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ASSESSMENT OF VITAMIN USE AND SELF-MEDICATION PRACTICES AMONG CONSUMERS

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Abstract

People often take vitamins and mineral supplements to improve their health, but excessive intake can lead to toxicity and adverse effects. Unregulated self-medication is common, especially in developing countries like Armenia, and poses significant risks, including harmful drug interactions. This underscores the importance of healthcare providers educating patients about the safe use of vitamins. The study aims to assess vitamin use and self-medication practices among consumers. This study used a descriptive, cross-sectional design involving 385 consumers from different regions of Armenia. The sample size was determined using Cochran's formula, providing a 95% confidence interval and a 5% margin of error. A structured questionnaire was utilized for data collection, which took place anonymously between September 2023 and April 2024. Data were analyzed using SPSS version 23.0, focusing on descriptive statistics, with a significance level set at $p < 0.05$.

A diverse group of participants with varying ages and educational backgrounds was surveyed in Armenia, with a gender distribution of 51% female and 49% male. The majority were aged 18-45, and 59% had higher education. Key motivations for self-administering vitamins included perceived trivial health issues (42%) and prior experience (37%). Notably, 78% self-medicated with vitamins over the past year, and 71% shared their experiences with others. However, 72% did not undergo screening tests before self-administering vitamins, primarily purchasing them from pharmacies (93%).

The findings indicate that consumers in Armenia actively engage in vitamin self-medication and often share their experiences, raising concerns about potential risks due to insufficient research or screening prior to use. The prevalence of pharmacy purchases offers an opportunity for healthcare professionals to enhance oversight and promote safer practices. Developing clear guidelines for pharmacists and launching public awareness campaigns are essential for encouraging responsible self-medication and mitigating risks.

Keywords: *self-medication, vitamins, public health, health risks, pharmacists.*

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INTRODUCTION

People choose to take supplements for various reasons, often motivated by a desire to improve their health and well-being. Interestingly, individuals who take vitamin and mineral supplements typically already get more of these nutrients from their diet compared to those who don't use supplements. However, excessive intake of certain vitamins and minerals can be harmful, and overdosing on supplements may cause illness. While small amounts of supplements are generally safe, they haven't been proven to offer significant health benefits [*Wierzejska, 2021*].

The consumption of vitamins and dietary supplements is widespread in developing countries. Fat-soluble vitamins, such as vitamins A and D, are more likely to cause toxicity because they accumulate in the body and are metabolized slowly. While hypervitaminosis is uncommon, it can pose serious health risks. The improper or excessive use of vitamins can lead to various health complications, making it important to avoid overdosing and misuse [*Dhyani A et al., 2019*].

Similar to conventional pharmaceuticals, dietary supplements may result in potential risks, including adverse reactions, pharmacokinetic interactions, financial burden, postponement of more efficacious treatments, unrealistic expectations, and increased polypharmacy. While the majority of vitamins and minerals are available without prescription, higher doses of certain substances are regulated under controlled drug schedules. The risk of toxicity or overdose arises when consumers inadvertently ingest the same active ingredient from multiple products. Healthcare professionals have a pivotal role in advising patients by evaluating the potential risks and benefits of supplements and directing them to credible, evidence-based sources of information [*Moses G, 2021*].

The World Health Organization defined self-medication as using pharmaceuticals to treat self-identified illnesses or symptoms without a doctor's prescription or as intermittently continuing to take medications that a doctor has previously prescribed for persistent or recurrent conditions [*WHO, 2000*]. Self-medication aims to achieve a therapeutic benefit, yet individuals often use supplements to address perceived deficiencies without consulting a doctor or obtaining a prescription. Vitamin-based supplements are commonly consumed to counterbalance an unhealthy lifestyle and enhance health or performance [*Ahmed N et al., 2023*].

Unregulated self-medication is highly prevalent across the Republic of Armenia, occurring frequently across all demographic groups, irrespective of age, gender, or educational background [*Avagyan S et al., 2019; Barseghyan A, et al., 2023*]. Research conducted in Germany also highlights the issue of self-medication with vitamins, which is particularly concerning due to potential drug-vitamin interactions [*Perlitz H, 2019*].

