

ACADEMIC BURDEN AND BEHAVIORAL ADAPTIONS : A STUDY OF DIETARY AND STIMULANT USE AMONG MEDICAL STUDENTS

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Abstract

For many years, medicine has been considered one of the most challenging academic disciplines. Maintaining both academic success and personal well-being is made extremely difficult by the demanding curriculum, extended study sessions, ongoing clinical exposure, and regular patient interactions. Prior studies have repeatedly shown that medical students high levels of stress, sleep deprivation, and burnout are caused by the demanding nature of medical training.

In order to investigate this association, the current study surveyed 162 students about their lifestyle choices and how these behaviors changed during times of high and low academic stress in various academic years.

The purpose of the study was to investigate how academic pressures affects students; coping mechanisms and physical and mental health. Students are frequently expected to constantly perform at a high level despite ongoing stress and exhaustion

due to the precision and responsibility required in medical practice. Despite the known negative consequences of stimulants, the study also took into account students; use of them as a possible way to improve cognitive performance.

Keywords: Medicine, academic burden, medical students, student wellbeing, behavioral adaptations

Introduction:

Medicine has been known through times as one of the, if not the most difficult study majors. Between the extensive curriculum, prolonged study hours, continuous clinical exposure, and the contact with patients every day, it is widely understood that the relationship between maintaining a good academic life and a healthy one is a tough sport. It is not hard to find in other research papers similar to ours, that due to medical training being academically and physically demanding, students experience sleep deprivation, stress and burn-out (Dyrbye et al., 2006; Frajerma et al., 2019). To asses this specific relationship we have decided to survey a number of 162 students on their lifestyle choices, and differences one may find in periods of high and low levels of stress across academic years.

Because of the precise nature of medicine, one that does not allow mistakes, it is almost impossible to be able to perform at your potential each and every day, taking into consideration too the burn-out that chronic stress can cause. Therefore we found it important to add to the study the possibility of students using stimulants as a way to enhance their cognitive performance even with the known side affects.

Behavioural changes

From the problem mentioned above, from which our research paper is centered we have decided to find and highlight the differences in 5 main aspects of their lifestyle :

Dietary Behaviours

Sleep

Energy Drink, Caffeine / Supplement Use

Physical Activity

Nicotine Use

Dietary changes

Because of the long hours of studying, many students as you will see later in the paper find it easier to eat less healthier as a faster option compared to cooking healthy food. Long study hours and limited time for meal preparation often encourage the consumption of fast food, high-calorie snacks, and nutritionally inadequate meals (Almojali et al., 2017; Fares et al., 2016). In addition, many students reported to skipping at least one meal or relying on convenience foods during examination periods. In many cases students have decided on the usage of high caloric snacks just to get a few more hours of studying (Mikolajczyk et al., 2009).

Sleep

As of sleep, it is not surprising to find that a high number of medical students choose to sacrifice a good number of hours of sleep everyday in order to keep their high academic performance, despite evidence demonstrating the negative effects of poor sleep quality on cognitive performance and mental health (Almojali et al., 2017).

Nicotine use

Nicotine products use among medical students unfortunately presents an important paradox: future healthcare professionals using a substance whose harms they are trained to counsel patients against. The relationship between nicotine use and academic stress is well established (Kinnunen et al., 2016). Substance use, especially tobacco is recognized as a maladaptive coping mechanism for psychological distress. Although in this study as you will see later not a high number of students reporting to using nicotine products, all those who did use them reported to using them as a way of relieving stress.

Energy Drinks/ Supplement Use

The use of stimulants was a shocking find because interestingly enough not a high number of students voted to using energy drink or stimulants to enhance their cognitive performance. Those who did use them, reported to using energy drinks no more than 1-2 times a week and as of taking supplements, the supplement with the highest number of votes between creatine, ashwagandha, omega-3 and Vitamin B Complex was the latter.

Vitamin B being the highest used supplement is actually seen in many other studies such as 'Aoki S, Endo T, Hasegawa H, Nakaji S, Sugawara K, Totsuka M. [Dietary patterns and intake of

nutrients, energy, and dietary fiber in medical students]. *Nihon Kosho Eisei Zasshi*. 1996 Aug;43(8):632-43, which specifically states "The nutrients that showed a higher intake in males than in females were energy, protein, fat, carbohydrates, and vitamins B1 and B2".

