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Impact of Caffeine Consumption on Stress Management and Stamina Among University Students

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Abstract
The most widely consumed psychoactive substance in the world, caffeine is a methylxanthine class stimulant that stimulates the central nervous system (CNS). It is primarily utilized for its nootropic (improving cognitive function), ergogenic (improving physical performance), and eugeroic (promoting wakefulness) qualities. By preventing adenosine from binding to various adenosine receptor types, caffeine inhibits the centrally depressant effects of adenosine and increases acetylcholine release. Because of its three-dimensional structure, which is comparable to adenosine's, caffeine can bind to and block receptors. In addition, caffeine stimulates the release of calcium from intracellular stores, antagonizes GABA receptors, and raises cyclic AMP levels through nonselective inhibition of phosphodiesterase; however, these effects usually arise at concentrations higher than those normally encountered in human consumption.
Caffeine also helps us to relieve stress. Many people like it. It is a neuro-stimulator. According to some researches, it has been proved that it also helps in weight loss if a person is physically active. Research indicates that college students may drink more coffee to help them deal with the pressures and stress of their studies. In the present study majority of college students clearly drink caffeine. Furthermore, this study also discovers that college students who drink caffeine appear to be taking less than 400 mg daily, which is the safe daily limit for the majority of healthy adults. Lastly, this study discovers caffeine consumption during stress increased dramatically, indicating that students might be drinking more than is advised during stressful times. In fact maximum students feel increased stamina after the consumption of caffeine.

Keywords: stress, caffeine, university students, consumption.

Introduction

Students may experience stress from classes, homework, projects, quizzes, exams, jobs, and extracurricular activities during their time in college. College students may use stimulants like caffeine to help them deal with this stress and meet the demands of their classes. According to Fulgoni, Keast, and Lieberman (2015), caffeine is a stimulant that affects the central nervous system and may help with memory and alertness. Caffeine may be sought after by students who need to stay up late studying, finishing homework, staying awake in class, or working. They use caffeine as a study aid when under stress because of their beliefs about the drug (McIlvain, Noland, and Bickel, 2011). However, it is unknown if caffeine is improving students' academic performance. In the present study maximum population have been agreed with the increased in stamina temporarily. In fact, when they feel lethargic, they go for caffeine consumption whether in the form of coffee or tea.

Problem

There is ample and reliable evidence that coffee consumption in healthy adults who drink three to five cups per day, or up to 400 mg of caffeine per day, is not linked to an increased risk of major chronic diseases (USDA, 2015). Nonetheless, a number of studies have revealed that college students generally consume more caffeine than is advised. Caffeine intoxication can result from consuming too much caffeine. According to McIlvain et al. (2011), restlessness, anxiety, sleep disturbances, and a fast or irregular heartbeat are signs of caffeine intoxication. Negative health consequences can also result from stress; correlations between psychological stress and depression, heart disease, and HIV/AIDS have been demonstrated (Cohen, Janiki-Deverts, and Miller, 2007). Furthermore, fresh research is showing how stress impairs wound healing, viral infections, autoimmune diseases, and respiratory ailments. (Et al., Cohen, 2007). To ascertain whether college students' caffeine use is advantageous or detrimental to their stress levels and academic achievement, a deeper

comprehension of their habits is required. Students should be given information about caffeine and tools to help them manage stress because there may be harmful health effects linked to both excessive caffeine consumption and stress.

Objectives

- The aim of this study was to evaluate the degree of stress and amount of caffeine consumed by university students attending a large public institution.
- In this study, coffee consumption and felt stress were compared at the start of the semester and again throughout the midterm exam period.
- And comparison between their perceived stress levels and caffeinated drinks use.

Justification

Many college students view their time there as stressful, and as a coping mechanism, many resort to coffee. Furthermore, a large body of evidence indicates that most college students regularly drink caffeine. Further research on college students' stress levels and caffeine usage is necessary due to the possible detrimental health effects of both stress and caffeine. There is a lack of knowledge on the connection between coffee use and stress levels and how they affect academic achievement, as evidenced by contradicting findings. Additionally, not much research has been done in the India on college students. The results of this survey should contribute to a better understanding of the patterns of caffeine use among college students in the India and whether or not this consumption affects stress levels and academic performance.

