vitamin D supplement in any form. Only 5.7% of students were taking Vitamin D pills, whereas 8.1% consumed milk and vitamin D-rich foods. 15.5% of people used sunscreen to their faces on a regular basis, whereas 10% used it on their hands. Similarly, their sun exposure and outdoor activities were severely limited.

Conclusion: The University students were found lacking the vitamin D related knowledge, positive attitude and proper practice. Also due to the pandemic amid lockdown situation, many students were unable to get sun exposure source of Vitamin D on daily basis. Our current research also concluded that there was a dire need of conducting awareness campaigns and motivational programs at university level during pandemic situations like COVID-19.

Key Words: Vitamin D, COVID-19, Assessment of knowledge, attitude and practice.

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INTRODUCTION

The vitamin D also referred as an immune-booster vitamin has the capability to strengthen human body for fighting against any type of disease from common cold to cancer. Unfortunately, the deficiencies and disorders related to Vitamin D have been growing worldwide with each passage year and particularly since the start of pandemic, issues related to Vitamin D have risen sufficiently.

Although the sunlight is one of the best sources of Vitamin D production inside body but unfortunately due to the lockdown-related outdoor restrictions, the human exposure to sun has been limited. Vitamin D is a type of vitamin that dissolves in fat, and can be found in some foods, added to others, or bought as a supplement for consumption[2]. The skin produces vitamin D endogenously when it is exposed to ultraviolet (UV) rays from sunlight. However, vitamin D obtained from sunlight, food, or supplements is biologically inactive and requires two hydroxylation in the body to become active. Many studies have looked at vitamin D status and the prevalence of vitamin D deficiency and insufficiency[3]. Children, particularly those born with low birth weight, teenagers, pregnant women, and the elderly are all at risk for low vitamin D levels[5]. At least in the winter, less than half of the world's population has appropriate vitamin D levels (serum 25-hydroxyvitamin D >50 nmol/L). Moderate sun exposure, seafood consumption, food fortification, and vitamin D supplementation are all recommended for prevention[4].

Pakistan has reported many cases of vitamin D related disorders since decades and the conditions might have got worsen during the COVID-19 pandemic situation as people were restricted from doing their outdoor activities[5]. The dressing style of some people may also

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be a reason for preventing sun exposure6. Another important factor that may affect the levels of Vitamin D inside the body may be the knowledge, attitude, and practice of the students present at the University of Sindh with regard to Vitamin D. We aimed to address a proposed scientific hypothesis that the University students lack good knowledge and attitude towards Vitamin D during peak period of COVID-19 cases and the young students of a university may also lack a proper practice of Vitamin D which may consequently result in bringing Vitamin D related health issues in young adults and students of University.

MATERIALS AND METHODS

This Cross-sectional study was conducted among the university students of the Hyderabad region. This research work was performed from September to December 2021 on university students during the COVID-19 Pandemic. Pre structured questionnaire was developed with questions regarding the daily routine and diet of students. The questionnaire was designed under the supervision of well-trained persons and field experts, and it was used to conduct the online survey. The questionnaire was created using an online free internet website Google Forms (https://docs.google.com/forms/u/0/?tgif=d). The questions were focused on demographics and linked to vitamin D knowledge, attitudes, and food consumption. A total of 148 people participated and this survey-based research was split into two genders, including 82 female participants and 63 male participants. The SPSS software was used to transform the response sheet. The raw data such as demographic details were organized and linked to each question, a 'Pivot Table' was created, and then a graph for each question was created to illustrate the data. The larger percentage of each question was determined by comparing the possibilities of each question with gender, residence locations, and other variables. We statistically analysed the average number, frequencies, percentage, t-test, and P- value which was supposed to be significant at <0.05.

RESULTS

There were total 145 participants who took part in our research survey and gave their answers related to the demography. Upon asking the age of participants, only 23 out of 145 people told their age ranging between 18-20 years (Figure 1).

