Review Article

UTILIZATION OF DIETARY SUPPLEMENTS AMONG UNIVERSITY STUDENTS: A REVIEW ARTICLE

ABSTRACT

Objective: Young people require a well-balanced diet to fuel their busy bodies, and vitamin deficits or excesses may have long-term health effects. This study seeks to look at the utilization of dietary supplements among university students.

Methods: The reviewed studies adopted a cross-sectional study design. A systematic review was carried out with the aid of online research journals as well as other in-context articles. While conducting this study, the keywords in the search query were directed towards the utilization of dietary supplements among university students.

Results: Health and wellness was the most common reason for utilizing DSs, according to Vidovi'c and colleagues. Students majoring in different sciences use DS for immune system support (39.1%), energy boost (20.1%), muscle development (18.5%), skin health improvement (17.3%), and memory enhancement (14.6%). 23% (n = 32) of Pillay and Pillay's participants used dietary supplements, whereas 77% (n = 107) did not. More women (20.9%; n = 29) than men (2.2%) reported using supplements (p = 0.018). Over 60% of Aina and Ojedokun's participants felt that dietary supplements may substitute food nutrients.

Conclusion: In this research, students used DS often; this may be because most were pursuing the medical sciences. Supplement users report improved memory, attentiveness, and vigor. Dietary supplements may aid students with poor eating habits. Most students' primary care doctors were unaware of their use of nutritional supplements, and many lacked proper information regarding possible harmful effects. Health care practitioners should ask patients about dietary supplements to reduce side effects and drug interactions.

Keywords: Dietary, Supplements, University, Students, Utilization

INTRODUCTION

The exponential growth in popularity of dietary supplements (DSs) has not been halted by the absence of worldwide consensus on what defines DSs and how to categorize them (1). EU law describes DSs as "foodstuffs designed to supplement the normal diet and provide concentrated sources of nutrients or chemicals with physiological effects, which are sold in dosage forms" (such as capsules, pills, sachets of powder, and liquids). DSs fall under the category of "foodstuffs designed to supplement the normal diet and provide concentrated sources of nutrients or chemicals with physiological effects" (2). In addition to vitamins and minerals, DSs may also include amino acids, essential fatty acids, fiber, and certain bioactive compounds derived from plants and other natural sources. These components may be present on their own or in conjunction with vitamins and minerals.

You may get nutritional supplements in more places than ever before, including in-person at supermarkets and locations that are part of major discount chain stores, through mail order catalogues, television, and the internet, and even via television. The vast majority of dietary supplements may be purchased without the need for a prescription; however, there are a few products, such as prenatal vitamin and mineral combinations, that do need one (3). They are used for a variety of functions, including but not limited to those of nutritional supplements, illness preventatives, infection remedies, fever reducers, wound healers, and disease treatments (4).

A diet that is deficient in or excessive in any one nutrient may have adverse effects on health, and the only way for children and teenagers to keep up with the rigorous requirements of physical growth is to consume a diet that is complete in all of its components (5). Because of the choices they make in how they spend their life, a significant number of young people suffer from malnutrition. For example, smoking may deplete the body's supply of vitamins and minerals. Intake of DS has been found to have various health benefits; however, the extent of these advantages has not yet been conclusively demonstrated (6). Because of their widespread availability and the fact that patients may self-administer them, there are rising concerns over the efficacy and safety of DSs among the general community as well as particular demographics (7).

An excessive use of vitamins, minerals, and other bioactive substances, the intentional addition of illegal drugs, biological and chemical contaminants, and drug interactions are all factors that might lead to unpleasant responses (8).

Many individuals, including pregnant women, children under the age of 18, health professionals, people who go to the gym, elderly people, and college students, utilize dietary supplements. Students often turn to supplemental nourishment in an effort to boost their academic performance at school (9).

The number of students who use nutritional supplements is much higher among those who are studying for health-related or medical degrees (10). University students take dietary supplements for a variety of reasons, some of which are recommended by their personal physicians. These include the following: to improve their health and immunological status; to supplement their current diet; to raise their energy levels; to assist in the reduction of body fat; to construct stronger muscles; and to promote general health (11). According to a number of studies, students who continue their education with a focus on nutrition-related coursework have a deeper understanding of the subject over time (12).