Material & Methods

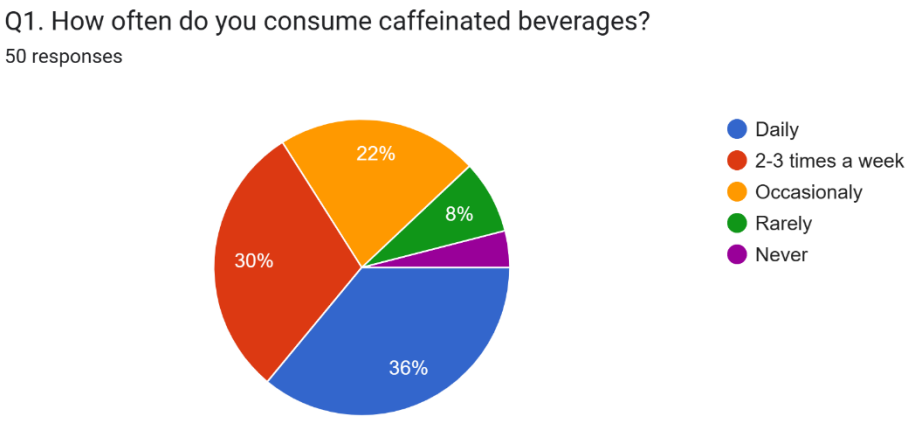
The University in India from Department of Nutrition & Dietetics carried out this survey design study. In this survey, online Google forms were circulated to the university children in which many types of questions related to the topic were written. The students had to give their answers according to their own and honestly. These Google forms were sent to everyone through social media. It took only 4 to 5 minutes to fill it and this is the easiest method of collecting data for our research. Data from surveys is analysed in the end. It took us 10-15 days to collect it and the personal information of the students was kept completely confidential. We focused only on the result of the survey so that we could get answers to our research.

Participants

Male and female students of university were used for this study. Courses included students from Dietetics, Human Nutrition, and other medical streams. There were 50 students to whom google forms were sent but only few of them filled it.

Results

A total of 50 students completed the form. Out of the final sample of 50 students, there were 62% females and 38% males surveyed. The students ranged in age from 20-35 years old, with an average age of 20 years.
Total 50 students were asked a series of questions regarding their beliefs about caffeine using a Google forms. 24 Questions asked from the students about their beliefs about caffeine and academic performance. Out of which, important questions and their response data have been selected: -



According to data, the results of the survey indicate varying levels of caffeinated beverage consumption among students. Out of 50 respondents:

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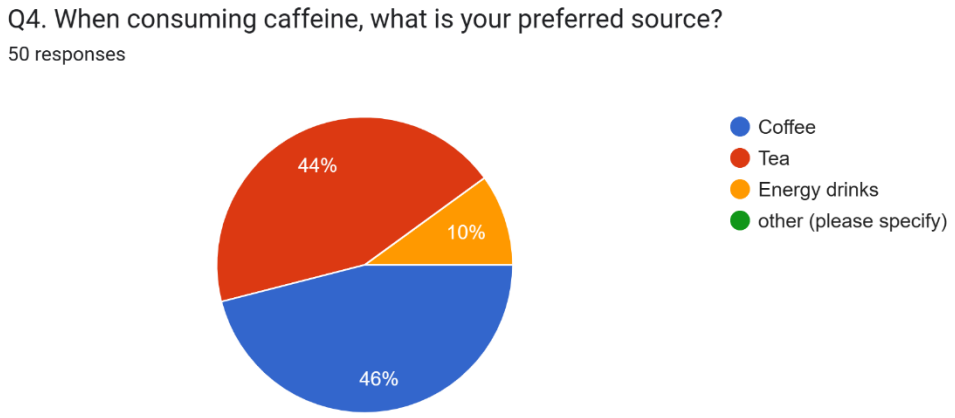
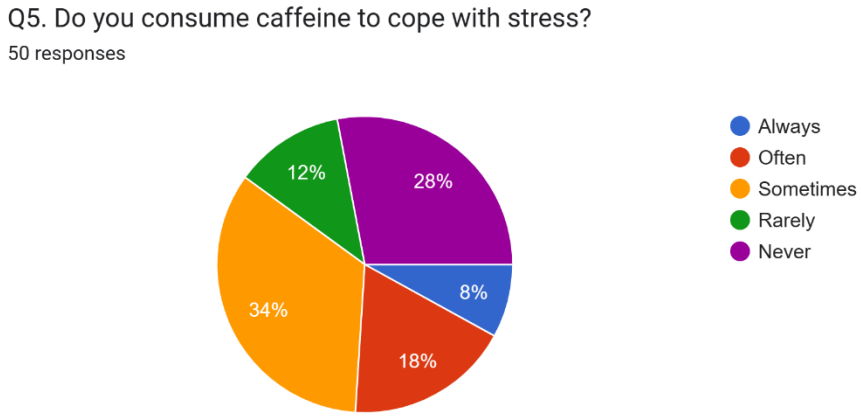
- 38% consume caffeinated beverages daily: This suggests that a significant portion of students relies on caffeine regularly, likely for its stimulating effects, which can help with focus and alertness, especially during demanding academic periods.
- 30% consume them 2-3 times a week: This group represents a substantial number of students who may use caffeine strategically, perhaps during exams or study sessions, reflecting a moderate reliance on these beverages.
- 22% consume occasionally: This indicates that some students might prefer caffeine sporadically, possibly for social occasions or when they feel the need for an energy boost.
- 8% consume rarely: This small percentage may indicate a more health-conscious choice or a lower tolerance for caffeine.
- The remainder never consumes caffeinated beverages: This suggests a minority of students who avoid caffeine altogether, potentially due to personal preferences or health reasons.