Out of them, 6 were males and 17 were females representing a higher ratio of female participants with younger ages compared to the male participants (Figure 1). In terms of percentage, it appeared that our research survey contained only 4% of male participants with an age range between 19-20 years whereas it contained only 11% of female participants with the age ranging from 19 to 20 years. The results also showed that the age group 19-20 years had the second lowest number of participants whereas the age group 21-23 years had the highest number of participants. The age group 24-26 had the lowest number of participants in our research survey (Figure 1). When 145 students were asked if they take vitamin D supplements, 63 male students responded, with 18% male participants answering affirmative response, 14% male participants from rural areas representing a higher ration of male participants who were taking vitamin D supplements, and 3% male participants from urban areas (Table 1), while 19% male participants from rural areas and 7% male participants from urban areas gave answer that they don't take any kind vitamin D supplementation (Table 1).

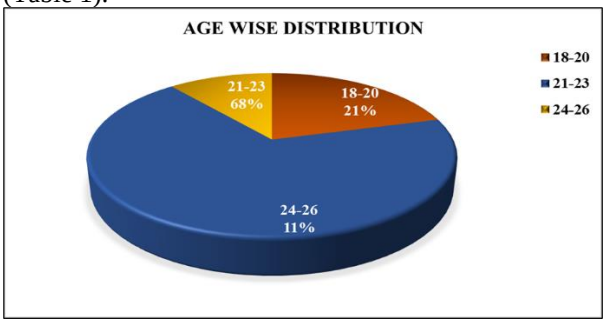

Figure No.1: The pie chart showing age-wise distribution among three different groups (Age ranging 18-20, 21-23and24-26) of participants

Table No.1: Demographic data of participants

Variations	N (%)
Gender	
Male	63(43.3)
Female	82 (56.6)
Age group (years)	
18-20	23 (15.9)
21-23	101(70.3)
24-26	20 (13.8)
Native place	
Urban	49(33.8)
Rural	96(66.2)
Housing	
Apartment/flat	32(22.1)
Bungalow	42 (29)
Hostel	71(49)
Education level currently enrolled in	
1st year	16 (11)
2nd year	10(14.5)
3rdYear/MSc. Prep	22 (15.2)
4th year	97(66.9)
Skin color	
Fair or pale	46(31.5)
Fair to beige	46(31.7
Light brown	50 (34.5)
Dark brown	4(5.8)

Similarly, 82 female participants responded to whether or not they use vitamin D supplements, with 19% females admitted that they had been taking vitamin D supplementation. 10% females from rural areas were also on Vitamin D supplements whereas 9% were from urban areas who responded similarly. However, majority (58%) of the female university students of young age admitted that they have not been taking any special king of Vitamin D supplement since years. (Figure 2).

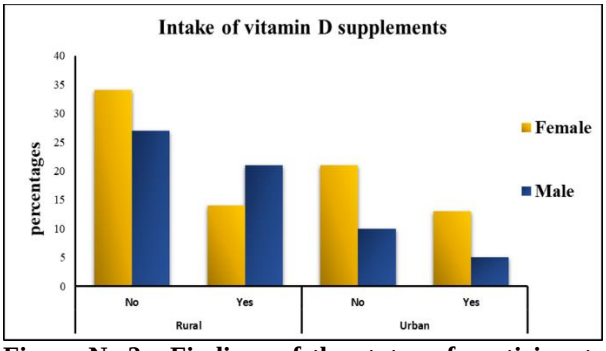

Figure No.2: Findings of the status of participants (university students) on Vitamin D supplementation.

DISCUSSION

In our research work, we have found that the age group ranging from 21 to 23 years showed greater interest in answering about the questions related to Vitamin D. Most of the students in this age group belonged to their 2nd year and 3rd-year of university education and we know that the students in their early years of university education are keener to learn new scientific subjects and concepts[6]. We also found that the students in the age groups 19 to 20 years also showed a higher interest in reading the questionnaire and giving a prompt replies of all questions mentioned in the questionnaire which reflected their interest in research related the vitamin D[7]. However, the age group 24 to 26 years didn't show much interest in filling up the questionnaire related to the vitamin D and the possible reasons behind their attitude maybe the workload they might have at that stage of life already. According to the previous research done at United Kingdom and Malaysia, Final years students were found highly stressed and depressed as they were about to enter in a new chapter of life which was supposed to be make them more practical in their fields. The final years students could not manage their time for all the due assignments owing to work pressure[8].

