

Prevalence, Knowledge, and Awareness Level of Dietary Supplements Use Among Medical Students at the University of Hail, Saudi Arabia

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Abstract

The usage of dietary supplements has grown worldwide due to the widespread notion of their effect on health. Therefore, this study comes to assess the prevalence and awareness level of using dietary supplements among medical college students of Hail University, Hail, Saudi Arabia. Using a two-form questionnaire through a link and a hard copy distributed to all the 400 students enrolled in the College of Medicine at the University of Hail, we have assessed the magnitude and understanding of dietary supplements among 334 responders to the three parts questionnaire, i.e., personal data, prevalence, and general knowledge. 43.1% ($n = 144$) used dietary supplements, while 56.9% ($n = 190$) did not. The gender-specific usage in females (50.6%) was much higher than in males (35.5%). The main reason for using Dietary Supplements was reported as inadequate Dietary intake in 41.0%. According to our study, almost half of the students utilize dietary supplements for the notion of inadequacy of their dietary intake. We found an association between gender and using of dietary supplements as well as a relation between gender and dietary supplement type. These findings have significant clinical and public health implications. Future vertical studies on the components of food supplements would reveal more insight into the nutritional value and recommended daily allowance of the foodstuff used.

Keywords: Dietary Supplements; Prevalence; Awareness; Nutritional Supplements

Introduction

Dietary supplements are substances used to add nutrients to the diet or lower the risk of health problems. They come in the form of pills, tablets, capsules, gummies, soft gels, liquids, and powders. They can contain vitamins, minerals, herbs, other botanicals, amino acids, enzymes, and other ingredients [1]. The usage of dietary supplements has grown due to their safety (within their accepted recommended dietary intakes) and effectiveness in helping people reach their nutritional targets [2,3]. More than half of adult Americans have been reported to use dietary supplement.

They believe that it will make them feel better, enhance their health, prevent disease, and give them energy [4]. Many studies indicate that dietary supplement users are more likely to have a more positive healthy habits which maybe be explained by the fact that supplement users are more concern about their health and making greater effort to reach healthiness and wellness. Dietary supplements use thought to increase with many factors like age, income, and education. Women are more likely than men to use these supplements [5]. In the recent years, the Kingdom of Saudi Arabian has increased their effort and focus to maintain health and

disease prevention. Dietary supplements have potentially growing sales due to improve level of health awareness in additional to the population growth [6]. Therefore, it is important to evaluate the level of prevalence and knowledge of Saudi population since that there is a lack of information and evidence in regard of this matter. Based on our knowledge, there is no study aimed to evaluate the prevalence and knowledge of medical students at the University of Hail.

Material and Methods

We did an observational, cross-sectional study based on a questionnaire conducted among College of Medicine students at Hail University from the 27th of December until the end of February 2023. All students registered in the College of Medicine at Hail University were asked to participate in the questionnaire. We measured the sample size by using Raosoft online calculator [7]. The Raosoft online calculator was created to calculate sample sizes and determine the number of responses required for observational surveys to achieve the needed confidence level with a margin of error of usually 5%. So, using it for such a study is strongly encouraged when considering the population's size [8]. The total number of students in the College of Medicine at Hail University is around 400 students. And thereby, the minimum sample size required was 197 to reach a confidence level of 95% and a 5% margin of error. Three hundred thirty-four students decided to participate and were told to complete the questionnaire after being informed of the significance of the study and their role in it. A structured questionnaire was created following a thorough literature review. Then four students participated in a pilot study to test various methods for confirming the validity and reliability of the questionnaire. Finally, we gave the questionnaire to the students for their comments on understanding, recognizing, and clearness of the questions. The sample was collected through papers and online Google forms that were distributed to the students. The questionnaire was divided into three parts: personal data, prevalence, and knowledge. The first part is the personal data which includes age, gender, and year of the study. The second part is the prevalence, including the spread, reasons, sources, and frequency of dietary supplement uses. Finally, the third part is the knowledge and awareness level about Dietary Supplements.

Data analysis

Data analysis is done via the Statistical Package for Special Science (SPSS) software, version 23 (SPSS Inc., Chicago, IL, USA). We used Chi square test value for calculation of significance and value of $<.05$ was considered significant. We used absolute numbers and showed descriptive analysis.

Results

There was approximately an equal number of participants from both genders. There were 168 Females, while the other 166 participants were males. The majority of participants were classified in the first category age-groups, which is 18 - 23 years. The students were also classified according to their year of study, and the number of participants was relatively close to each year of study (Table 1).