Overall, the data shows that a majority of students consume caffeinated beverages at least occasionally, highlighting caffeine's role in student life and its potential influence on their academic performance and daily routines.



According to data, the survey's results reveal the preferred caffeinated beverages among students:
- 46% prefer coffee: This indicates that coffee is the most popular choice, likely due to its strong flavours, variety of preparation methods, and cultural associations with productivity and study habits.
- 44% prefer tea: Close behind coffee, tea's popularity may stem from its wide range of flavours and perceived health benefits, as well as its role as a calming beverage compared to the more stimulating effects of coffee.
- 10% prefer energy drinks: This smaller percentage suggests that while energy drinks have a niche appeal, they are less favoured among students. Concerns about health effects and sugar content may contribute to their lower preference.

Overall, the data shows a strong inclination toward coffee and tea, reflecting their roles in daily routines and study habits, while energy drinks are less commonly chosen.



The survey results show how often students consume caffeine to cope with stress among the 50 respondents:
- 34% Sometimes: The majority of students (17 respondents) consume caffeine occasionally to manage stress.
- 28% Never: 14 students do not consume caffeine at all for stress relief.

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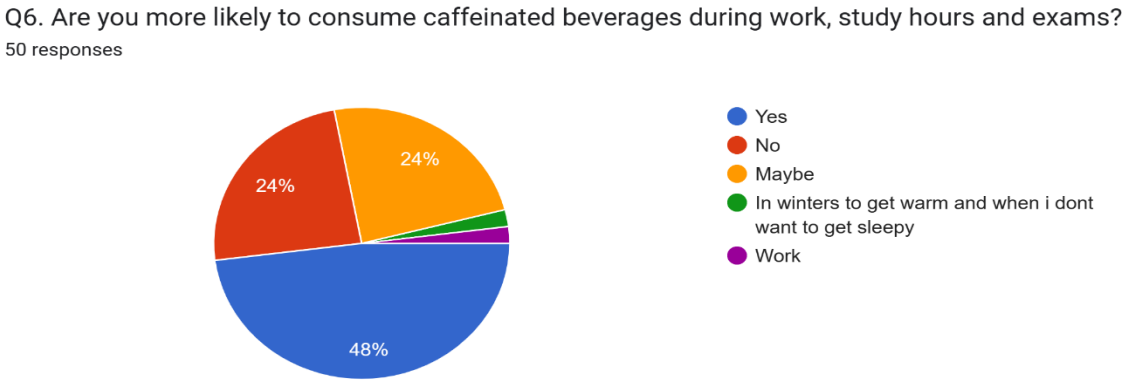
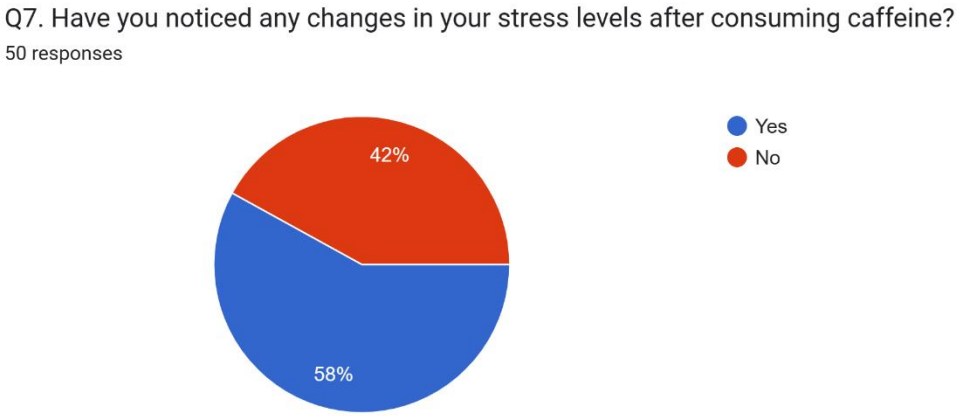
- 18% Often: 9 students frequently use caffeine to handle stress.
- 12% Rarely: 6 students consume caffeine but only infrequently for stress purposes.
- 8% Always: 4 students consistently rely on caffeine to cope with stress.