As far as the gender wise attitude and practice towards vitamin D was concerned, our research survey showed that the female students were more active in responding the questions about vitamin D as we found majority of the girl students participated in filling up the questionnaire related to the vitamin D as compared to the male students whose number was lower. The possible reason might be the more time spent on "indoor stay" and "reading activity" by girl students compared to male students who remained outside and spent less time in reading or with books. One study in Finland also showed similar results[9]. However , we found that the female students were not opting more food sources rich in vitamin D possibly because a large number of girl group lives in hostel where food choices are limited. The female students also avoid to stay outside after evening time whereas most of the restaurants and food corners start their business from evening time therefore female students have less choices to eat different forms of food sources which may be rich in vitamin D.

In our study, it was found that nearly all (90%) of the students were not knowledgeable about Vitamin D, and a majority (53.3%) of them were not aware that the light emitting from the sun sunlight was supposed to be a primary source of Vitamin D. Upon asking about the formation of D Vitamin inside the body originating from precursor, the responses of the students' were found similar.[10] Although students had a good understanding of the primary source of Vitamin D, negativity in attitudes towards exposing to sun were noticed among them. Many students, particularly females, expressed a dislike for staying in the outer atmosphere where they could possibly got exposed to sun. Such type of pessimistic nature is similar to that observed in other studies. Furthermore, like other studies, most participants in our study were unable to identify nutrition and the light of sun as crucial sources of Vitamin D for its synthesis.[11]

In our study, it was found that 52% of the participants were not getting any Vitamin D from commercial source, but the females were likely to receive supplemental source of Vitamin D. This credit of such change in attitudes among females could be due the frequent advertisement of vitamin D products on TV and print media. The media might be an encouraging source for them to maintain sufficient levels of Vitamin D in their young age. This study found that the consumption of Vitamin D supplements among students was relatively low, as only 5.9% reported taking them. However, despite the availability of literature on the subject, the level of knowledge about Vitamin D among these students was good enough. In addition to having insufficient knowledge about the importance and production of Vitamin D, the attitude and practices towards it were also inadequate[12]. There was also a decrease in the consumption of fish, beef liver, fortified milk in female rural students as compared to males, and other vitamin D-rich foods. It is widely acknowledged that university students are at a crucial stage in their lives where they establish lifestyles that can significantly impact their future health[13]. University students are more prone to engaging in harmful eating habits such as fad diets, consuming high amounts of fast food, having a low intake of fruits and vegetables, and consuming less dairy products. Despite the availability of literature on the subject, the level of knowledge about Vitamin D among these students was satisfactory. Students studying health sciences must adopt healthy eating habits since they will become healthcare professionals. Students who do not lead a healthy lifestyle are more likely to struggle to encourage or promote health to their patients. These numbers were not up to the mark, quite apart from the fact that the ages of students were at quite young stage

(between 20 to 26 years). We discovered that in rural side hostlers' students, especially female students, the practice of vitamin D and food consumption was very low, resulting in muscular and bone pain distress; similarly, male students had the same problem of muscular and bone pain distress; similarly, students from bungalow had a low practice of vitamin D.[14]

Since the year 2020, Pakistan has suffered from a massive pandemic of COVID-19, putting a strain on the country's healthcare system16.With all these factors in mind, it was clear that the students at the university of Sindh had improper knowledge of vitamin D in general and they had very poor views and habits regarding vitamin D practice.

CONCLUSION

Our research work addressed a very important issue of vitamin D deficiency and disorders in the university students since the emergence of COVID-19 pandemic situation. Our research concluded that the University students were lacking the vitamin D related knowledge, positive attitude and proper practice. Also due to the pandemic amid lockdown situation, many students were unable to get sun exposure source of Vitamin D on daily basis. Our current research also concluded that there was a dire need of conducting awareness campaigns and motivational programs at university level during pandemic situations like COVID-19. The research work in future must concentrate on developing ways to generate information about Vitamin D more practical in daily life. The people must be aware about the usage of Vitamin D available in commercial product forms. The social media platforms should serve as the source of sharing knowledge and creating awareness about the use of Vitamin D supplemental products along with the nutritional source of Vitamin D. Moreover, the research to find out the correlation between Vitamin D and other fat-soluble vitamins should be conducted on a larger scale.

Author's Contribution:

Concept & Design of Study:	Autif Hussain Mangi, Asma jatoi
Drafting:	Ghazala Shahzad, Asma Jatoi
Data Analysis:	Autif Hussain Mangi
Revisiting Critically:	Ghazala Shahzad
Final Approval of version:	Autif Hussain, Ghazala Shahzad

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