According to the study conducted by Ylinen and co-workers amongst Finnish children under age 12 years, they found out that a majority of medication taken by the children were through self-medication, especially the use of vitamins with vitamin D being recommended for use in children below 3 years. Although only a few parents adhered to this recommendation, Vitamin D was still the most common vitamin used [*Ylinen S at al., 2010*]. Knopf in his work which examined results from national health surveys -where adults aged 18 to 79 were interviewed on health-related themes- reported that 18.1% (95% confidence interval: 17.0-19.2%) out of all participants in the DEGS1 (German Health Interview and Examination Survey for Adults (2008-2011) survey, consumed vitamins, minerals and food supplements in self-medication with significantly higher prevalence in older people (60 to 79 years), women, people with high social status, ex- and non-smokers, people living alone, and those involved in sports. Comparatively, participants in the GNHIES98 (German National Health Interview and Examination Survey, 1998) study had decreased prevalence than those that were in the DEGS1 study by about 6% (5.8%, 95% confidence interval: 4.1-7.5%, $p < 0.001$) This indicated the need for further action to be taken on the increase in self-medication due to the potential for interactions with prescribed medicines the results show the importance of ascertaining self-medication with vitamins, minerals and food supplements [*Knopf H, 2017*].

In individuals with chronic conditions increased caution is necessary regarding vitamin supplementation. For instance, elevated doses of vitamin E have been associated with an increased risk of

heart failure in diabetic patients, thus high-dose vitamin E should be avoided in this population. Furthermore, in individuals with a history of myocardial infarction (heart attack), excessive vitamin E intake has been linked to a higher mortality risk. Therefore, patients with a prior history of heart attack are advised to avoid high doses of vitamin E [*Korah M et al., 2017*].

The aim of this study is to assess the patterns of vitamin use and self-medication practices among consumers.

Material and methods

Study design and participants: This descriptive, cross-sectional, and analytical study was conducted among 385 consumers in various regions of Armenia, including the capital city, Yerevan. Participants were randomly selected without duplication, with a response rate of 99.99%.

Inclusion criteria: Participants in this study were consumers aged 18 and older, with permanent residency in Armenia, who could speak, read, and write in Armenian and had no mental problems.

Exclusion criteria: The study was conducted with participant consent and adhered to ethical guidelines. Individuals who were under 18 years old, unable to read or communicate in Armenian, lacked permanent residency in Armenia, or chose not to participate were excluded from the study.

Sampling technique and sample size calculation:The sample size was determined using the Cochran's Sample Size Formula [Nanjundeswaraswamy T, Divakar S, 2021]. In this study, a sample size of 385 was estimated with a 95% confidence interval and a 5% margin of error.

Study instruments: The questionnaire comprised 19 closed-ended questions, where respondents selected from a predetermined set of options. Closed-ended questions in a questionnaire are generally easier for respondents to answer and tend to have higher response rates. The questionnaire was developed in such a way that it is accessible and understandable for all adults and individuals of different educational levels in Armenia.

Instrument validity and reliability: The survey employed in this study assessed several key aspects of self-medication practices, including knowledge of vitamins and attitudes toward self-medication. To ensure reliability, the survey was pre-tested with a small sample of participants (pilot study) before the main data collection.

Data collection: The study was conducted from September 2023 to April 2024. Participants, selected using an Excel random number generator to maintain impartiality and reduce selection bias, completed an anonymous, structured questionnaire with their consent. The questionnaire was carefully designed based on a review of relevant literature to fully ensure content validity and relevance to the topic.

Statistical analysis: The survey data were entered into the SPSS statistical software package, version 23.0, for analysis. Descriptive statistics, including frequencies, percentages, were used to characterize the data. A significance level of $p < 0.05$ was considered statistically significant throughout the analysis. The use of such statistical tools allows to fully analyze the situation and draw correct conclusions.

Ethical approval: The questionnaire was formally approved by the Ethics Committee of Yerevan State Medical University during a scheduled session (Protocol no. 10, dated 17.06.2021), confirming that the study complies with the ethical guidelines set forth in the Declaration of Helsinki.

