

KNOWLEDGE OF NUTRITIONAL SUPPLEMENTS AMONG UNIVERSITY STUDENTS OF PESHAWAR, KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT

Objectives: To find out the knowledge of students, and the frequency and reasons behind nutritional supplement use among university students of Peshawar

Materials And Methods: A descriptive cross-sectional study was conducted using a convenient sampling method. Data was collected from September 2022 to February 2023. The sample size was approximately 383, determined using the WHO sample size calculator, and a prevalence of 50%. Students aged 18-25 years were included in the study.

RESULTS: Results showed that among university students, 58.5% use dietary supplements. 41.17% of males and 70% of females were found using dietary supplements, with a higher prevalence among females. The reasons for using dietary supplements varied, with 34.46% using them to improve diet, 19.84% to treat medical conditions, 20.89% to enhance the immune system, and 7.89% for weight management. Additionally, some students believed that dietary supplements were essential for their health (71.28%), while others did not consider them essential (18.02%). The majority of participants agreed that these supplements have beneficial effects, such as improving cognitive ability, preventing illnesses, aiding in recovery, enhancing athletic performance, promoting skin and hair health, building muscle mass, and improving appetite

Conclusion: It was found that the use of nutritional supplements was high among students, especially females. The primary reasons for using these supplements included improving diet and enhancing the immune system.

Keywords: Nutritional supplements, University students, diet, immune system

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INTRODUCTION

Every person needs a balanced diet that contains an adequate amount of all the necessary nutrients recommended for healthy growth and efficient daily activities and functions. Without balanced nutrition, the body is more susceptible to fatigue, infections, diseases, and reduced activity. When a person doesn't get enough nutrients or needs more than the usual amount of nutrients, they can use Nutritional supplements to fulfill their nutritional requirements. The most common reasons adults gave for using dietary supplements were to "increase overall health" (45%) and "maintain health" (33%).¹ In the United States, the use of dietary or nutritional supplements is

widespread and steadily expanding. Dietary supplements may be taken by elderly people in an attempt to prevent or cure chronic disease, treat aging symptoms, or extend life. In the United States, 52 % of people used Nutritional supplements in 2011–2012.²

Many surveys have been conducted to determine the prevalence of nutritional supplements in Asian countries. According to the reports, NS use was 11.0 % among males and 16.4 % among females in Japan in 2003, and 45.8% among older individuals in 2008.^{3, 4} A survey was done to evaluate the use of dietary supplements at King Abdul-Aziz University, Saudi Arabia. One-third of the 954 KAU students who completed the poll utilized DSs (42.9 % women vs 25.7 % men).⁵ In the period 2010–2012, 45.96 % of South Korean adults used NS.⁶

Only 0.71 percent of the Chinese population reported using NS in the previous month, indicating that the general level of NS use is low. This percentage was much lower than the global prevalence of dietary supplement use.⁷ It is found that the percentage of dietary supplement usage in Iran is 34% which makes up one-third of the population and the most common supplement used is iron

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(12.9%).⁸ Regarding the prevalence of DS in Pakistan, a study was conducted to investigate the prevalence, opinions, and attitudes concerning dietary supplements (DS) use among pharmacy students in Karachi, Pakistan. The prevalence of Dietary Supplement use was 48.2 percent, with 51 percent of males and 47.3 percent of females using it.⁹ Pakistan, a developing country, faces many basic health problems, one of which is inadequate amount of nutrients in individuals mainly due to poor diet. The purpose of this research was to determine the knowledge of the use of Nutritional supplements and their prevalence in university students of Peshawar and their perspective regarding this use.

MATERIALS AND METHODS

After approval from the ethical review committee of Khyber Medical College, Peshawar, this descriptive cross-sectional study was done among the university students of Peshawar. Data was collected between September 2022 to February 2023. A convenient non-probability sampling technique was used for sampling. Students between the ages of 18 to 35 were included in the study. The sample size was calculated using the WHO calculator by putting 50% prevalence. The calculated sample size was 383. Data collection was done through a questionnaire which was validated through pilot testing. Data was analyzed by using SPSS version 22.

