

Consumption connection with gender and stream of education

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ABSTRACT

People consume caffeine for emotional, rational and social reasons. Innocence by association is what a caffeinated drink is doing when they say that 'Darr ke aagee Jeet hai.' This simple association with the fear of insecurities associated with peer pressure to look cool and masculine is helped by consuming these caffeinated drinks. We observed that engineering students carry more often a single type of green bottle in their hands during the lunch break. So, we tried to evaluate this observation further by knowing the difference in this consumption pattern of engineering and management students. We wanted to evaluate correlations between the streams of education they are pursuing with their most preferred beverage. The objective of this study was not only to determine the relation between the preferences according to the stream of education but also to determine the reasons for this preference in the students of Jaipur.

METHODS:

Respondents were 256 students all in the age group of 18-25, comprising of 154 engineering and 102 management students. They were surveyed about their most preferred beverage during the lunch break and reason for this preference through a questionnaire. This is hypothesized that energy drink consumption is associated with the normative and performative functions. It is normative as part of growing up in the group. It may be performative as it may reflect the gender and social identity. The statistics was compiled and evaluated using a SPSS data set analysis with a null and alternate hypothesis stating:

H_0 = There is no difference in the cold drink consumption and education.

H_1 = There is a difference in the cold drink consumption and education.

RESULTS:

There is a statistically significant difference in the consumption pattern of engineering and management students. Null hypothesis was rejected, as there was statistically significant difference observed in the beverage consumption and education. Most preferred beverage of engineering students was found to be a caffeinated energy drink with masculinity association. This difference between engineering students and management students was confirmed in 'F' test, significant at < 0.001 by regression ANOVA.

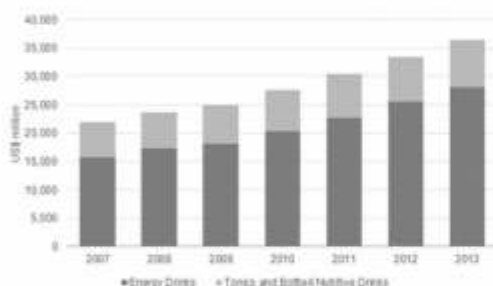
INTRODUCTION

Demand around the world for energy-boosting soft drinks is huge and it revolves around the

arguably world's oldest and most widely consumed drug known as Caffeine. The dual power to counter physical fatigue and increase alertness is part of the reason caffeine ranks as the world's most popular mood-altering drug, eclipsing the likes of nicotine and alcohol. World figured out this some 200 years ago that the good feeling they are getting from coffee and tea is due to the same chemical agent. Caffeine is an alkaloid that occurs naturally in the leaves, seeds, and fruit of tea, coffee, cacao, kola trees, and more than 60 other plants. Lao-tzu is said to be the first one to propagate this through tea as an elixir to his disciples.

More the caffeine better the beverage, is the dictum of today. Demand for caffeinated drinks is growing for last 14 years in the world. It used to be a \$4bn industry in 1998 and is now a \$35bn industry in 2012. According to Euromonitor International's most recent health and wellness data, energy drinks sales were US\$25.5 billion in 2012. It was Rs.937 crore market in India in 2012 and is expected to touch Rs. 1080 crore by 2018.

Global Energy Drink and Tonics and Bottle Nutritive Drink Sales (US\$, RSP), 2007-2012



Source : Euromonitor International

Energy drinks typically contain 80 to 141 mg of caffeine per 8 ounces, the equivalent of five ounces of coffee or two 12-ounce cans of caffeinated soft drink such as Mountain Dew, Coca Cola, Pepsi Cola or Dr. Pepper. Red Bull is the undisputed leader in this category and is promoted as a lifestyle product associated with male youth and adventure sports. Red Bull being available at Rs.95 is quite expensive for a value conscious Indian consumer. Indian youth is opting for second best substitute to ingest caffeine in the form of 'Mountain Dew' available in Indian college canteens at a price of Rs. 10. Mountain Dew also associates it with adventure sports with a tag line of 'Darr ke aagee Jeet hai.' One of the other options available to Indian youth is through a brand 'paper boat' available at a price of Rs.25 and it is widely distributed through Reliance-Fresh retail. We know that people belonging to the same social class tend to pick products that are similar. This similarity is formed early and buying patterns of the students from engineering, medical and management streams differ amongst the stream but are similar within the stream. This similarity is also depicted in the surveys conducted regularly by Dunkin Donuts and Career Builder in U.S. In their 2012 survey involving 4152 workers predicting coffee trends in U.S. workplaces, they predicted professionals who need coffee (caffeine) the most to get through the work day in the following order:

1. Food preparation /Service workers
2. Scientists
3. Sales Representatives
4. Marketing /Public relation professionals
5. Nurses
6. Editors / Writers / Media Workers
7. Business Executives
8. Teacher /Instructors
9. Engineering Technicians / Support
10. IT managers/ Network Administrators

In the same survey 63% of the respondents agreed to consume 2 or more coffee cups per work-day and 28% consume 3 or more cups of coffee. This establishes the correlation of coffee (caffeine) consumption with profession.