Concerning to this finding was that a number of students voted to experiencing common side effects such as : tachicardia, anxiety, panic attacks, insomnia, and abdominal irritation after using caffeine or energy drinks (Richards & Smith, 2016).

Physical Activity

Even though physical activity is consistently identified as a protective factor against burnout, depression and anxiety in medical students (Warburton & Bredin, 2017), during this study we found that almost none choose physical activity as a coping mechanism to the high stress.

Unfortunately from all domains physical activity seemed to be the first domain students seem to change/decrease (Fares et al., 2016).

Methodology

In order to support our hypothesis that academic burden significantly influences dietary behaviors and stimulant use among medical students, we conducted a cross-sectional observational study among medical students using an anonymous questionnaire-based survey. The survey was written in Albanian and covered these main domains:

Demographics

Academic Burden

Dietary Behaviour

Nicotine Use

Caffeine/ Energy Drink Use

Supplement Use

Physical Activity

The number of participants was 162 students from the first to sixth academic year at "University of Tetovo".

Results

Demographics:

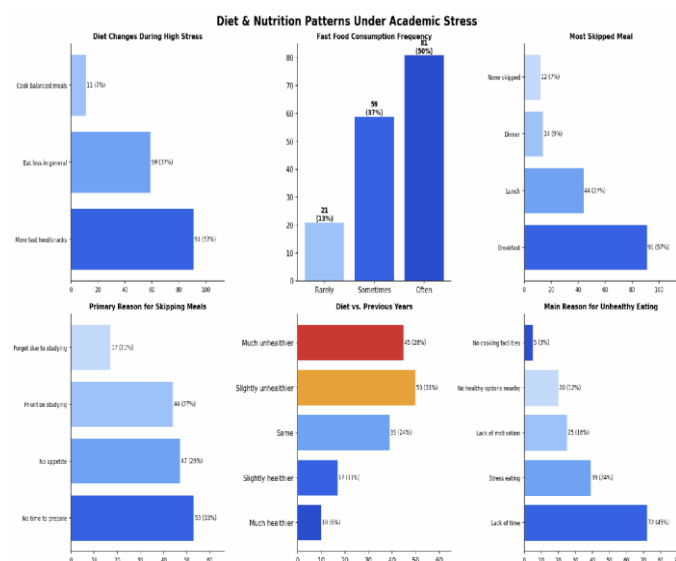
The sample was predominantly female with a total of 76.2% compared to male respondents with only 23.6%. The majority of the respondents were aged 21-23 years (57.8%) which corresponds to them representing mostly Years 2 and 3 of the academic years, followed by 18-20 years with 26.7% and the lowest percentage covering age 24-26 years with 14.3%.

As of the academic status, 63.4% were reported as regular students, 32.9% are repeating one or more subjects and only 3.7% were in their final year of studies.

Academic Burden and Stress

As expected academic stress was rated highly in all questions related to it in the survey. 41.0% of the students selected a rating of 4 as 'Highly Stressful', 39.8% selected a rating of 5 'Extremely Stressful', and 18.6% selected a rating of 3 as 'Moderately Stressful', with no students selecting a rating of 1, and only 1 student or 0.6% rated medicine as a 2 'low stress'. Related to the percentages above, 85.1% reported to feeling overwhelmed by academic responsibilities with 72.7% of students reporting an extreme increase in workload during exams.

Sleep Sacrifice was the most highlighted behaviour with a number of 76.4% students. As of the number of hours students study daily, 51.6% reported to studying 3-4 hours per day and 34.8% reported to studying five or more hours daily. This also points to 86.4% working extra hours on top of their regular classes.



Dietary Behavior

Dietary Behaviour based on the samples we got from the survey tended to lean towards unhealthy patterns. The most common pattern was the increased consumption of fast foods and snacks with a reported 56.5% followed by a 36.6% of students who reported eating less in general with breakfast being the most frequently skipped meal with a total of 56.5% followed by lunch 27.3%. Only 7.5% of students reported to never skipping a meal.

As of the reason for skipping meals whether it be breakfast or lunch, 32.9% of students reported it being the lack of time to prepare food, 29.2% experiencing loss of appetite during periods of high stress and 27.3% choosing studying a few more hours over eating. 10.6% also reported to forgetting because of studying.

We decided to also test if whether or not these dietary behaviour changes got worse or better during academic years. 59.0% rated their diet as worse, this percentage was a combination of students who reported to their diet being slightly unhealthier 31.1% and 28.0% much unhealthier.