However, it is not obvious whether or whether they were inspired to start using supplements as a result of their newly acquired knowledge of nutrition. Later on in their academic careers, students who have majored in dietetics or nutrition are more likely to make use of dietary supplements (12). It is widely held that students majoring in dietetics, for instance, are more likely than students majoring in other subjects to make use of nutritional supplements in order to improve their health, levels of energy, and academic performance. This study looks at the utilization of dietary supplements among university students.

METHODS

The reviewed studies adopted a cross-sectional study design. A systematic review was carried out with the aid of online research journal websites as well as other in-context articles. While conducting this study, the key words in the search query were directed towards the utilization of dietary supplements among university students. Areas noted in relation to this study was the use of dietary supplements among university students. In addition, the researcher emphasize that action research is extremely valuable in gaining insights about managerial sense-making, sense-giving and the impact on decision-making in the midst of change interventions. The researchers collected data using Interviews and questionnaire techniques. The research methodology is

appropriate and makes absolute sense because there were evident problems hindering the use of dietary supplements among university students.

RESULTS

Dietary Supplement Usage among University Students

Based on their findings, Vidovi'c and colleagues conclude that the most common motivation for using DSs is to maintain health and happiness. A large percentage of those who don't use DSs say that they don't see the point in doing so since they think they're unnecessary. Many different supposed positive health effects were reported by students who utilized them. Students majoring in different branches of science do not significantly vary in the prevalence of DS use for immune system support (39.1%), energy enhancement (20.1%), muscle development (18.5%), skin health improvement (17.3%), or memory improvement (14.6%). It's estimated that the chance of these products being used by students in fields other than the medical sciences is between 48% and 75% lower than it is by medical students.

Finally, compared to students who eat consistently, those who eat sporadically or seldom regularly are 36% less likely to use DS. The most common DSs were vitamins and minerals, either individually or in combination. Probiotics, proteins/amino acids, fish oils, and herbal supplements followed in popularity. Most people's diets included a sufficient amount of vitamin C, the B-complex, magnesium, and zinc. No discernible trends in DS adoption could be seen across disciplines. The average number of gadgets utilized by students was 1.30 (SD = 1.30, range = 1-4). (13).

Only 23% (n = 32) of those surveyed by Pillay and Pillay reported actually using dietary supplements, whereas 77% (n = 107). In contrast, just 2.2% of men (n = 3) reported using supplements, whereas 20.9% of women (n = 29) did (p = 0.018). It was shown that students who lived at home were more likely to consume supplements (46.9%; n = 15) (p = 0.008).

Sixty-two percent of the participants (n = 20) said they took nutritional supplements to strengthen their immune system, 56% took them to feel more energized, and 50% took them to feel healthier overall. Cost (32.7%; n = 35), an adequate diet (22.4%; n = 24), and not being necessary or a waste of money were all significantly correlated with not using dietary supplements (p 0.05). Moreover, 53.3% of supplement users claimed enhanced memory or attention, 53.3% reported enhanced vitality, and 73.3% indicated enhanced physical health generally as a consequence of supplement use.

Half of individuals who tried it felt they were better equipped to resist illness or recover faster thereafter (14).

More than 60% of students in Aina and Ojedokun's study speculated that dietary supplements may be used to replace the nutrients obtained through meals. Almost half of those surveyed (48.5%) agree that dietary supplements are crucial to their daily lives, while 13% disagree and 18% are unsure. Only around one-fifth (16%) of those polled thought dietary supplements were harmful, while over one-third (35%) said there were no negative effects and almost half (48%) were unclear.

Half of today's pupils use nutritional supplements annually, and over eighty-six percent have done so at some time in their life. Almost 84% of respondents agreed that dietary supplements should be widely publicized. Many of these students used nutritional supplements, the most common of which were multivitamins, vitamins C and A, B12, and the B complex. In comparison to other ingredients, vitamin C was used the most often. Students cited improving health as their primary motivation for purchasing these items (58%), followed by dietary enhancement (35%), immune system support (34%), weight gain (26%), energy boost (36%) and adherence to a doctor's prescription (16%).

Just under half of the students surveyed said that their primary care doctors had no idea they were using dietary supplements. The most prevalent answer was that people did not think it was necessary to discuss dietary supplements with their doctor. 10% of students surveyed reported becoming unwell after using nutritional supplements. Of those who reported negative effects, roughly a third did so because of bulimia; another third reported gastrointestinal symptoms like nausea, vomiting, diarrhea, or constipation; another 21.4% reported central nervous system symptoms like headache or dizziness; and 7.1% reported having black stools. (10).

