

The Role of Caffeine Consumption on Study Duration



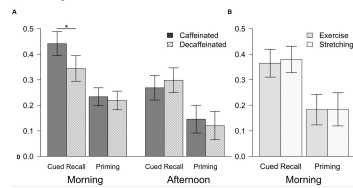
Jeffrey Oh, Justin Phung, Janlin Pina, Jason-Patrick Santos, Amy Tran

Objective

- To determine whether caffeine consumption plays a role in academic performance in college students 18-25 year olds. This study measured academic performance through students' number of study hours.

Background

A 2018 survey study conducted on college students across the U.S. found that 92% of students consumed caffeine in any form [1].

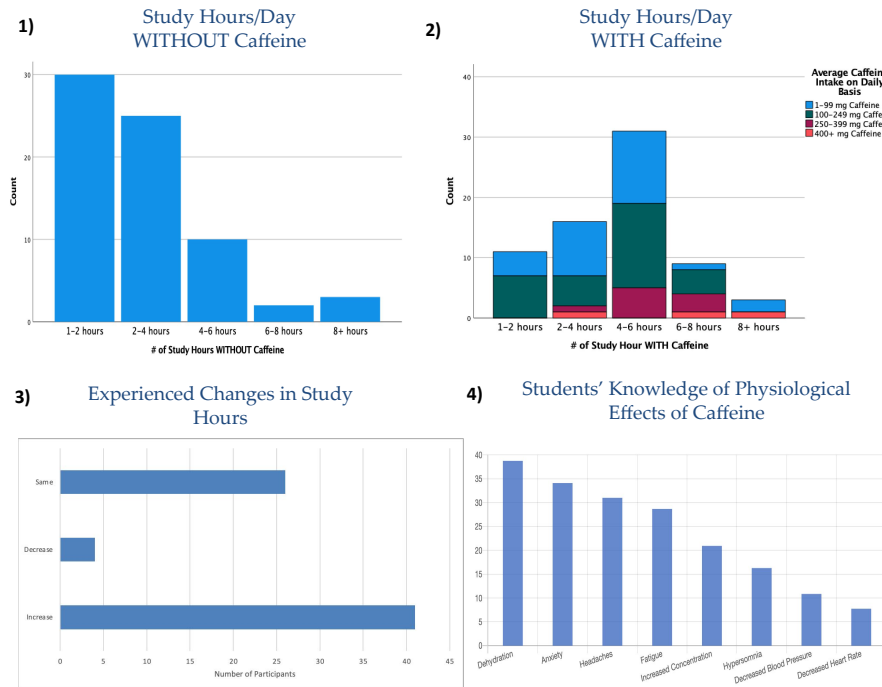


While limited, some studies have indicated an association between caffeine consumption and heightened academic performance measured through different outcomes. As illustrated above, caffeine consumption during non-optimal hours demonstrated better explicit recall performance [2]. However, excess caffeine consumption can lead to psychomotor agitation, insomnia, headaches, etc. [3].

Methods

- Cross-sectional study conducted among UCSD undergraduates ages 18-25 years [n = 129]
- Data collected between April 2023 - May 2023 via an anonymous online survey distributed across through social media (UCSD Forum, Instagram, Reddit, Facebook).
- The survey consisted of students' perception on caffeine, their overall caffeine intake, and study hours with and without exposure to caffeine.
 - Exposure = Caffeine
 - Outcome = Study Duration
- Microsoft Excel and SPSS was utilized to clean and analyze data in order to illustrate findings through descriptive analysis, bivariate comparison.

Results



- A one sample T-test was conducted to compare the difference in means but the data did not translate to any clear interpretations or associations for our analysis. Therefore we utilized bivariate comparisons to accurately present significant results.
- The data presents noticeable positive shifts in the average number of study hours after caffeine is consumed, where the chart transitions from being left skewed to following a more normal distribution [Figures 1&2]. The shift aligns with the high volume of participants who indicated that their number of study hours increased with caffeine consumption and the few who stated that they studied less with caffeine consumption. However, a significant number of students also noted that the number of their study hours did not change with caffeine consumption [Figure 3].
- The study considers the following side effects not associated with excess caffeine based on previous studies: dehydration, hypersomnia, decreased blood pressure, and decreased heart rate. In the surveys, most students noted their understanding of excess consumption playing a role in causing dehydration, anxiety, headaches, and fatigue. Fewer participants noted the other side effects, mostly the incorrect ones: hypersomnia, decreased blood pressure, and decreased heart rate [Figure 4].
- While not illustrated above, other findings demonstrated that the most typical source of caffeine for college students is coffee (65%), with energy drinks (34%) and tea (34%) following at a close second.

Conclusion

- From our results, there is a potential association between caffeine consumption and study hours.
 - Whether or not this is directly associated to caffeine is unknown and further studies are necessary to establish a direct association.
 - There are a possibility of confounding variables related to the environment or people's behaviors. One confounding variable is time spent involved in other tiring extracurricular or social activities, leading to an increase in caffeine consumption.
 - There are other conflicting factors in play such as caffeine consumption acting as a placebo to aid with study duration.
- Our data suggests that many students understand that there are negative consequences to consuming caffeine, but still persist to consume caffeine.
- Our findings suggest that students prefer drinking coffee over other caffeinated beverages and this may be due to availability and personal preferences such as taste, affordability, and accessibility.

Policy Implications

Since many college students are aware of the negative health consequences of caffeine but continue to consume unhealthy amounts, an intervention should be placed in universities that emphasize the physiological effects of caffeine.

The University of California, San Diego can address excess consumption with policies that limit how many caffeinated beverages a student can purchase at a time. Caffeinated beverages with more than 200 mg of caffeine will not be sold on campus to decrease the availability of unhealthy amounts of caffeine on campus.

References:
 [1] Mahoney, C. R., Giles, C. E., Marriott, B. P., Jeddou, D. A., Glickman, E. L., Griebman, P. J., & Lieberman, H. R. (2019). Intake of caffeine from all sources and reasons for use by college students. *Clinical nutrition (Edinburgh, Scotland)*, 38(2), 668-675.
 [2] Sherman, S. M., Buckley, T. P., Barua, E., & Ryan, L. (2016). Caffeine Enhances Memory Performance in Young Adults during Their Non-optimal Time of Day. *Frontiers in psychology*, 7, 1764.
 [3] Wawrzyniak, R. (2012). Caffeine—common ingredient in a diet and its influence on human health. *Revue Roumaine de Nutrition et Diétiq.*, 6(2), 141-147.