These results suggest that while caffeine is a common tool for stress management, a significant portion of students (28%) do not use it for this purpose at all, while 26% (always or often) rely on it more heavily. The remaining 46% (sometimes or rarely) use it sporadically



The survey results from 50 respondents provide insights into students' consumption of caffeinated beverages during work, study, and exams:
- 48% During Work, Study, and Exams: Nearly half of the respondents (24 students) consume caffeinated beverages across all these activities.
- 24% Not at All: 12 students do not consume caffeinated beverages during any of these activities.
- 24% Maybe: Another 12 students are undecided, indicating they might consume caffeine during these activities but not consistently.
- 4% Only for Work: The remaining 2 students consume caffeinated beverages exclusively for work.
These results suggest that a significant portion of students (48%) rely on caffeine regularly during academic or work-related tasks, while others either abstain (24%) or have more conditional (24%) or limited (4%) usage.



The survey results from 50 respondents highlight the perceived impact of caffeinated beverages on stress levels:
- 58% Notice a Change in Stress Levels: 21 students report that they experience a change in their stress levels after consuming caffeinated beverages. This suggests that for nearly half of the respondents, caffeine intake has a noticeable effect, either increasing or decreasing their stress.
- 42% Do Not Notice a Change: The majority of students (29 respondents) do not perceive any change in their stress levels after consuming caffeinated beverages. For these students, caffeine might not be linked to their stress management or might have negligible effects on their stress levels.
This data suggests that while caffeine affects stress for a significant portion of students, the majority either don't feel any impact or may not associate caffeine consumption with changes in their stress levels.

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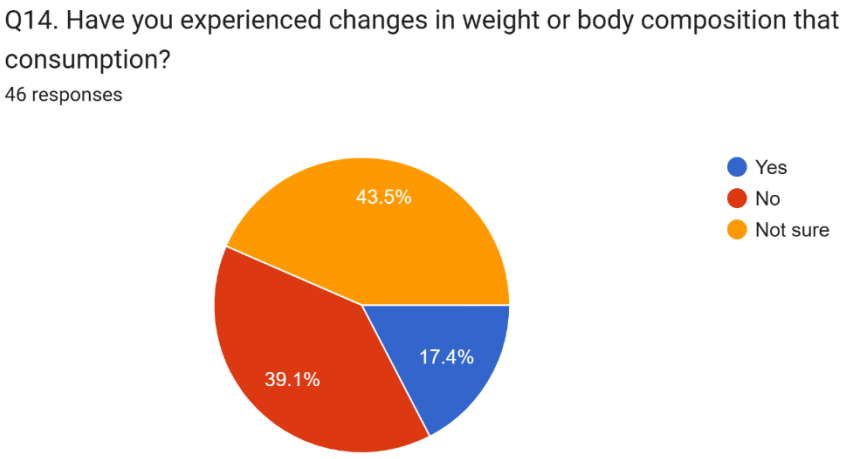
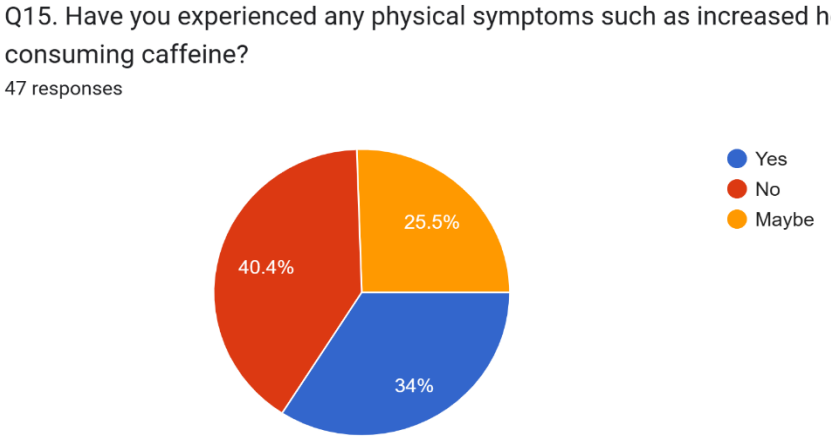


