

Frequency, Reasons, and Determinants of Multivitamins Usage Among Undergraduate Medical Students

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Abstract

Objective: To determine the prevalence, reasons, and determinants of multivitamin usage among medical students.

Material and Methods: A questionnaire-based cross-sectional study was conducted at CMH Medical, Medical and Dental College, Lahore. Duration was from 1st January 2023 to 30 June, 2023 and sample size was N=267 calculated with 267 participants. The sample size was N=267 calculated from Cochran's formula. Nonprobability convenient sampling technique was used. All students currently enrolled in the medical college (MBBS, BDS) were offered to be part of study after taking informed consent. A self-designed online questionnaire, which included 11 validated questions, was employed to gather data from 267 participants through Google Forms. The data from the questionnaire was analyzed by using SPSS version 26.

Results: Mean age of participants was 20±2.9. The findings revealed that while a significant number of medical students reported using multivitamins (35.3%), there were variations in knowledge, beliefs, and attitudes towards their effectiveness. Most participants believed that multivitamins are effective (81.5%, p=0.806) and can improve energy levels (81.1%, p=0.209). Factors such as healthcare professional recommendations influenced usage (75.8%, p=0.788). However, no significant associations were found between demographic factors (gender, age, year of study) and multivitamin usage. Interestingly, a subset of students reported using multivitamins during periods of stress (11.2%, p=0.122).

Conclusion: These results highlight the complexity of multivitamin usage among medical students, with variations in usage patterns and beliefs regarding effectiveness.

Keywords: Multivitamins, Medical students, supplements

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Introduction:

Multivitamins are widely consumed dietary supplements that contain a combination of essential vitamins and minerals. They are marketed as a convenient solution to bridge potential nutrient gaps in our diets and support overall health. While multivitamins are extensively used by individuals seeking to optimize their nutritional intake, there is a need for rigorous scien-

tific research to evaluate their efficacy, safety, and potential benefits. According to American Society of nutrition, there is a large proportion of population using dietary supplements (DS) in their routine life.¹ In recent years it has been noticed that the use of multivitamins is high in females, people with higher education and socioeconomic status as well as in medical students.² Evidence indicates that individuals may use a single or a combination of different dietary supplements as means to improve their nutrition intake, maintaining general health and well-being, as well as reduce risk of diseases. As excess of everything is bad, similarly the heavy use of multivitamins can cause many side effects in body and even toxicity. For example, the heavy dose of vitamin D can affect our kidneys.³ Among the multiple reasons of misuse of multivitamins, one is the availability of these products over the counter without any prescription.⁴

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Excess use of multivitamins causes allergic reactions and interfere with drugs for cardiovascular diseases. These side effects can identify on clinical bases and should reported as soon as possible.⁵ Furthermore, heavy use of multivitamins is also high in people with high income and ethnic origin.⁶

Medical students face high levels of stress and demanding schedules that may impact their dietary habits. Investigating multivitamin usage can provide insights into their nutritional strategies and help optimize their nutrient intake. Secondly, as future healthcare professionals, medical students' own multivitamin use and their reasons for using them can influence their future practices and patient education. Understanding their attitudes and beliefs towards supplementation can improve patient counseling on multivitamin usage.

We designed this study to determine the prevalence multivitamins usage among medical students and the reason for their usage. No such study has been done on medical students.

This research will provide valuable insights into the prevalence and motivations behind multivitamin usage among medical students. The findings can inform the development of targeted interventions, educational programs, and policy recommendations to promote informed decision-making regarding multivitamin usage among medical students and their future patients.