RESULTS

Our study found that the prevalence of dietary supplements was 58.5% among university students of Peshawar. Of these, 63 (39.9%) were male, and 161 (60.1%) were female. So, the female prevalence was greater than male. Our study found that 71.28% of people had the perception that the use of Dietary supplements is essential for their health and 18.02% did not consider supplements to be essential. While 10.70% did not know much about it. By running the chi-square test, we found that there is a significant association between gender and the use of dietary supplements as a value of 0.000 is less than a significant value of 0.05.

DISCUSSION

Our study has found that the prevalence of dietary supplements is 58.5% which is near to that among Belgrade university undergraduate students in Serbia, 55.7% while it is greater than university students in Croatia (30.5%).^{10 and 11} In China, the prevalence was 0.71.¹² In Iran the prevalence of DS use is 37% and 34% respectively.¹³ In Karachi, 48.2% of pharmacy students enrolled in college surveys used Dietary supplements.⁹ According to our study, supplement use among female students (70%) is more than among male students (41.17%). In contrast to our studies, male students of the University of Tennessee were found to have a higher history of supplement use compared to women, with 34% and 18% respectively.¹⁴ Fe-

male students outnumbered male students in supplement use at Belgrade University¹⁰, which is consistent with our study findings. The prevalence of dietary supplement use didn't differ significantly between males (17.1%) and fe-

Table No 1: Knowledge of Dietary Supplements Use

		Count	Table N %
Dietary supplements can improve a person's learning and cognitive abilities.	Agree	302	82.9%
	Neutral	104	27.2%
	Disagree	38	9.9%
Low intake of vitamins and minerals can cause chronic diseases such as cancer.	Agree	136	35.5%
	Neutral	113	29.5%
	Disagree	134	35%
Vitamins can help recovery from fatigue and weakness.	Agree	335	87.5%
	Neutral	38	9.9%
	Disagree	10	2.6%
Supplements can enhance athletic performance.	Agree	295	77%
	Neutral	75	19.6%
	Disagree	13	3.4%
Supplements can promote skin and hair health.	Agree	325	85%
	Neutral	43	11.3%
	Disagree	7	1.8%
Vitamin supplements can provide stamina and energy.	Agree	295	77.1%
	Neutral	74	19.3%
	Disagree	14	3.6%
Dietary supplements can improve your appetite.	Agree	228	59.5%
	Neutral	123	32.1%
	Disagree	32	8.4%
Supplements can help you to keep your vision normal.	Agree	262	72.8%
	Neutral	92	24.0%
	Disagree	29	7.5%
Vitamins can reduce stress.	Agree	127	33.1%
	Neutral	177	46.2%
	Disagree	79	20.7%
Supplements can help you sleep better.	Agree	178	46.6%
	Neutral	148	38.7%
	Disagree	56	14.7%
Extra vitamins and minerals can retard aging.	Agree	142	45.2%
	Neutral	141	36.8%
	Disagree	69	18 %

Table No 2: Association of gender Using Dietary Supplements

Gender of study participants	Do you use or have used any type of dietary supplements?		Total	P-value
	Yes	No		
Male	63	90	153	0.001
Female	161	69	230	
Total	224	159	383	

Table No 3: Relationship of supplement use with skin, hair health and body aches

Gender of participants	Are you satisfied with your hair and skin health		Have you ever experienced body aches and joint pain		P-value
	Yes	No	Yes	No	
Male	92	61	67	86	.001
Female	80	150	163	67	

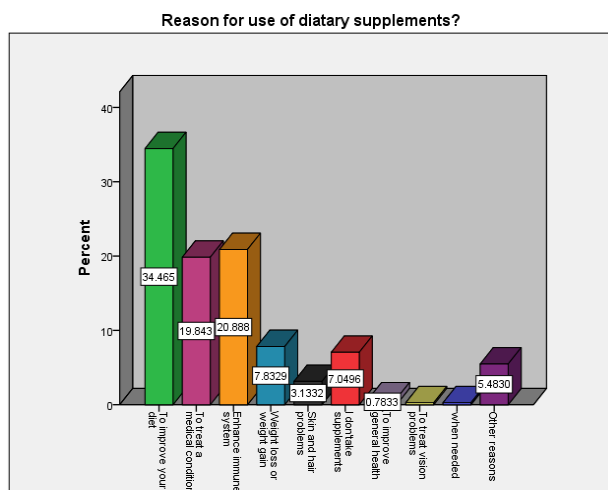


Fig 1: Reason of use of Dietary supplements.