A percentage of 24.2% of students reported to perceiving no change and only 16.8% reported improvement in their diet.

Because of these dietary changes a total of 65.2% of students reported to experiencing reduced concentration and energy while 71.4% admitted to feeling a brief energy boost followed by fatigue when using high-sugar foods mostly during exams.

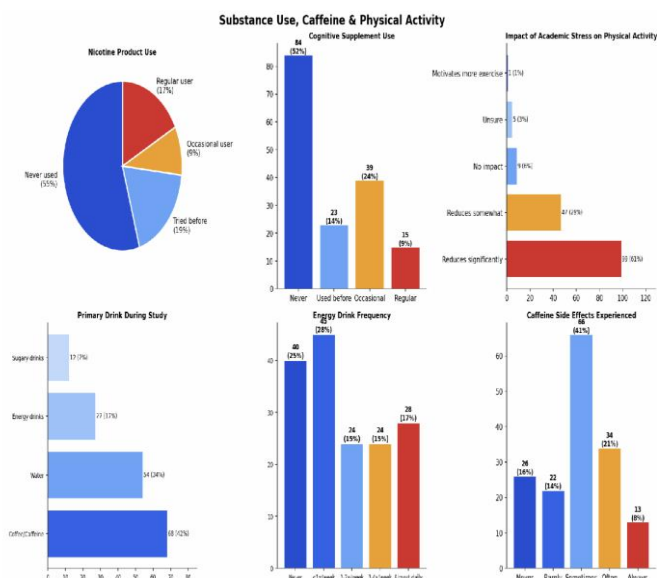
Caffeine/ Energy Drink and supplement use

During study sessions and periods of high stress caffeine-containing beverages were the most used drinks reported so by 42.2% of students, 33.5% reported to using water and only 16.8% reported to using energy drinks.

Overall, the usage of energy drinks was pretty low with only 17.4% of students reporting to using them nearly daily and 14.9% consumed them 3-4 times per week.

The reason for using energy drinks was predominantly for staying awake as reported by 44.1%, followed by improving concentration by 15.5% which correlated to 50.3% of students reporting neutral when asked if caffeine improved their academic performance, and reducing fatigue for only 8.1% of students.

Unfortunately, from the students who consumed such drink, caffeine side effects were commonly experienced with a total of 29.2% of students reporting feeling them often/always and only 16.1% having never experienced them.



Nicotine Use

The reason to using nicotine as a part of this survey was because of the wide known fact as seen in many studies nicotine usage is mainly used as means to relief stress. Interestingly enough 54.7% of students reported to never having used nicotine products while 26.7% were current users and 18.6% of students having tried nicotine in the past but not longer used it. It is important to cite that from the total number of students who admitted to used nicotine 74.5% reported that their usage was partially linked to academic stress by 51.6% and strongly linked by 33.9%.

Physical Activity

During this survey we recognized that academic stress has a profound effect on physical activity with 61.5% of students reporting a significant decrease in physical activity and 29.2% reported only a small decrease. None the less, combined 90.7% reported to a exercise reduction. Only one student reported to feeling more motivated by stress to practice physical activity more .

Contradictory is the fact that 64.6% of students rated physical activity as important for their mental well being, a percentage that reveals a substantial gap between what students believe in and their behavior .

Supplement Use

It is not rarely cited that a number of people use different supplements in order to enhance their performance. We decided to test this citation in medical students whos academic performance has to be in an all time high. Only 33.5% of students reported to currently using cognitive supplements and 14.3% reported to having used them in the past .

As mentioned in the introduction Vitamin B takes the lead as the most used supplement reported by 32 students, Omega-3 by 16 students, Creatine and Aschawaganda 9 students .

Conclusion

The findings of the study demonstrate that academic burden significantly influences the lifestyle behaviours of medical students. High levels of perceived stress and academic workload were consistently associated with disrupted sleep patterns, irregular dietary habits, reduced physical activity, and increased reliance on stimulants such as caffeine and energy drinks.

Putting this aside the study also revealed an important discrepancy between students awareness of healthy behaviours and their ability to maintain them under academic pressure. While most respondents recognized the importance of physical activity and balanced nutrition for mental and physical well-being, academic stress frequently interfered with the maintenance of these habits.

Overall, the results suggest that academic stress in medical education extends beyond psychological strain and contributes to broader behavioral and lifestyle adaptations that may negatively affect student health and long-term well-being.

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