DISCUSSION

The worldwide increase in consumption of DS may be reflected in the observed variances in the prevalence of DS usage across various studies, as discovered by Vidovi'c and colleagues. These factors could include variations in the demographic, socioeconomic, educational, and lifestyle characteristics of the participants, as well as variations in the design of the research (15). El Khoury and his partners hypothesized that cross-national discrepancies in the frequency of DS use among students were driven by underreporting of supplements, existing educational initiatives targeted on

students, and variances in eating habits (16). According to the findings, there are other factors that may be used to predict whether or not a person would use DS, including their gender, the subject of study they choose, and the dietary habits they maintain. This conclusion is consistent with data from earlier research conducted on the general public and student population of Serbia, which found that women were more likely to use DSs than males (17, 18). In the same spirit as this, a research that was carried out in Portugal found that female students consumed more DSs than their male counterparts did. The findings of the UAE research showed the exact reverse, namely that male students were more likely than female students to use DSs (19, 20). On the other hand, several studies have not shown any substantial variations in the use of DS between the sexes (21, 22). Students who were studying health-related disciplines made far more frequent use of DS than students who were researching other courses. This conclusion is in line with the findings of earlier research, which revealed that the prevalence of DS use among medical students was much greater than that of students in the general student population (22, 23).

A research with many variables found that the students' eating patterns are the only lifestyle component that may accurately predict their use of DS. To be more specific, pupils who were often disrupted in the middle of their meals had a lower likelihood of using a DS. The responses of the majority of people who participated in the study indicated that they use DSs to enhance their health. It has been shown by Bailey and his colleagues that the consumers of DS are more concerned with maintaining their overall health as opposed to addressing any one specific nutritional shortfall (24). Our findings contribute to the ever-expanding body of evidence that suggests that the use of DS is connected with the adoption of healthier lifestyle choices (25).

This research came to a conclusion that was quite similar to that of a survey that was conducted throughout the whole of Serbia with adults: the most popular DSs among students were nutritional supplements such vitamins and minerals. This result is in line with the findings of prior research which showed that the most common DSs purchased by students are multivitamins, vitamin/mineral combinations, and multivitamins/multiminerals (18, 20).

In addition, we discovered that single vitamins and minerals, as well as multivitamin or multimineral DSs alone, were more popular than multivitamin-mineral combinations. These findings are consistent with the findings of a previous study that Kobayashi and colleagues conducted among Japanese university students (22).

According to the findings of this survey, the most common nutrients that individuals consume are vitamin C, B vitamins, magnesium, and zinc. Students made the most frequent use of these specific types of DSs, and this use was connected with the most generally expected advantages, as shown by proven health claims (26).

Probiotics were the second most common dietary supplement after vitamins and minerals, followed by protein and amino acids, and then fish oils to round out the top three. It was discovered that students majoring in the medical, scientific, and social sciences had increased their use of probiotics; however, this trend did not achieve statistical significance. This may suggest that children who have a formal education are better able to learn about the positive effects that probiotics have on their health (27). There is a certain degree of congruence between the use rates ranging from 7.3% to 17% that were seen in past research and the utilization rate that was discovered among students for protein/amino acid supplements, which was 8.2%. (22).

Supplementation with omega-3 fatty acids may help relieve some of the anxious sensations experienced by young, healthy individuals who have not been diagnosed with an anxiety condition. This finding lends support to the concept that the use of fish oil DSs is a helpful practice (28). Even though DS has had a generally positive reputation about its safety, there is always the potential for unfavorable outcomes if it is used without a physician's supervision (29).

The students who were most unconcerned about the dangers presented by DS were those who were thinking about pursuing jobs in the medical field. On the other hand, DSs may be associated to public health problems due to the presence of active compounds as well as intentional or inadvertent contamination (30). More than half of the trips to the emergency room that were caused by DS were due to adverse events such as weight loss and energy boosting DSs, more especially cardiac symptoms (palpitations, chest discomfort, or tachycardia). This was the case in the younger group (31). There has been a link established between the usage of muscle-building supplements and gastrointestinal issues such as nausea, vomiting, and abdominal discomfort (16). The percentage of students who have had negative affects is the same in both this research and the study that was performed on students in Serbia [30]; nevertheless, it is smaller in this country than it is in numerous other nations (32). According to the findings of this research, students, and particularly those students who are interested in pursuing professions in the medical sciences, would benefit from receiving more information on DSs.