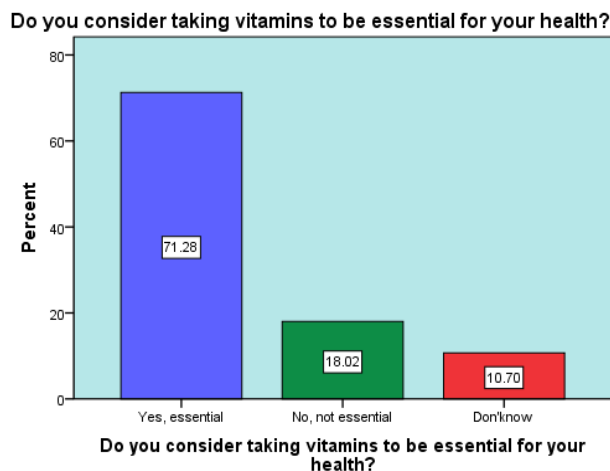


Fig 2: Perception of Dietary supplements

males (16.7%) in a nationwide study in Japan.¹⁵

Regarding the reason for the use of Dietary supplements, our study found that 34.46% use dietary supplements to improve their diet. 19.84% use dietary supplements to treat a medical condition. 20.89% use dietary supplements to enhance their immune system. 7.89% use dietary supplements for weight loss and weight gain. 3.13% use dietary supplements for skin and hair problems. 0.8% use dietary supplements to improve general health. 0.3%

use dietary supplements to treat vision problems. 0.3% use dietary supplements when needed. 5.48% use dietary supplements for other reasons. The commonest reason for using DS in Croatian students was to maintain good health, however, to meet energy needs, to lose weight, to treat and prevent different diseases were some others.¹¹ In a study among pharmacy students of Saudi Arabia, it was found that 25.1% of the students agreed that regular DS use prevents chronic diseases and 4.1% thought that DSs may prevent cancer.¹⁶ Most of the respondents in a study in China believed that dietary supplements could prevent or improve nutrition-related diseases during pregnancy.^{17, 18} The reasons to use these are somehow consistent with our results. Our studies found that the majority of the population agrees or strongly agrees with the beneficial effects of dietary supplements such as dietary supplements can improve a person’s learning, prevent illnesses such as cancer, and osteoporosis, help recovery from fatigue, and enhance athletic performance, promote skin and hair health, build muscle mass, improve appetite, provide stamina and energy, and keep your vision normal

Our study found that 71.28% of people are of the perception that the use of Dietary supplements is essential for their health and 18.02% do not consider supplements to be essential.

CONCLUSION

This study sheds light on the prevalent use of nutritional supplements among students. The primary reasons for using these supplements included improving diet, enhancing the immune system, treating medical conditions, improving skin health, hair health, and generalized body aches. It underscores the need for further research to explore the motivations behind this trend as well as its potential impact on the health and well-being of students. Education and guidance on the safe and appropriate use of supplements are essential to ensure overall health.

REFERENCES

- Bailey RL, Gahche JJ, Miller PE, Thomas PR, Dwyer JT. Why US adults use dietary supplements. *JAMA internal medicine.* 2013 Mar 11;173(5):355-61.
- Kantor ED, Rehm CD, Du M, White E, Giovannucci EL. Trends in dietary supplement use among US adults from 1999-2012. *Jama.* 2016 Oct 11;316(14):1464-74.
- Kobayashi E, Sato Y, Umegaki K, Chiba T. The prevalence of dietary supplement use among college students: a nationwide survey in Japan. *Nutrients.* 2017 Nov 15;9(11):1250.
- Hirayama F, Lee AH, Binns CW, Watanabe F, Ogawa T. Dietary supplementation by older adults in Japan. *Asia Pac J Clin Nutr.* 2008 Jun 1;17(2):280-4.
- Alqrache A, Mostafa M, Ghabrah O, Ghabrah Z, Kamal N, Ghabrah T, Atta H. Knowledge and patterns of dietary supplement use among students attending King Abdulaziz University in Saudi Arabia: a cross-sectional study. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing.* 2021 May;58:00469580211020882.