	N (%)
Gender	
Male	166 (49.7%)
Female	168 (50.3%)
Age (Years)	
18 - 23	281 (84.1%)
24 - 26	51 (15.3%)
27 And above	2 (0.6%)
Year Of Study	
2 nd Year	69 (20.7%)
3 rd Year	63 (18.9%)
4 th Year	80 (24.0%)
5 th Year	54 (16.2%)
6 th Year	68 (20.4%)

Table 1: Participants Sociodemographic characteristics.

Around 43.1% (N = 144) of participants were using Dietary Supplements, against 56.9% (N= 190) of participants who were not using them (Table 2).

According to dietary supplement non-users (N = 190), adequate diet is the primary reason for not using Dietary Supplements. Relatively fewer participants consider that either they are unsure about diet supplements or that Supplements are expensive (Table 3).

	N (%)
Using of dietary supplements	
Yes	144 (43.1%)
No	190 (56.9%)

Table 2: Using of Dietary Supplements.

	N (%)
Reasons for not using dietary supplement	
Diet is adequate	72 (37.9%)
Supplements are expensive	29 (15.3%)
Unsure about supplements	36 (18.9%)
Undesirable side effects	18 (9.5%)
Not necessary or waste of money	22 (11.6%)
Supplements are not effective	1 (0.5%)
Other	12 (6.3%)

Table 3: Reasons For Not Using Dietary Supplement.

And in the case of dietary supplement users (N = 144), the main reason for using Dietary Supplements is inadequate Dietary intake. Also, some participants use Dietary Supplements either to enhance physical health or because they have medical conditions requiring supplements (Table 4).

	N (%)
Reasons for using dietary supplement	
Inadequate dietary intake	59 (41.0%)
Enhance memory and concentration	14 (9.7%)
Enhance physical health	26 (18.1%)
Strengthen the immune system	2 (1.4%)
Medical condition requires supplements	23 (16.0%)
Improve energy levels	11 (7.6%)
Based on nutrition knowledge or background	8 (5.6%)
Other	1 (0.7%)

Table 4: Reasons for using dietary supplement.

Also, for dietary supplement users, most participants use multivitamins and minerals together. Some participants use minerals only or Amino acids and protein. Pharmacies and health stores are considered significant sources of Dietary Supplements. 61.1% of the participants use Dietary Supplements every day (Table 5).

	N (%)
Type of Dietary Supplement	
Multivitamin and mineral	74 (51.4%)
Minerals only	8 (5.6%)
Vitamins only	29 (20.1%)
Amino acids or protein	21 (14.6%)
Essential fatty acids	9 (6.3%)
Herbal supplements	1 (0.7%)
Other	2 (1.4%)
Source of Dietary Supplement	
Doctor	19 (13.2%)
Hospital or clinic	11 (7.6%)
Pharmacy	65 (45.1%)
Health store	49 (34.0%)
Frequency of Using Dietary Supplement	
Every day	88 (61.1%)
Once a week	26 (18.1%)
Two to 6 times a week	24 (16.7%)
Sporadically (every 6 months)	6 (4.2%)

Table 5: Type, Source, and, frequency of using Dietary Supplements.

Regarding general knowledge and awareness about Dietary Supplements, 44,9% of participants believe that sometimes using dietary supplements should depend on a doctor’s prescription. Most participants (70.7%) think there is a difference between taking the supplements with or without medical consultation. About half of the participants (51.5%) read the attached instructions with the supplement. 60.2% of the participants think that dietary supplements have undesirable side effects. The participants are divided into two significant opinions on the essentiality of Dietary Supplements. 37.7% of the participants believe it is essential, while 46.1% think it is sometimes crucial. Half the participants think Dietary Supplements is not a substitute for food diversity. However, most participants know that doing lab tests to check levels of vitamins and minerals is essential (Table 6).

The association between gender and using of dietary supplements shows that the prevalence in the female (50.6%) is higher than in the male (35.5%), and the difference in the prevalence of the use of Dietary Supplements in males and females is significantly different (P value = 0.005) (Table 7).

