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Caffeine Beverage Consumption and Perceived Quality of Life among UCSD Undergraduate Students

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Objective

To determine whether there is a difference in perceived quality of life between caffeine beverage consumers versus non-consumers among UCSD undergraduate students

Background

- **80% of the U.S. population** consumes caffeine everyday (CDC, 2020).
- Caffeine comes in many forms, but **coffee beverages and tea are the main forms** in the U.S. diet.
- Caffeine abuse and dependency are increasing worldwide, and can lead to **caffeine intoxication**, putting individuals at risk for premature death.
  - Caffeine doses below the lethal range may play a causal role in intoxication or even death, due to caffeine's interaction with other substances of the users' pre-existing diseases (Cappelletti et al., 2015).
- On average, **adults** consume **211 mg of caffeine daily** (>2 cups/day) but **college students** report consuming up to **850 mg daily** (approximately >8 cups per day), which is 3-5x the recommended daily dose of caffeine (Looby et al., 2021).

Methods

- **18-item cross-sectional online survey** was disseminated to undergraduate students (age 18 or older) at UC San Diego from April to May 2022
- Survey was advertised through **social media platforms** (Facebook, Reddit, Instagram, E-Mail) and word-of-mouth
- **Exposure variable:** caffeine beverage consumption, with consumers categorized as consuming >1 cup(s) of coffee or tea
- **Outcome variable:** perceived quality of life
- **4 domains of perceived quality of life** (physical health, psychological, social relationships, and environment) based from the WHOQOL-BREF assessment were used to measure perceived quality of life on a Likert scale
- Participants **ranked** the extent they agreed to 4 statements relating to each domain of perceived quality of life
- **Additional questions** on type of coffee or tea beverage consumed, where coffee is purchased, reasons for caffeine beverage consumption, and other caffeine products consumed

Results

- **N = 102 respondents**
- **64.7% of participants (n = 66)** reported consuming more than 1 cup of caffeine (coffee and/or tea) on average per day
- **Reasons for caffeine consumption:** taste (82.4%), alertness (54.1%), studying (35.3%), socialization (26.5%), and other reasons (7.8%)
- **Other caffeine products consumed:** soda (20.6%), energy drinks (16.7%), yerba mate (16.7%)

Table 1: Independent T-Test Results Comparing Perceived Quality of Life among Four Domains (Physical, Psychological, Social Relationships, and Environment) Between Caffeine Beverage Consumers and Non-Consumers

Perceived Quality of Life Domain	Mean[a]	Two-sided P-Value
Physical	Consumers = 3.73 Non-consumers = 2.72	<0.001*
Psychological	Consumers = 3.52 Non-consumers = 2.64	<0.001*
Social relationships	Consumers = 2.17 Non-consumers = 1.67	0.021*
Environment	Consumers = 3.92 Non-consumers = 3.64	0.115

Note: p-value < 0.05 (α = 0.05 level)
[a] Measured by Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neither disagree or agree, 4 = agree, 5 = strongly agree

Table 2: Linear Regression Models (8) between Cups of Coffee (or Tea) Consumed on Average Per Day and Perceived Quality of Life among Four Domains (Physical, Psychological, Social Relationships, and Environment)

Perceived Quality of Life Domain	Type of Beverage	Intercept (Constant) [a]	P-Value	Slope [b]
Physical	Coffee	3.046	<0.001*†	0.392
	Tea	3.255	0.103	0.230
Psychological	Coffee	2.885	<0.001*†	0.386
	Tea	3.059	0.038*	0.288
Social relationships	Coffee	1.832	0.034*	0.190
	Tea	1.946	0.512	0.087
Environment	Coffee	3.775	0.435	0.059
	Tea	3.766	0.304	0.113

Note: * = p-value < 0.05 (α = 0.05 level); † = Bonferroni p-value < 0.0125 (α = 0.0125)
[a] Measured by Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neither disagree or agree, 4 = agree, 5 = strongly agree
[b] Slope measured as number of cups, where 0 = not applicable/less than 1 cup, 1 = 1 cup, 2 = 2 cups, 3 = 3 cups, 4 = 4+ cups

Conclusions

- Statistically **significant difference** is present in all domains of perceived quality of life **except environment**
  - Possibly no significant difference due to easy access to caffeine beverages all over campus
- Most **caffeine consumers** *agree* that caffeine helps them carry out daily living activities and improves concentration in completing schoolwork (physical and psychological)
- Both **caffeine consumers and non-consumers** in general *do not consider* consuming caffeine as being important in maintaining social image as a college student
- Most **consumers and non-consumers** both *agree* that the availability of caffeine beverages on campus increases college students' consumption of caffeine (environment)
- Evidence of *positive relationship* between **cups of coffee** consumed and perceived quality of life for physical, psychological, and social relationships, and *positive relationship* between **cups of tea** consumed and perceived quality of life for psychological

Policy Implications

- **Community health education programs** can be developed to educate college students on the **benefits** and **drawbacks** of caffeine beverage consumption and how it affects quality of life
- **Further studies** to assess measured quality of life between caffeine beverage consumers and non-consumers as opposed to perceptions on quality of life

References

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