Results

A diverse cohort of participants of varying ages and educational backgrounds was involved in the research conducted among the population of the Republic of Armenia. The gender distribution of the sample was 51% female and 49% male. The majority of respondents fell within the age groups of 18-25 years (22%), 26-35 years (27%), 36-45 years (32%), and 46-55 years (10%). The 56-64 (5%) and 65 and above (4%) age groups had the smallest shares.

In terms of education, the majority of participants (59%) had attained higher education, including bachelor's and master's degrees. Additionally, 27% had completed vocational (secondary professional) education, while 11% had completed secondary education. A smaller proportion, 3%, had obtained postgraduate qualifications.

The study examined the reasons behind the self-administration of vitamins, revealing that the most common factors were the perceived triviality of the health issue (42%) and previous personal

experience with vitamin use (37%). Financial barriers also played a role, with 12% of participants citing the high cost of medical consultations as a reason for self-administration. Additionally, 7% of respondents reported a lack of time to see a doctor. Only a small proportion (2%) indicated that the urgency of their health condition influenced their decision to self-medicate.

The research findings revealed that a significant majority (78% of consumers) independently chose to self-administer vitamins over the past year. This indicates a widespread tendency among the population to manage their own vitamin intake without professional guidance, reflecting both a reliance on personal judgment and possibly a lack of consultation with healthcare providers. The 22% who did not take vitamins may include individuals who rely on dietary sources for essential nutrients or those who do not trust supplements. A deeper understanding of these factors could contribute to more effective public health strategies aimed at promoting balanced nutrition and responsible supplementation practices.

The study revealed that consumers not only engage in self-medication through the use of vitamins but also actively share their personal experiences and promote this practice among others. Notably, 71% of participants admitted that they have indeed shared their treatment experiences, talked about the vitamins they used, and offered advice to others, while 29% of participants indicated that they do not share their experience of using vitamins.

According to the survey data, a significant 72% of the population did not undergo vitamin screening tests before self-administering vitamins, indicating that most individuals engage in vitamin use without any prior medical assessments. In contrast, only 28% of respondents reported having their vitamin levels monitored before taking vitamins.

The majority of the population obtains vitamins predominantly from pharmacies (93%), which reflects positively on consumer behavior in terms of ensuring accessibility and availability of vitamins through regulated sources

Discussion

This study demonstrates that self-medication with vitamins as a form of self-administered therapy is prevalent among the citizens of Armenia. The findings indicate a notable trend where individuals are increasingly relying on vitamins for personal health management without consulting healthcare professionals. This behavior reflects broader patterns of self-medication within the population, highlighting the need for further investigation into the implications of such practices on public health and the potential risks associated with unsupervised vitamin intake.

One reason cited by 7% of respondents for not consulting a doctor is a lack of time. In today's fast-paced world, many individuals prefer to make their own health decisions and opt for over-the-counter vitamins and medications to address their concerns. Additionally, 42% of respondents perceive vitamin deficiencies or specific health issues as minor problems that do not require a doctor's visit. As a result, they choose to self-medicate, believing that vitamins can effectively solve their health problems without professional guidance. However, this belief can lead to the risks associated with improper dosages or potential interactions with other medications being overlooked.

Financial barriers also play a role in the decision to self-medicate. Twelve percent of participants reported that the high cost of a doctor's consultation forces them to self-medicate and purchase vitamins independently. For those without access to affordable healthcare, over-the-counter supplements often seem like a cost-effective solution for maintaining health. However, this approach is not always the safest or most effective and highlights the need for clear regulation.

Interestingly, prior experience plays a significant role for 37% of individuals. Having previously taken vitamins, many rely on their past self-medication, assuming that the same product or dosage will yield similar results again. This behavior underscores a common issue in self-medication: the assumption that an effective treatment will continue to work without adjustment. Conversely, the urgency of the health problem is a minor factor for only 2% of respondents. This suggests that self-treatment with vitamins is typically reserved for non-urgent health issues, where individuals feel comfortable addressing

perceived deficiencies without immediate medical intervention. Vitamin intake should be closely monitored by healthcare professionals, including pharmacists and physicians, due to the potential for adverse effects and toxicities associated with excessive or inappropriate vitamin consumption [*Korah M, 2017*].