	N (%)			
	Yes	No	Sometimes	I don't Know
Do you think that taking dietary supplements should base on a prescription through a doctor?	88 (26.3%)	89 (26.6%)	150 (44.9%)	7 (2.1%)
Do you think that there is a difference between taking the supplements with or without by medical consult?	236 (70.7%)	15 (4.5%)	72 (21.6%)	11 (3.3%)
Do you think that dietary supplements have any negative side effects?	201 (60.2%)	22 (6.6%)	99 (29.6%)	12 (3.6%)
Do you see dietary supplements essential for your health?	126 (37.7%)	47 (14.1%)	154 (46.1%)	7 (2.1%)
Do you think that dietary supplements substitute for food diversity?	70 (21.0%)	170 (50.9%)	78 (23.4%)	16 (4.8%)
Do you know that you have to do a lab test to check levels of vitamins and minerals?	284 (85.0%)	20 (6.0%)	15 (4.5%)	15 (4.5%)

Table 6: General Knowledge and Awareness About Dietary Supplements.

	Using of Dietary Supplements		Total	P value
	Yes	No		
Male (% within Gender)	59 (35.5%)	107 (64.5%)	166 (100%)	0.005
Female (% within Gender)	85 (50.6%)	83 (49.4%)	168 (100%)	
Total	144 (43.1%)	190 (56.9%)	334 (100%)	

Table 7: The association between gender and using of dietary supplements.

The relationship between the type of dietary supplement Used and gender shows that females differ from males in the type of Dietary Supplements used. The females tend to use vitamins and minerals, while the males use amino acids or protein, and the difference is statistically significant (P value = 0.005) (Table 8).

Type of Dietary Supplements	Gender (% within Type of Dietary Supplements Used)		Total	P value
	Male	Female		
Multivitamin and mineral	23 (31.1%)	51 (68.9%)	74 (100%)	0.000
Minerals only	0 (0.0%)	8 (100%)	8 (100%)	
Vitamins only	14 (48.3%)	15 (51.7%)	29 (100%)	
Amino acids or protein	18 (85.7%)	3 (14.3%)	21 (100%)	
Essential fatty acids	4 (44.4%)	5 (55.6%)	9 (100%)	
Herbal supplements	0 (0.0%)	1 (100%)	1 (100%)	
Other	0 (0.0%)	2 (100%)	2 (100%)	
Total	59 (41.0%)	85 (59.0%)	144 (100%)	

Table 8: The relationship between the type of dietary supplements used and gender.

Discussion

The use of dietary supplements is increasing all over the world, especially since they are widely available and most people can get them without difficulty. Therefore, this study aimed to evaluate the prevalence and level of awareness of dietary supplement use at the College of Medicine in Hail, Saudi Arabia. According to our research, the prevalence of Dietary Supplements utilization at the College of Medicine in Hail, Saudi Arabia, is 43.1%. Therefore, It is considered relatively close to a study conducted among Pharmacy Colleges in Karachi, Pakistan (38.3%), Pharmacy Students in Saudi Arabia (46.8%), and another study that showed (51.8%) prevalence in the general population of Saudi Arabia, respectively [3,9,10]. But the prevalence is still lower than studies that were conducted first among female college students in Saudi Arabia (76.6%) and other among American University of Beirut Students (68%) [11,12]. There is a marked association between higher levels of education, physical activity, and the use of dietary supplements [11]. However, it has been shown that people with healthier lifestyles and higher income levels were more likely to utilize dietary supplements [13].

In addition, our study revealed an association between gender and dietary supplement use showing that the prevalence in females (50.6%) is higher than in males (35.5%). This is similar to certain studies done in Beirut and Saudi Arabia, where it was found that women used dietary supplements more frequently than men [12,14].

Our study found that the majority of the students use multivitamins and minerals. Similar to previous studies, multivitamins were the most common dietary supplements used by students [12,15,16].

In addition, our study showed that the type of dietary supplements used varied by gender. Males typically use Protein/ Amino Acids more than females. Females mainly used multivitamins more than other types of supplements. This gender difference in the type of dietary supplements is similar to a study done in the UAE among college students [17].

Limitations

We have faced some limitations. A self-reported questionnaire was used, which may lead to a recall bias. Although we distributed

the questionnaire in two forms via a link and a hard copy, we only covered 334 out of almost 400 college students. So, users of dietary supplements may want to participate more than non-users.

Conclusion

Our study found that almost half of the students are dietary supplement users. The prevalence may be slightly increasing because the study was conducted on medical students. The students mainly used dietary supplements due to inadequate dietary intake. We found that there is an association between gender and using dietary supplements and also between gender and type of dietary supplements. Additional research is advised through a larger sample size to assess the influence of economic status on using dietary supplements and to evaluate the benefits, adverse reactions, and effects of consuming dietary supplements on people's daily life activity.

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Conflict of Interest

The authors declare that there is no conflict of interest.

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