Material and Method

Questionnaire-based cross-sectional study conducted at CMH Medical, Medical and Dental College, Lahore after taking ethical approval from the institute (Letter no. 53 /ERC/CMHLMC) from 1st January 2023 to 30 June, 2023. The sample size was N=267 calculated from Cochran's formula. Nonprobability convenient sampling technique was used. All students of MBBS currently enrolled in the college after taking informed consent. All students who have graduated from college and those refused to enroll in study. A self-designed online questionnaire, which included 11 validated questions, was employed to gather data from 267 participants through Google Forms. Initially, a pilot study was done on 30 participants to check questionnaire validity and reliability. Cronbach's alpha of this questionnaire was 0.80. The survey focused on obtaining information about the participants' socio-demographic characteristics, knowledge, practices, attitudes, and factors related to

the usage of multi-vitamins. The data from the questionnaire was analyzed by using SPSS version 26. Frequency percentages were calculated from descriptive data. Chi square was used for association between variables. P-value less than 0.05 will be considered significant.

Results

The study examined the knowledge and usage of multivitamins among medical students. In terms of knowledge, most participants (211 MBBS, 7 BDS) demonstrated awareness that multivitamins are a separate category from iron supplements and fish oil tablets. However, a significant proportion of participants (31 MBBS, 2 BDS) lacked this knowledge ($p=0.624$). Regarding current usage, a considerable number of participants reported using multivitamin capsules (94 MBBS, 5 BDS), while the majority did not use multivitamins (153 MBBS, 5 BDS) ($p=0.618$). Moreover, a significant proportion of participants reported having used multivitamins in the past (200 MBBS, 7 BDS) ($p=0.640$).

Beliefs and Attitudes towards Multivitamins: The study explored participants' beliefs and attitudes towards multivitamins. Most participants (219 MBBS, 8 BDS) believed that multivitamins are effective ($p=0.806$). However, beliefs varied when it came to specific effects of multivitamins. For instance, a significant number of participants believed that multivitamins could improve energy levels (184 MBBS, 5 BDS), while a smaller proportion disagreed (18 MBBS, 2 BDS) ($p=0.209$). Similarly, opinions were divided regarding the use of multivitamins for stress relief, improvement of mood, and memory/cognitive functions during exam season.

Factors Influencing Multivitamin Usage: The study explored several factors influencing multivitamin usage among medical students. Participants reported receiving recommendations from healthcare professionals to take multivitamins (202 MBBS, 8 BDS) ($p=0.788$). Additionally, the study investigated the relationship between demographic factors and multivitamin usage. However, the analysis did not reveal any significant association between demographic factors such as gender, age, or year of study and multivitamin usage among medical students. **Multivitamin Usage during Periods of Stress or Anxiety:** A significant number of participants (30 MBBS) reported having taken multivitamins during periods of increased stress or anxiety ($p=0.122$). This finding suggests that some medical students resort to

Table 1: Demographics of study participants

Variables		Frequency (f)	Percentage (%)
Gender	Male	73	27.3
	Female	194	72.7
Class	1 st year	43	16.1
	2 nd year	10	3.7
	3 rd year	26	9.7
	4 th year	136	50.9
	5 th year	51	19.1
Field	MBBS	257	96.3
	BDS	10	3.7

Table 2: Prevalence of knowledge, attitude, and practice of multivitamin usage among students of MBBS and BDS

Variables		Field		p-value
		MBBS	BDS	
Do you know that multivitamins are a separate category from iron supplements and fish oil tablets?	Yes	211	7	0.624
	No	31	2	
	May be	15	1	
Do you currently use multivitamins e.g., capsules?	Yes	94	5	0.618
	No	153	5	
	Maybe	9	0	
Have you ever used multivitamins in the past?	Yes	200	7	0.640
	No	49	3	
	Maybe	6	0	
Do you believe multivitamins are effective?	Yes	219	8	0.806
	No	3	0	
	Maybe	35	2	
Do you take multivitamin capsules daily?	Yes	45	3	0.412
	No	199	6	
	Maybe	12	1	
Have you(or anyone you know)received recommendations from a healthcare professional to take multivitamins ?	Yes	202	8	0.788
	No	44	2	
	Maybe	11	0	
Do you believe multivitamins can improve energy levels?	Yes	184	5	0.209
	No	18	2	
	Maybe	55	3	
Do you take multivitamins for stress relief?	Yes	14	0	0.599
	No	233	10	
	Maybe	10	0	
Have you taken multivitamins during the periods of increased stress or anxiety?	Yes	30	0	0.122
	No	212	8	
	Maybe	15	2	
Do you believe multivitamins can improve mood?	Yes	59	1	0.543
	No	93	5	
	Maybe	105	4	
Have you taken multivitamins to improve memory or cognitive functions e.g., during exam season?	Yes	58	2	0.966
	No	204	3	
	May be	0	0	