The research findings revealed that 78% of consumers independently utilized vitamins over the past year. This trend is echoed in a study conducted in Iraq, where participants reported self-administering vitamin D supplements without medical supervision, frequently relying on information obtained online. However, the use of social media as a source of health information may pose significant risks to consumers due to the potential for misinformation. To address these concerns, it is essential that pharmacy employees are well-informed and capable of guiding consumers in the appropriate use of vitamins. They should also educate consumers about the risks associated with inadequate vitamin intake, thereby promoting safer practices in self-medication [*Shanshal A et al., 2023*].

The self-use of bioactive supplements and vitamins by consumers saw a significant rise in 2020 during the COVID-19 pandemic. During this time, television and internet advertisements began promoting certain supplements for protecting against and aiding in the treatment of COVID-19. Notably, sales of vitamin C, vitamin D, and zinc surged within a single week in March 2020 [*Adams K et al., 2020*].

While vitamins are essential for the normal functioning of the body, their improper use can lead to adverse effects, including hypervitaminosis, a condition caused by excessive vitamin intake, which can severely harm various body systems. Hypervitaminosis related to fat-soluble vitamins is particularly concerning, as these vitamins can accumulate in body tissues, potentially leading to severe toxicity. In contrast, the risk associated with water-soluble vitamins is generally lower, as they are more easily excreted and less likely to cause life-threatening conditions [*Roop J, 2018; Grebow J, 2020*].

Ordinary consumers are often unaware of these risks and lack the knowledge to choose the right vitamins for themselves, a task that can be better managed with the guidance of a pharmacist. The survey results revealed that 72% of consumers do not conduct research before using vitamins, increasing the risk of developing hypervitaminosis. This lack of awareness highlights the urgent need for improved education on the safe use of vitamins and the potential consequences of misuse. Assessing consumer knowledge about vitamins and bioactive supplements can help develop more relevant informational tools, raise awareness, and promote better health outcomes [*Karbownik M et al., 2021*].

The observation that a significant majority of the population (93%) purchase vitamins primarily from pharmacies suggests a favorable trend in consumer behavior toward pharmacies, which can be leveraged to manage self-medication effectively. However, many consumers do not inform healthcare providers about their use of vitamins and other bioactive supplements, increasing the risk of adverse drug interactions [*Ronis M et al., 2018; Sirico F et al., 2018*].

Encouraging this behavior through pharmacies can improve public health outcomes by ensuring individuals have access to essential vitamins while minimizing the risks associated with unregulated sources. Overall, these findings underscore the critical role pharmacies play in promoting the safe and informed use of vitamins among the population.

Conclusion

The results of the study indicate that consumers in the Republic of Armenia actively engage in vitamin self-medication and frequently share their personal experiences, contributing to the widespread and rapid adoption of self-medication practice. Most consumers do not undergo necessary tests or screenings before taking vitamins, raising concerns about the potential risks of hypervitaminosis. Given that most vitamin purchases are made through pharmacies, there is an opportunity to regulate vitamin self-medication by involving pharmacy staff in monitoring and managing the self-medication process, leading to a more structured and safer approach for this problem.

To address this issue, it is essential to develop and implement clear and well-designed guidelines for health professionals, particularly pharmacists, regarding the appropriate use and administration of vitamins. Additionally, public information campaigns should be organized to raise awareness among consumers about the potential risks of uncontrolled and unnecessary vitamin use and to promote responsible and safe self-medication practices.

