

ORIGINAL ARTICLE

A Cross-Sectional Study on Assessment of Knowledge, Attitude and Practices Towards Magnesium Supplements Uses Among the Students of UBAS

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Conflict of Interest

All the authors have no conflict of interest

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Abstract

Background: Magnesium is an important mineral which is crucial for maintaining and promoting human health. There is insufficient data on its function in maintaining cardiovascular, muscular, and bone health. Magnesium supplements have drawn attention lately because of their purported ability to reduce muscular spasms and enhance the quality of sleep.

Objective: To assess the level of knowledge, attitude and practices regarding magnesium supplements uses among university students.

Methods: A cross-sectional quantitative study was conducted among 175 undergraduate students at UBAS. A standard questionnaire was used for data collection. All the data variables were analyzed by using SPSS (Statistical Package for the Social Sciences) version 26.

Results: Among participants (52.0%) had poor knowledge. While (36.6%) had moderate knowledge. A moderate to positive attitude was observed in (60%) of students. Poor practices were reported by (61.7%) of the respondents, and only (38.3%) followed good practices.

Conclusion: The findings suggest that students had poor knowledge. Although, more than half of the respondents had positive attitudes but their practices regarding magnesium supplements were poor. Professional guidance should be given to the students to encourage the safe use of Magnesium supplements among students.

Keywords: Magnesium supplements, Bone Health, Hypomagnesemia, University students, Cross sectional study

Introduction

Magnesium is the fourth most common mineral in the human body. It is mostly found intracellularly in bone tissues and other organs; blood contains very small amounts of it (about 1%). Being a component of hundreds of enzymatic processes that are involved in metabolism, energy production, and protein synthesis, magnesium is an essential ion that is crucial to maintaining and promoting human health. Numerous physiological processes, especially those in heart, brain and skeletal muscles, have been shown to require magnesium [1].

Magnesium helps the body in the absorption of calcium and vitamins. Therefore, it is essential for healthy bones. Mg plays a beneficial role in prevention of osteoporosis. [2] Magnesium also plays a role in

healthy muscle function. It helps muscles to contract and relax properly. Mg deficiency can cause muscles to remain tense, which can cause cramps and twitches. It was also noted that Mg consumption improved perceived recovery and decreased muscle soreness [3]. Mg deficiency can also cause sarcopenia [4].

Abnormal magnesium homeostasis causes metabolic syndrome. Obesity, high blood pressure, diabetes, insulin resistance, and a changed lipid profile are among the risk factors that make up metabolic syndrome. Magnesium (Mg) deficiency has been regularly observed in each of these conditions. Magnesium deficiency is also linked with diabetes; Hypomagnesemia plays a role in the development and advancement of diabetes mellitus and worsens the

symptoms of type 2 diabetes [5].

It has been discovered that magnesium helps to maintain healthy circadian rhythms and high-quality sleep. It helps the body to relax and to have a calm sleep. People who consume more Mg has better sleep quality as compared to those who consume inadequate magnesium [6]. Supplemental magnesium is helpful in treating mild anxiety and insomnia, especially in people who have low baseline magnesium levels [7].

Recommended Dietary Allowance of magnesium for adult male is 400-420mg, for women of reproductive age it is 310 mg and it increases to 350 mg if female is pregnant. Nuts, seeds, legumes, whole grains, leafy green vegetables, and some types of fish are all good food sources of magnesium [8]. People who are unable to get enough magnesium from their regular meals frequently take supplements. The body may lose more magnesium as a result of stress, illnesses,

or certain medications. Supplements are a fast way to close the deficit. They also aid with issues like cramps, fatigue, or restless nights and they are well tolerated [1].

According to FDA, a dietary supplement is a product intended for ingestion that, among other requirements, contains a "dietary ingredient" intended to supplement the diet. Recently, the intake of dietary supplements has been increasing worldwide. The prevalence of dietary supplements has increased among adult students in the Middle East, Asia, Canada, and parts of Europe [9]. According to a study conducted in Islamabad the prevalence of supplementation has also been increased in Pakistan. According to the study many people were unaware of the harmful effects of supplements and 59% among them were self-medicated [10].