6. Kim JW, Lee SH, Kim JE, Han KD, Kwack TE, Kim BS, Kim JE, Jo EB, Park YK, Lee KS. The association between taking dietary supplements and healthy habits among Korean adults: Results from the fifth Korea national Health and Nutritional Examination Survey (2010–2012). *Korean Journal of Family Medicine*. 2016 May;37(3):182.
7. Gong W, Liu A, Yao Y, Ma Y, Ding C, Song C, Yuan F, Zhang Y, Feng G, Chen Z, Ding G. Nutrient supplement use among the Chinese population: a cross-sectional study of the 2010–2012 China nutrition and health surveillance. *Nutrients*. 2018 Nov 12;10(11):1733
8. Namazi N, Kelishadi R, Heshmat R, Motlagh ME, Sanaei M, Shafiee G, Ziaodini H, Beshtar S, Taheri M, Aminae T, Qorbani M. Determinants of taking dietary supplements in Iranian children and adolescents: the CASPIAN-V study. *Journal of Diabetes & Metabolic Disorders*. 2019 Dec;18:409-17.
9. Naqvi AA, Ahmad R, Zehra F, Yousuf R, Kachela B, Nehal Nadir M. Dietary supplement use among students of pharmacy colleges in the City of Karachi, Pakistan: prevalence, opinions, and attitudes. *Journal of dietary supplements*. 2019 Mar 4;16(2):166-78.
10. El Khoury D, Antoine-Jonville S. Intake of nutritional supplements among people exercising in gyms in Beirut city. *Journal of nutrition and metabolism*. 2012 Oct;2012.
11. Geller AI, Shehab N, Weidle NJ, Lovegrove MC, Wolpert BJ, Timbo BB, Mozersky RP, Budnitz DS. Emergency department visits for adverse events related to dietary supplements. *New England Journal of Medicine*. 2015 Oct 15;373(16):1531-40.
12. Gokhale L, Sturdee DW, Parsons AD. The use of food supplements among women attending menopause clinics in the West Midlands. *British Menopause Society Journal*. 2003 Mar;9(1):32-5
13. Karimi S, Jafarzadeh F. Economic burden and costs of chronic diseases in Iran and the world. *Health Information Management*. 2012 Jan 21;8(7):984-96.
14. Kim D, Ji I, Ng'ombe JN, Han K, Vitale J. Do dietary supplements improve perceived health well-being? Evidence from Korea. *International Journal of Environmental Research and Public Health*. 2021 Feb;18(3):1306.
15. Anders S, Schroeter C. The impact of nutritional supplement intake on diet behavior and obesity outcomes. *PLoS One*. 2017 Oct 9;12(10):e0185258.
16. Rodriguez NR, DiMarco NM, Langley S; American Dietetic Association; Dietitians of Canada; American College of Sports Medicine: Nutrition and Athletic Performance. Position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and athletic performance. *J Am Diet Assoc*. 2009 Mar;109(3):509-27.
17. Žeželj SP, Tomljanović A, Jovanović GK, Krešić G, Pelozo OC, Dragaš-Zubalj N, Prokurica IP. Prevalence, knowledge and attitudes concerning dietary supplements among a student population in Croatia. *International journal of environmental research and public health*. 2018 Jun;15(6):1058.
18. Samreen S, Siddiqui NA, Wajid S, Mothana RA, Almarfadi OM. Prevalence and use of dietary supplements among pharmacy students in Saudi Arabia. Risk management and healthcare policy. 2020 Sep 11:1523-31.

Authors Contribution:

Following authors have made substantial contributions to the manuscript as under

Authors	Conceived & designed the analysis	Collected the data	Contributed data or analysis tools	Performed the analysis	Wrote the paper	Other contribution
Khan A	✓	✗	✓	✗	✓	✗
Noor B	✓	✓	✗	✓	✗	✗
Khan H	✗	✓	✓	✓	✓	✓
Nawaz AB	✓	✗	✗	✗	✓	✗
Mustafa A	✓	✓	✓	✓	✗	✓
Ahmad W	✓	✓	✗	✓	✗	✗
Ahmad H	✗	✓	✓	✓	✓	✓

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Ethical Approval:

This Manuscript was approved by the Ethical Review Board of Khyber Medical College, Peshawar. Vide No. 570/IREB/KMC.

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