REFERENCES

1. *Adams KK, Baker WL, Sobieraj DM (2020).* Myth Busters: Dietary Supplements and COVID-19. Annals of Pharmacotherapy. 54(8): 820-826 DOI: 10.1177/1060028020928052
2. *Ahmed N, Ejaz S, Raharjo TJ, Manzoor S, Sajjad S (2023).* A survey about self-medication of vitamins among Gadjah Mada chemistry students. Bhubaneswar. India. DOI: 040018.10.1063/5.0111617
3. *Avagyan S, Simonyan M, Zilfyan A, Barseghyan A, Nazaryan L, Raisyan M (2019).* Self-medication and evaluation in case of common cold and cough in Republic of Armenia. The New Armenian Medical Journal Yerevan. 3: 11-20
4. *Barseghyan A, Nazaryan L, Simonyan M (2023).* The impact of age and education on self-medication of common cold and cough – an Armenian experience. Farmacia. 71: DOI: 617-623 10.31925/farmacia.2023.3.21
5. *Dhyani A, Chander V, Singh N (2019).* Overdose risk of vitamins: a review. J Pharm Sci Innov. 8: 91-96 DOI: 10.7897/2277-4572.083133
6. *Grebow J (2020).* Dietary supplement sales skyrocket during coronavirus pande-mic. https://www.nutritionaloutlook.com/article/dietary-supplement-sales-skyrocket-during-coronavirus-pandemic.Published April 1, 2020. Accessed April 2, 2020.
7. *Karbownik MS, Horne R, Paul E, Kowalczyk E, Szemraj J (2021).* Determinants of knowledge about dietary supplements among polish internet users: nationwide cross-sectional study. Journal of Medical Internet Research. 23(4): DOI: 10.2196/25228
8. *Knopf H (2017).* Selbstmedikation mit Vitaminen, Mineralstoffen und Nahrungsergänzungsmitteln in Deutschland: Ergebnisse bundesweiter Gesundheitssurveys. Bundesgesundheitsbl. 60: 268-276 DOI: 10.1007/s00103-016-2500-y
9. *Korah MC, Pv JR, Rajeswari R, Behanan A, Paul EP, Sivakumar T (2017).* adverse effects and side effects on vitamin therapy: a review. Asian J Pharm Clin Res. 10: 19 DOI: 10.22159/ajpcr.2017.v10i5.17014
10. *Korah MC, Pv JR, Rajeswari RA, Behanan A, Paul EP, Sivakumar T (2017).* Adverse effects and side effects on vitamin therapy: A review. Asian Journal of Pharmaceutical and Clinical Research. 10: 19 DOI: 10.22159/ajpcr.2017.v10i5.17014
11. *Moses G (2021).* The safety of commonly used vitamins and minerals. Aust Prescr. 44: 209 DOI: 10.18773/austprescr.2021.060
12. *Nanjundeswaraswamy TS, Divakar S (2021).* Determination of sample size and sampling methods in applied research. Pes. 3: 25-32 1DOI: 0.24874/pes03.01.003
13. *Perlitz H, Mensink GBM, Lage Barbosa C., et al (2019).* Use of vitamin and mineral supplements among adolescents living in Germany-Results from EsKiMo II. Nutrients. 11: 1208 DOI: 10.3390/nu11061208
14. *Ronis MJ, Pedersen KB, Watt J (2018).* Adverse Effects of Nutraceuticals and Dietary Supplements. Annual Review of Pharmacology and Toxicology. Annual Reviews Inc. DOI: 10.1146/annurev-pharmtox-010617-052844.
15. *Roop JK (2018).* Hypervitaminosis - An Emerging Pathological Condition. International Journal of Health Sciences & Research (www.ijhsr.org). 8(10)
16. *Shanshal A, Raghda A, Reema T, Ahmed H (2023).* Frequency of Vitamins and Nutritional Supplements Use among Iraqi People in Baghdad City. 44-49 DOI: 10.54133/ajms.v4i.104
17. *Sirico F, Miressi S, Castaldo C, Spera R, Montagnani S., et al (2018).* Habits and beliefs related to food supplements: Results of a survey among Italian students of different education fields and levels. PLoS ONE, 13(1) DOI: 10.1371/journal.pone.0191424
18. *WHO (2020).* WHO guidelines for the regulatory assessment of medicinal products for use in self-medication. WHO Drug Information. 14(1): 18
19. *Wierzejska RE (2021).* Dietary Supplements – For Whom? The Current State of Knowledge about the Health Effects of Selected Supplement Use. IJERPH. 18: 8897 DOI: 10.3390/ijerph18178897
20. *Ylinen S, Hämeen-Anttila K, Sepponen K, Lindblad AK, Ahonen R (2010).* The use of prescription medicines and self-medication among children—a population-based study in Finland. Pharmacoepidemiology and Drug. 19: 1000-1008 DOI: 10.1002/pds.1963

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