Magnesium Supplements are usually recommended in hypomagnesemia. Serum magnesium levels below 0.7 mmol/L are referred to as hypomagnesemia. It mostly occurs in patients with comorbid conditions. Because mild deficiency can often appear as generalized signs including irritability, nervousness, mild anxiety, muscular spasm, fatigue, weakness, and digestive issues. It might go undiagnosed. More severe symptoms of neuromuscular, cardiac, or neurological conditions may result from a more severe magnesium deficit [11].

Different magnesium salts have been used as supplements for various purposes such as magnesium sulphate is used to treat eclampsia and cardiac dysrhythmia, magnesium oxide is used as a laxative, magnesium glycinate is used in the treatment of stress

and for relaxation, magnesium citrate is used in constipation and is well absorbed. According to studies on the bioavailability of various magnesium salts, Organic magnesium salts like magnesium citrate have higher bioavailability than inorganic salts like magnesium oxide [12].

Although, supplements may effectively treat a variety of physiological conditions and nutritional deficiencies. But their unadministered usage can cause toxicity in the body if taken up to a certain time limit [13]. Hypermagnesemia can result from overdosage of magnesium supplements. Hypermagnesemia is usually well tolerated but patients who experience serious symptoms, such as neurological symptoms, altered heartbeats, hypotension, or decreased breathing rates need an immediate treatment [14].

In conclusion, the health implications of both hypomagnesemia and hypermagnesemia are distinct and important. To minimize any hazards, it is crucial to take magnesium supplements with the right information and understanding. In light of this, it is critical to evaluate people's knowledge, attitudes, and practices about magnesium supplementation through this KAP study.

Objectives

- To assess the level of knowledge regarding magnesium supplements among UBAS students.
- To evaluate the attitude and practices about magnesium supplements use among the participants.

Methodology

Research Design and Methodology

1. Study design

A cross-sectional study was conducted. This study is a cross-sectional, quantitative investigation conducted at a private medical college to assess knowledge, attitude and practices of students regarding magnesium supplements. The cross-sectional study was performed by utilizing a validated questionnaire.

2. Sampling technique

Convenience sampling technique was used.

3. Study setting

The survey was conducted within the premises of Lahore University of Biological and Applied Sciences, Lahore.

4. Participants

4.1. Inclusion criteria

Students who were studying in undergraduate programs.

4.2. Exclusion criteria

Participants, diagnosed with chronic diseases such as diabetes, cardiovascular disease, cancer, or gastrointestinal disorders.

5. Variables

Knowledge, Attitude and practices towards magnesium supplements are the variables of this study.

6. Data source

A standard questionnaire [24] given to college students served as the study's main source of data. Direct responses were gathered from Lahore University of Biological and Applied Sciences (UBAS) students.

7. Bias

Recall or response bias may result from this study's reliance on self-reported data. Participants may underreport bad habits or overestimate their level of understanding. In addition, social desirability bias may influence truthful answers on supplement use.

8. Study Size

The total study size was 175, both male & females, 19-25 year of age .

9. Statistical Analysis

All variables were analyzed by using SPSS (Statistical Package for the Social Sciences) version 26.

10. Study duration

The study was completed in 6 months from July 2025 to December 2025.

11. Data collection

Data was collected through a standard questionnaire.

12. Results

The data was analyzed using the SPSS 26.0 package program. All data is displayed as numbers and percentages.

There were three levels for the knowledge of participants i.e. Low, Moderate and High. The findings related to participants' knowledge regarding magnesium supplements showed that more than half of the respondents had low knowledge. Out of a total of 175 participants, 91 (52.0%) were categorized as having low knowledge. A significant proportion, 64 participants (36.6%), reported moderate knowledge, while only 20 participants (11.4%) exhibited high knowledge regarding magnesium supplements. Overall, the results indicate that the majority of participants possessed inadequate knowledge, with relatively few having a high level of understanding about magnesium supplementation.

Table no. 01: Knowledge Frequency and Percentage

Level of knowledge of participants		
Knowledge	Frequency (N)	Percentage %
low knowledge	91	52.0
Moderate knowledge	64	36.6
high knowledge	20	11.4
Total	175	100.0

According to the results, the majority of respondents had a neutral attitude regarding magnesium supplementation. 105 (60.0%) of the 175 participants were neutral, meaning they had neither a favorable nor a negative opinion. A lesser percentage of participants, only 49 (28.0%) showed a positive attitude, indicating a willingness or good perception to use magnesium

supplements. Just few participants, 21 (12.0%) had a negative attitude, indicating resistance or a negative opinion of magnesium supplementation. According to the statistics, most of the respondents had neutral attitudes towards Mg supplementation while only a few had positive or negative attitudes.