Only 23% of those who took part in the research by Pillay and Pillay said that they used dietary supplements, and of those people, 65.6% said that they did so every day. The majority of people used nutritional supplements in order to improve the function of their immune systems and experience increased levels of vitality. The vast majority of persons who used dietary supplements did so in order to get their nutrients from multivitamins. Eighty percent of supplement consumers reported purchasing their tablets from pharmacies at monthly costs ranging from one hundred and fifty rand (R151) to five hundred rand (R500). One piece of study found that those who took multivitamins for a period of one month saw significant improvements in their general health, cognitive function, and energy.

It's also noteworthy to note that just 23 percent of the students, or 32 out of 107, acknowledged to taking nutritional supplements, while the other 76.9 percent said they weren't using any. According to these statistics, the number of people in this group who use supplements seems to be rather low. Suleiman and his colleagues demonstrated that the proportion of Jordanian students who make use of nutritional supplements is quite low across all academic disciplines (33). The purported advantages that taking supplements would have on one's immune system, level of energy, overall well-being, and mental clarity were the explanations that were provided the most often. As a consequence of this, it would seem that students put a high value on their health and make an effort to improve it so that they may perform more effectively in the classroom. The findings presented here are supported by research that was carried out using the same or very comparable rationales (34).

There was a statistically significant gender discrepancy in the usage of nutritional supplements, with more females than males doing so. The majority of those who used nutritional supplements were women. Previous research also indicated that women had a higher propensity to consume dietary supplements including vitamins and minerals (35, 36). There is some evidence to indicate that women may be more health concerned than men, which may explain why they are more prone to consume dietary supplements than males. [Citation needed] The kids who lived in their own homes had the greatest consumption of supplemental vitamins and minerals. It's possible that this might be explained by the fact that the supplements were often bought by parents for their offspring. According to the results of the survey, students in their fourth year had the highest rate of use of nutritional supplements of any other year group. This conclusion is compatible with the findings of Van der Kruk and colleagues since they

found that senior dietetics students were more likely to use dietary supplements than their freshman counterparts; hence, this study confirms their findings (12).

This might be because upperclassmen, in comparison to their younger peers, have a more developed understanding of the positive effects that nutritional supplements can have on one's health. It is possible to make a different choice now that we have more knowledge. In addition, it's possible that older students have come to their own conclusions about the need of nutritional supplements after having direct experience with the inefficacy of other methods of treatment. According to the findings of this recent survey, a multivitamin and mineral supplement was employed by 84.4% of supplement users. This was followed by 18.8% of supplement users who only took mineral supplements, and 15.6% of supplement users who just took vitamin supplements. (37).

The results of this research showed that almost three quarters of those who took supplements reported feeling better as a direct result of their supplement use. Memory and attention were also enhanced in addition to the enhancement of one's vitality.

In addition, fifty percent of those who took supplements reported an increase in their resistance to illness or a faster recovery after being sick. Additionally, 49% of nursing students and 21% of pharmacy students said that they found their supplement to be effective. (Kostka-Rokosz et al) (37). If students are made aware of the beneficial health effects that are associated with the use of dietary supplements, it is possible that they will be more eager to utilize the supplements on a consistent basis.

According to the findings of the study conducted by Aina and Ojedokun, the great majority of students were familiar with nutritional supplements, with education acting as the most common source of knowledge about these products. It is possible that there was not a statistically significant difference in the number of students who had heard of dietary supplements given that the majority of students learnt about nutritional supplements in class and the majority of students' training courses had an emphasis on medical topics (10).

Over two thirds of students believe that dietary supplements may be used to replace the natural nutrients that are present in food. This indicates that there is a knowledge gap, since supplements are designed to complement the nutrients that are found in food, not replace them. Although there were some students who didn't think they were significant, over half of those who were polled thought they were. These individuals are representative of the kind that often eats a diet that is heavy in processed foods but

is likely deficient in a number of important nutrients. As a result of this, it may be beneficial for people to take a nutritional supplement. It is important to note that students studying pharmacy make up the smallest percentage of people who use supplements, and that there is a statistically significant difference between students studying in different departments in terms of whether or not they report taking supplements as a replacement. It's possible to explain why nutritional supplements are so closely associated with medications, which are the core emphasis of pharmacy school (10).