multivitamins as a coping mechanism during challenging periods. However, most participants (212 MBBS, 8 BDS) did not use multivitamins during such periods, indicating varied approaches to managing stress and anxiety among medical students.

Discussion

The study investigated the knowledge, beliefs, and usage of multivitamins among medical students. The results revealed that most participants demonstrated awareness that multivitamins are separate from other supplements. While a significant proportion reported current or past usage of multivitamins, there was variation in beliefs about their effectiveness for specific purposes. The study also explored factors influencing multivitamin usage and found that participants received recommendations from healthcare professionals. However, no significant associations were found between demographic factors and multivitamin usage among medical students. Interestingly, a significant number of participants reported using multivitamins during periods of increased stress or anxiety. Study by Mangione et al concluded that nutritional supplements boost the overall health and wellbeing and fill the nutrient gaps in diet, reducing the risk of cardiovascular disease and cancer.⁷ This is in accordance with our study. Majority of our participants (210; 202 MBBS, 8 BDS) used on recommendations from a healthcare professional. 189 participants believed that multivitamins can improve energy levels. Further research is recommended to understand the reasons behind multivitamin usage and the impact of educational interventions on improving knowledge and practices among this population.

Another study on physicians' perception about multivitamins, particularly Vitamin B12 for the cure or prevention of diabetic neuropathy,⁶ is consistent with our study as it says that multivitamin usage alleviates chronic diseases. Furthermore, supplementation with different micronutrients having immune supporting roles may modulate the immune functions and reduces A significant proportion of female college students in the UAE used multivitamins and mineral supplements for medical needs (P=0.001).⁸ This statement too aligns with the findings of our study. Comparing these findings with previous studies on multivitamin usage among different populations reveals some interesting insights. The study conducted by Naqvi et al. (2018)¹ among pharmacy students reported a prevalence of 48.2% for dietary supplement use, with physician recommendation cited as a common reason for usage. This aligns with

our findings, where medical students also reported receiving recommendations from healthcare professionals to take multivitamins. Similarly, the study by Barnes et al. among an Australian university population found that 69% of participants reported using vitamin or mineral supplements, and general health reasons were commonly reported for their usage.⁵

Americans reported that a small number of multivitamins products have the potential to produce significant toxicity,¹⁰ which confirms one of our study objectives that multivitamins overuse causes adverse effects. These findings collectively highlight the complex nature of multivitamin usage among medical students. While many students demonstrated awareness and utilized multivitamins, there were variations in usage patterns, beliefs, and attitudes regarding their effectiveness for specific purposes. Further research is needed to delve deeper into the reasons behind multivitamin usage, the impact of healthcare professional recommendations, and the role of education in shaping beliefs and behaviors.

Conclusion

This study explored multivitamin usage among medical students, revealing variations in knowledge, beliefs, and attitudes. Some participants used multivitamins during periods of stress, indicating a coping mechanism. Comparisons with previous studies highlight the contextual nature of multivitamin usage. Further research is needed to understand usage motivations and potential benefits and risks. Enhancing understanding of multivitamin usage will contribute to the well-being of medical students.

Conflict of Interest

None

Funding Source

None

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Authors Contribution

MA: Conceptualization of Project

MA, SAZH : Data Collection

MA, SAZH, SW, SAAKB: Literature Search

MA: Statistical Analysis

FI: Drafting, Revision

FI, BA: Writing of Manuscript