Table no. 02: Attitude Frequency and Percentage

Attitude towards magnesium supplements		
Attitude	Frequency (N)	Percentage %
Negative attitude	21	12.0
Neutral attitude	105	60.0
Positive attitude	49	28.0
Total	175	100.0

Practices regarding Magnesium supplementations were divided into two categories i.e., poor and good practices. This study findings have revealed that majority of the students use Mg supplements inappropriately. Out of total 175 participants, 61.7% have poor practices which indicates that these

proportion of students is not using Mg supplements properly. While 38.3% of the respondents are using Mg supplements in the right way. It shows that more than half of the respondents did not use supplements according to the guidelines.

Table no. 03: Practices Frequency and Percentage

Level of practices		
Practices	Frequency (N)	Percentage %
Poor practices	108	61.7
Good practices	67	38.3
Total	175	100.0

The present study revealed that knowledge regarding magnesium supplements among participants was generally poor, as more than half of the respondents fell into the low-knowledge category. This finding is consistent with, Abutaima et al., 2025 study which also reported low levels of knowledge among participants[1]. According to that survey, the majority of people were primarily aware of magnesium's ability to improve the quality of their sleep and ease cramping in their muscles, but they had little understanding of its other health benefits, which included cardiovascular function, bone health, migraine prevention, and metabolic regulation.

The current study's comparatively low percentage of participants with high knowledge adds to the evidence that the level of knowledge regarding magnesium supplementation among UBAS students is limited and insufficient. Similar patterns have been reported in Salih et al. (2025) study. In this study only 18.3% people had high levels of knowledge regarding the association between osteoporosis and Mg [15].

Magnesium is frequently associated with calming and muscular relaxation, with little understanding of its broader physiological roles. As, most of the people in this study have moderate to low knowledge about the role of mg in osteoporosis.

Magnesium governs essential biological processes by taking part in a variety of enzymatic reactions. By controlling a number of cations, such as sodium, potassium, calcium, magnesium preserves physiological processes like blood pressure, heart rhythm, muscle contraction and impulse conduction [16]. Similarly, respondents do not have knowledge about the role of Mg in migraine. But according to literature, Headaches and migraine are linked with Mg-deficiency. Patients with migraine have been found to have lower serum magnesium value [17]. Magnesium is effective in treating migraines and cluster headaches. It also helps with menstrual migraines [18].

Respondents had no idea that magnesium is linked with

female health too. Magnesium has a positive role in female health too as according to some studies magnesium can assist in reducing the symptoms of dysmenorrhea. Women can utilize magnesium to prevent and cure a variety of health conditions, including premenstrual syndrome, PCOS, pregnancy, and menopause [19]. It is commonly known that magnesium sulphate can be used to treat eclampsia. In lowering the frequency of recurrent seizures in women with eclampsia, the drug outperformed alternative anticonvulsants. Magnesium sulfate has also been recommended for women with symptoms of preeclampsia [20].

According to the results, the majority of respondents had a neutral attitude regarding magnesium supplementation. 105 (60.0%) of the 175 participants were neutral, meaning they had neither a favorable nor a negative opinion. A lesser percentage of participants, only 28.0% (49) showed a positive attitude, indicating a willingness or good perception to use magnesium supplements. Just 21 participants (12.0%) had a negative attitude, indicating resistance or a negative opinion of magnesium supplementation. According to the statistics, most of the respondents had neutral attitudes towards Mg supplementation while only a few had positive or negative attitudes.

According to the findings of current study, the majority of respondents have neutral attitudes. Some of them showed positive attitudes and fewer had negative attitude towards Magnesium. These findings are consistent with results from a cross-sectional survey Alhazmi et al. (2023), which found that the majority of participants were either cautious or neutral about mineral supplements because they lacked specific information or advice from medical professionals [21]. Similarly, Allehdan et al. (2023) discovered that most participants had neutral or unsure opinions, which were frequently impacted by a lack of knowledge about the proper dosage, effectiveness, and possible side effects. This illustrates the public's general propensity to neither strongly support nor oppose supplements when understanding is lacking [22].