The fact that just roughly 14% of students believe that consuming dietary supplements might result in negative consequences demonstrates that there is a severe deficiency in terms of information that is accurate and comprehensive about these items (4). Because of the fact that over half of the students reported taking nutritional supplements during the previous year, it was only natural that this be a topic of discussion in the classroom. The vast majority of these students admitted to taking a nutritional supplement of some kind, with vitamin C, multivitamins, vitamins A and B12, and the B complex being the most often reported supplements. These vitamin supplements have been the focus of some recent studies (38, 39). According to the results of this survey, vitamin C was the supplement that was used the most often, followed by multivitamins and then other supplements. These findings are in contrast to the conclusions of previous research, which revealed that multivitamins were the most popular supplement (40). It is possible that the use of vitamin supplements will rise since students have easier access to vitamin supplements than they do to herbal or other types of supplements.

Similar findings have been found in other research, which reveals that the vast majority of students who have used nutritional supplements in the past year have done so infrequently or not at all, whereas a smaller percentage of students have used them frequently. This finding is consistent with what has been found in previous research (41, 42). The majority of these students (58.9%) stated that they were doing it for reasons related to their health, followed by reasons related to nutrition (35%) and immunity (34.3%), followed by reasons related to increased energy levels (26.8%), weight gain (26.1%), and adherence to the orders of a physician (16.4%). (43, 44). According to the findings of Dickson's research, people are aware of the nutritional deficit and the impacts of unhealthy eating habits that they experience, and they are willing to make additional efforts to maintain their health and rectify any nutritional

deficiency or unhealthy eating habits that they may have (45). It's possible that the low frequency of adverse drug interactions between nutritional supplements and prescription or over-the-counter medications is to blame for the fact that just 10% of students have reported feeling unfavorable side effects. A little less than half of people who take supplements say that their primary care physicians are unaware that they do so. Before prescribing or providing patients with medications, doctors, pharmacists, and other health care professionals who are involved in the process of dispensing medications to patients should always ask patients about the use of any dietary supplements because the most common response was that patients did not want their doctor to know they were taking supplements (10).

Bulimia, nausea, vomiting, diarrhea, constipation, headache, dizziness, and black feces were some of the symptoms described by students who had adverse reactions to nutritional supplements. The majority of those who used these supplements reported experiencing the same negative side effects. The use of dietary supplements has been associated with a wide range of unfavorable results (10).

CONCLUSION

It is possible that the high frequency of DS usage among these students might be explained by the fact that the majority of them are majoring in health-related fields as part of this research. Students studying for careers in the medical industry make up a disproportionately large number of DS users. The majority of the students were female, and no one seemed to be overweight; in addition, nobody appeared to smoke or eat irregularly. According to the findings of this research, the use of DS among students was related to gender, eating habits, and academic major.

Although the great majority of students in each and every demographic group utilized at least one kind of DS, the frequency with which students in various areas of study made use of DS varied significantly. Students in various fields of study had a wide range of perspectives about the advantages of using nutritional supplements, the most popular locations to purchase them, and the most trustworthy sources of information on these products. Those who majored in the health sciences reported having a better degree of knowledge, in comparison to students who majored in other subjects.

Because the next generation of medical professionals has to be instructed on how to correctly and safely take dietary supplements, the subject matter should be included in the curriculum for medical science and in programs that provide continuing education.

Because of the widespread use of DSs among students majoring in the social sciences and humanities as well as the influence of the media and the internet, both of which have a reputation for being unreliable sources of information, it is abundantly clear that the regulations governing the marketing of DSs need to be tightened.

Students who are exposed to and interested in nutrition are not more likely to utilize dietary supplements, contrary to what one would anticipate based on their level of interest in the subject. The multivitamin, which is a mix of several vitamins and minerals, was the nutritional supplement that was utilized the most often. Those who are able to pay for them, on the other hand, report improvements in their health, feeling of energy, and overall sense of well-being.

Consumers of nutritional supplements have reported experiencing psychological and physiological advantages, such as enhanced cognition and increased energy levels. Unfortunately, owing to their sometimes unhealthy eating habits and low financial resources, students may benefit from taking nutritional supplements. Additionally, students want trustworthy sites to learn about dietary supplements in order to prevent taking an excessive amount of these products.

The vast majority of pupils are familiar with dietary supplements. The vast majority of students have, at some point, experimented with dietary supplements, although only around half of them have done so in the most recent year. The vast majority of them only used it occasionally when necessary. Many of the students' primary care physicians were unaware that their patients were using nutritional supplements, and the majority of those who were aware were not fully aware of the dangers that were linked with the supplements. Asking patients about any nutritional supplements they may be taking is something physicians should do in order to provide better treatment and reduce the likelihood of patients having negative responses to medications.

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