

Background

As of 2022, UC San Diego has 33,096 undergraduate students.¹ This represents a substantial market for energy drink companies and UC San Diego.

- Caffeine is typically consumed by students to increase wakefulness.² This inclination can swiftly lead to reliance on caffeine, which has been demonstrated to serve as a gateway to other forms of substance dependence.³
- 92% of college students surveyed across five universities claim to use caffeine. 79% of these students report using caffeine to feel awake and 31% to improve concentration.⁴

Objective

This study aims to evaluate the impact of on-campus caffeinated beverage promotional materials on the frequency of consumption and purchasing behaviors among undergraduate students at UC San Diego.

Methodology

Data collection utilized a cross-sectional survey, designed via Qualtrics XM software, and electronically disseminated to undergraduate students with assistance from faculty members at UCSD School of Public Health.

The survey was active for 23 days in April 2024. Participants were limited to students enrolled at UC San Diego as undergraduates. Participants were only excluded if they did not complete the survey.

Our statistical analysis was performed on R statistical software. We performed a logistic regression and a chi-square test to determine statistical significance.

Results

Figure 1. Characteristics of study population.

Characteristic (Population Demographics)	N = 90 ¹
Sex	
Male	34 (37.8%)
Female	56 (62.2%)
Academic Year	
First Year Student	7 (15.2%)
Third Year Student	39 (84.8%)
Unknown	44
Area of Study	
Biological Sciences	15 (34.1%)
Health Sciences (Public Health)	29 (65.9%)
Unknown	46
Exposure	
No	22 (24.4%)
Yes	68 (75.6%)

Figure 3. Characteristics of Students and Their Tendencies to Purchase Caffeinated Beverages After Exposure to Caffeine Advertisement on Campus

Characteristic	Overall, N = 90 ¹	No, N = 22 ¹	Yes, N = 68 ¹	p-value ²
Sex				0.73
Male	34 (37.8%)	9 (40.9%)	25 (36.8%)	
Female	56 (62.2%)	13 (59.1%)	43 (63.2%)	
Academic Year				>0.99
First Year Student	7 (15.2%)	1 (9.1%)	6 (17.1%)	
Third Year Student	39 (84.8%)	10 (90.9%)	29 (82.9%)	
Unknown	44	11	33	
Area of Study				0.70
Biological Sciences	15 (34.1%)	2 (22.2%)	13 (37.1%)	
Health Sciences (Public Health)	29 (65.9%)	7 (77.8%)	22 (62.9%)	
Unknown	46	13	33	
Increased Tendency to Buy Caffeinated Beverage				0.14
Unlikely	37 (41.1%)	13 (59.1%)	24 (35.3%)	
Neutral	23 (25.6%)	4 (18.2%)	19 (27.9%)	
Likely	30 (33.3%)	5 (22.7%)	25 (36.8%)	

¹ n (%)

² Pearson's Chi-squared test; Fisher's exact test

Figure 2. Correlation between advertisement exposure and high consumption frequency.

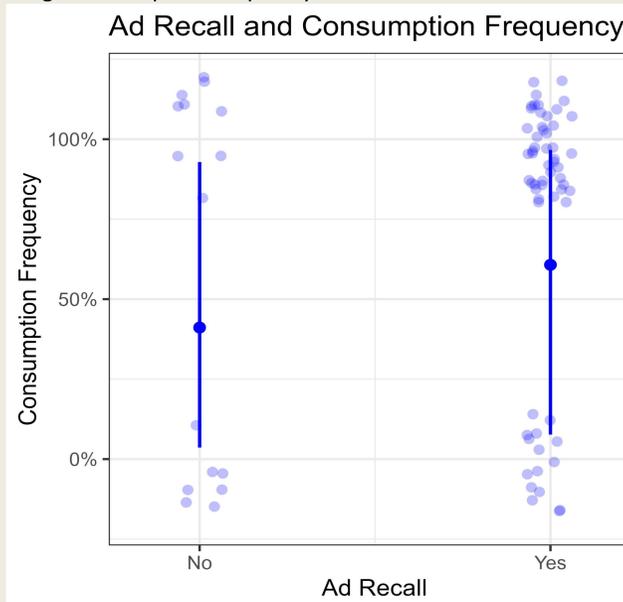


Figure 4. Logistic regression controlling for sex and tendency to accept a complementary caffeinated beverage.

Adjusting for sex and Tendency to Accept Caffeinated Beverage

Characteristic	OR ¹	95% CI ¹	p-value
Advertisement Recall			
No	—	—	
Yes	2.21	0.68, 7.07	0.18
Sex			
Male	—	—	
Female	0.93	0.31, 2.61	0.89
Tendency to Accept Caffeinated Beverage			
No	—	—	
Yes	2.02	0.07, 54.5	0.63

¹ OR = Odds Ratio, CI = Confidence Interval

Conclusion

Our analysis did not demonstrate any statistically significant impact of advertisement exposure on the consumption or purchasing frequencies of caffeinated beverages. Further research is necessary to evaluate potential significance. The limitations of our questionnaire-based model, primarily due to self-reporting bias, suggest that participants may have been reluctant to acknowledge the influence of advertising on their behavior. Additionally, corporations often employ psychological tactics to enhance the effectiveness of their advertisements, which may further prevent participants from accurately reporting the true influence of these advertisements on their behavior.

Results

- There is no statistically significant change in consumption frequency after exposure to advertisements $p = 0.14$ (Figure 2).
- There is no statistically significant increase in the tendency to buy a caffeinated beverage when participants are exposed to advertisements, as indicated by a p-value of 0.14 (Figure 3).
- Adjusting for sex and tendency to accept a complimentary caffeinated beverages, no statistical significance was found between those exposed to advertisements and caffeine consumption frequency (Figure 4).

Policy Implication

- UC San Diego should reconsider their practice of permissive policy of allowing potentially predatory marketing material targeted towards UC San Diego undergraduate students.
- Develop and integrate educational programs on campuses to raise awareness among students about the potential influence of advertising tactics, empowering them to make healthier and more informed choices regarding caffeinated beverage consumption.

References

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4. Mahoney CR, Giles GE, Marriott BP, et al. Intake of caffeine from all sources and reasons for use by college students. *Clinical Nutrition*. 2019;38(2):668-675. doi:10.1016/j.clnu.2018.04.004