The current study found that UBAS students had poor magnesium supplementation practices. These findings are consistent with those reported in Abutaima et al., 2025. which also discovered that only a small percentage of participants reported using supplements appropriately, while the majority either did not use supplements or engaged in unsupervised and irregular intake. The international review made clear that poor practices were caused by reliance on unreliable information sources and a lack of professional advice

[1]. Most of the students had poor practices regarding Mg supplementation; this outcome revealed the importance of professional counselling from healthcare professionals.

Similarly, Riaz et al. (2025), suggests that most of the respondents have poor practice because they used the supplements without any proper guidance [23]. The unregulated use of Mg has resulted in the poor practices. These results suggests that there is a noticeable gap between students' attitude and practices. The cause of this negative behavior is lack of knowledge,

misinformation regarding supplement usage, self-medication because of social media trends, and lack of guidance from the healthcare professionals.

Conclusion

This study has found that most of the respondents had low levels of knowledge. However, students had neutral attitudes. The practices of UBAS students regarding magnesium supplementation were found to be poor. UBAS students were well aware about the magnesium's role in sleep and muscle relaxation, but their knowledge was limited regarding various physiological roles of magnesium. Although, students had neutral attitudes towards Mg and even some of them have positive attitudes too about Mg supplementation but still their practices were poor. Professional guidance should be given to the students to encourage the safe use of Mg supplements among students.

Reference

1. Abutaima, R., Barakat, M., Thiab, S., Sawan, H. M., Amer, M., Alzayer, R., Abdelaziz, D. H., Mansour, N. O., Saleh, F., & Dayyih, W. A. (2025c). A multinational cross-sectional study on knowledge, attitudes, and practices towards magnesium supplements. *Frontiers in Pharmacology*, 16. <https://doi.org/10.3389/fphar.2025.1550695>
2. Groenendijk, I., Van Delft, M., Versloot, P., Van Loon, L. J., C De Groot, L. C. (2021). Impact of magnesium on bone health in older adults: A systematic review and meta-analysis. *Bone*, 154, 116233. <https://doi.org/10.1016/j.bone.2021.116233>
3. Reno, A. M., Green, M., Killen, L. G., O'Neal, E. K., Pritchett, K., & Hanson, Z. (2020b). Effects of magnesium supplementation on muscle soreness and performance. *The Journal of Strength and Conditioning Research*, 36(8), 2198–2203.

<https://doi.org/10.1519/jsc.0000000000003827>

4. Yang, S., Chen, Y., & Chen, W. (2022b). Association between oral intake magnesium and sarcopenia: a cross-sectional study. *BMC Geriatrics*, 22(1). <https://doi.org/10.1186/s12877-022-03522-5>

5. Barbagallo, M., Veronese, N., & Dominguez, L. J. (2022b). Magnesium in type 2 diabetes mellitus, obesity, and metabolic syndrome. *Nutrients*, 14(3), 714. <https://doi.org/10.3390/nu14030714>

6. Arab, A., Rafie, N., Amani, R., & Shirani, F. (2022b). The Role of Magnesium in Sleep Health: a Systematic Review of Available Literature. *Biological Trace Element Research*, 201(1), 121–128. <https://doi.org/10.1007/s12011-022-03162-1>

7. Rawji, A., Peltier, M. R., Mourtzanakis, K., Awan, S., Rana, J., Pothen, N. J., & Afzal,

S. (2024). Examining the Effects of Supplemental Magnesium on Self-Reported Anxiety and Sleep Quality: A Systematic review. *Cureus*. <https://doi.org/10.7759/cureus.59317>

8. Office of Dietary Supplements - magnesium. (n.d.-b). <https://ods.od.nih.gov/factsheets/Magnesium-HealthProfessional/>

9. Elshoryi, N. A., Odeh, M. M., Jadayil, S. A., McGrattan, A. M., Hammad, F. J., Al-Maseimi, O. D., & Alzoubi, K. H. (2023). Prevalence of dietary supplement use and knowledge, attitudes, practice (KAP) and associated factors in student population: A cross sectional study. *Heliyon*, 9(4), e14736. <https://doi.org/10.1016/j.heliyon.2023.e14736>

10. Shahzad, A., Mashhadi, S. F., Safdar, S., Sultan, A., Osama, H., Shah, S. M. A., Kashaf, N. E., & Abbas, S. (2022). Prevalence of multivitamin supplements use Among general population of Rawalpindi and Islamabad. *Pakistan Armed Forces Medical Journal*, 72(SUPPL-4), S800-804. <https://doi.org/10.51253/pafmj.v72isuppl-4.9659>

11. Salinas, Maria, López-Garrigós, Maite, Flores, Emilio and Leiva-Salinas, Carlos. "Improving diagnosis and treatment of hypomagnesemia" *Clinical Chemistry and Laboratory Medicine (CCLM)*, vol. 62, no. 2, 2024, pp. 234-248.