The survey results from 50 respondents provide insights into the perceived impact of caffeinated beverage consumption on students' weight:
- 43.5% Experienced a Change in Weight: A significant portion of students (approximately 22 respondents) noticed a change in their weight after consuming caffeinated beverages. This suggests that nearly half of the students believe caffeine might have some effect on their body weight.
- 30.1% Did Not Experience a Change: About 15 students reported no change in their weight after consuming caffeinated beverages, indicating that for a sizable group, caffeine does not seem to affect their weight.
- 17.4% Not Sure: Around 9 students are uncertain whether their weight changed due to caffeine consumption, reflecting a degree of ambiguity or lack of awareness about its effects on their body.
These results indicate that while a considerable number of students perceive a connection between caffeine consumption and weight changes, a substantial portion either do not notice any effects or are unsure about them.



The survey results provide insights into how students experience physical symptoms, such as an increased heart rate, after consuming caffeine:
- 34% Yes: 17 students reported experiencing physical symptoms, like an increased heart rate, after consuming caffeine.
- 40.4% No: A larger portion, 20 students, did not experience such symptoms after caffeine consumption.
- 25.5% Maybe: 13 students were unsure, indicating that they might have experienced physical symptoms but are uncertain or inconsistent in noticing them.
These findings suggest that while about one-third of students do notice physical effects from caffeine, the majority either don't experience these effects (40.4%) or are unsure (25.5%). This variation highlights the differing physiological responses students may have to caffeine.

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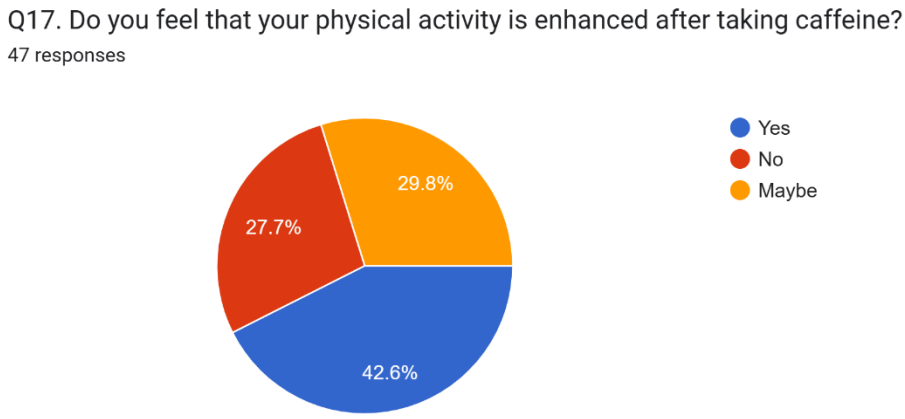

The survey results from 50 respondents show how students perceive the effect of caffeine on their physical activity:
- 42.6% Feel Enhanced Physical Activity: The majority, around 43% (21 students), feel that their physical activity improves after consuming caffeine. This suggests that these students believe caffeine gives them an energy boost or better physical performance.
- 27.7% Do Not Feel Enhanced: About 28% (14 students) do not notice any improvement in their physical activity after consuming caffeine, indicating it does not have a significant impact on their physical performance.
- 20.8% Maybe: Around 21% (10 students) are uncertain, possibly experiencing inconsistent or unclear effects of caffeine on their physical activity.
In summary, while a large proportion (42.6%) feels that caffeine enhances their physical activity, a smaller group (27.7%) sees no impact, with others (20.8%) being unsure of its effects.

Conclusion

The majority of college students clearly drink caffeine, according to the study's findings. Furthermore, this study discovered that college students who drink caffeine appear to be taking less than 400 mg daily, which is the safe daily limit for the majority of healthy adults (USDA, 2015). Nevertheless, 13.5% of college students consume more than this. Lastly, this study discovers caffeine consumption and felt stress increased dramatically, indicating that students might be drinking more than is advised during stressful times.
The safety of high caffeine intake in adults is not well established. It would be beneficial for students to understand the negative effects of caffeine usage on health as well as constructive coping mechanisms for stress. Students who receive education may be less likely to suffer from the harmful consequences of coffee use as well as mismanaged stress. The study's findings serve as a foundation for additional investigation into college students' perceptions of stress and caffeine use.

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