<https://doi.org/10.1515/cclm-2023-0537>

12. Pardo, M. R., Vilar, E. G., Martín, I. S. M., & Martín, M. a. C. (2021). Bioavailability of magnesium food supplements: A systematic review. *Nutrition*, 89, 111294. <https://doi.org/10.1016/j.nut.2021.111294>

13. Charen, E., C Harbord, N. (2020). Toxicity of herbs, vitamins, and supplements. *Advances in Chronic Kidney Disease*, 27(1), 67–71. <https://doi.org/10.1053/j.ackd.2019.08.003>

14. Aal-Hamad, A. H., Al-Alawi, A. M., Kashoub, M. S., & Falhammar, H. (2023). Hypermagnesemia in clinical practice. *Medicina*, 59(7), 1190. <https://doi.org/10.3390/medicina59071190>

15. Salih, S., Khired, Z., Sumayli, R., Jabrah, A., Henishi, N., Wadani, S., Faqihi, A., Innab, S., & Alameer, A. (2025). Knowledge, attitude, and practice towards osteoporosis and its association with magnesium intake in Jazan, Saudi Arabia: A cross-sectional study. *Medicine*, 104(28), e43288. <https://doi.org/10.1097/md.00000000000043288>

16. Mathew, A. A., & Panonnummal, R. (2021b). 'Magnesium'-the master cation-as a drug—possibilities and evidence. *BioMetals*, 34(5), 955–986. <https://doi.org/10.1007/s10534-021-00328-7>

17. Dominguez, L., Veronese, N., Sabico, S., Al-Daghri, N., & Barbagallo, M. (2025). Magnesium and migraine. *Nutrients*, 17(4), 725. <https://doi.org/10.3390/nu17040725>

18. Maier, J. A., Pickering, G., Giacomoni, E., Cazzaniga, A., & Pellegrino, P. (2020). Headaches and magnesium: mechanisms, bioavailability, therapeutic efficacy and potential advantage of magnesium pidolate. *Nutrients*, 12(9), 2660. <https://doi.org/10.3390/nu12092660>

19. Porri, D., Biesalski, H. K., Limitone, A., Bertuzzo, L., & Cena, H. (2021b). Effect of magnesium supplementation on women's health and well-being. *NFS Journal*, 23, 30–36. <https://doi.org/10.1016/j.nfs.2021.03.003>

20. De Oliveira, L., Korke, H., De Rizzo, M., Siauly, M. M., & Cordioli, E. (2024b). Magnesium sulfate in preeclampsia: Broad indications, not only in neurological symptoms. *Pregnancy Hypertension*, 36, 101126.

<https://doi.org/10.1016/j.preghy.2024.101126>

21. Alhazmi, A., Kuriakose, B. B., Mushfiq, S., Muzammil, K., & Hawash, M. M. (2023). Prevalence, attitudes, and practices of dietary supplements among middle-aged and older adults in Asir region, Saudi Arabia: A cross-sectional study. *PLoS ONE*, 18(10), e0292900.

<https://doi.org/10.1371/journal.pone.0292900>

22. Allehdan, S., Hasan, M., Perna, S., Al-Mannai, M., Alalwan, T., Mohammed, D., Almosawi, M., Hoteit, M., & Tayyem, R. (2023). Prevalence, knowledge, awareness, and attitudes towards dietary supplements among Bahraini adults: a cross-sectional

study. *Food Production Processing and Nutrition*, 5(1).
<https://doi.org/10.1186/s43014-023-00168-7>

23. Riaz, M. W., Azam, M. S., Ashraf, S., Butt, N. I., Waris, B., & Ghoauri, M. S. A. (2025). Perception and knowledge of dietary supplements use among University Students from Lahore Pakistan. *Journal of Current Health Sciences*, 5(3), 131–136.
<https://doi.org/10.47679/jchs.2025120>

24. <https://www.frontiersin.org/articles/10.3389/fphar.2025.1550695/full#supplementary-material>