Caffeine has long been prized for its ability to increase a person's alertness and energy. According to lore, these properties were noted in the 9th century by an Ethiopian shepherd Kaldi, who found his flock frolicking after eating coffee berries from nearby bushes. In 1819, the German chemist Friedlieb Ferdinand Runge isolated relatively pure caffeine for the first time and called it "*Kaffebase*" (i.e., a base that exists in coffee). In 1821, caffeine was isolated both by French chemist Pierre Jean Robiquet and by another pair of French chemists, Pierre-Joseph Pelletier and Joseph Bienaimé Caventou, as quoted by Swedish chemist Jöns Jacob Berzelius in his yearly journal. Robiquet was one of the first to isolate and describe the properties of pure caffeine while Pelletier was the first to perform an elemental analysis.

Energy drinks derive their energy-boosting properties chiefly from sugar and caffeine. Both of them are addictive in nature. Students during their finals examination might consider gulping down a cup of coffee or powering down a bottle of 'Mountain Dew' to stay awake for studying all night. In the recent years, many 'energy drinks' have evolved in the market, and are gaining popularity with young engineering & management students, who want to have extra energy for long studying hours. While these energy drinks might look tempting especially for those who aren't habitual consumers & tends to enhance their performance for a short duration, there is some health hazards associated with such drinks. Low dosage of caffeine can give a temporary boost to the energy level, but frequent consumption of such caffeinated energy drinks might be accompanied with developing tolerance and one may continue to feel drained & exhausted. Natural sources to get extra energy, such as a healthy diet and exercise, as well as quality sleep on a regular basis are some of the better ways to maintain enough energy to tackle any finale.

Although the toxic dose of caffeine is very high for a fully grown adult, but they are of opinion that this value can fluctuate depending on how a person's body processes the stimulant. Caffeine gets

removed from the body at different rates because of genetic variations, gender, and even whether a person is a smoker or not. For this reason, it's difficult to set a safe limit of daily human consumption of caffeine. "Scientists know a lot about how the popular stimulant triggers alertness in the body at low doses", says Bertil B. Fredholm, emeritus professor of pharmacology at the Karolinska Institute, in Sweden.

"Once the compound gets absorbed into the bloodstream, it moves to the liver, where it gets metabolized. There, cytochrome P450 enzymes yank different methyl groups off caffeine to transform it into the primary metabolites paraxanthine, theophylline, and theobromine". Caffeine and its metabolites subsequently bind to proteins called adenosine receptors located throughout the body. When they bind to two of these receptors—named A1 and A2A—the stimulants block the proteins from interacting with their natural partner, adenosine. Normally, adenosine's interaction with its receptors regulates nerve cell activity as well as the release of neurotransmitters such as dopamine. It also promotes sleepiness. But when caffeine or its metabolites prevent adenosine from doing its job, dopamine and other neurotransmitter levels increase, leading to a surge in nerve activity in the brain and on the heart, resulting in increased heart rate & blood pressure, thereby avoiding sleepiness. But like all other indulgences in life, too much of any good thing can be bad. "Whereas low-dose caffeine effects are wakefulness, a little bit of arousal, and slight euphoria," Fredholm says, "high-dose effects are anxiety, irritation, and general mental discomfort". Thus it is quite evident that caffeine increases alertness and decreases fatigue, causing a better performance in some tasks.

REVIEW OF LITERATURE

Human beings are social animals and as Maslow said it; our social needs are fulfilled by the interactions with other people. Products are also capable of fulfilling these social needs. Moreover, relationships with nonsocial objects may develop that mirror interpersonal ties and those who are well integrated in their social networks are less likely to seek additional bonds (whether they be with other people or products) relative to those who are deprived. Given these conclusions, it seems reasonable to suggest that when a social need exists, products may satisfy those needs in a way similar to people. When this need is fulfilled via consumer products, individuals may not seek fulfillment from other people. Threat of social exclusion is more motivating in comparison to the activation of social constructs in general.

Coffee is popular because of caffeine content in it. After water and possibly milk, beverages that typically contain caffeine occupy the top spots in global beverage consumption: tea, coffee and soft drinks. Coffee has surpassed soft drinks in daily market penetration among US adults for the first time in nearly two decades, making it America's most popular beverage after water in 2009. Trend in specialty coffee remains unabated largely due to disposable income of upper socio-economic classes.

"Emotions," wrote Aristotle (384–322 B.C.) "Are all those feelings that so change men as to affect their judgments, and that are also attended by pain or pleasure. Such are anger, pity, fear and the

like, with their opposites." Emotions are intense, conscious and often tied to specific circumstances. Positive mood reduces the likelihood of negative cognitive responses. To examine the effects of caffeine on attitude change, scientists employed recent dual process models of persuasion as a guiding framework. Attitudes can be influenced via a number of mechanisms. The Elaboration Likelihood Model is one of the pre-eminent cognitive processing models. The ELM is based on the idea that humans want to develop correct attitudes and beliefs because they are likely to prove more functional.

Biology is more about individual behavior and tells us that people are essentially same. Our individual behavior is nothing but an act of a clever chimpanzee. Sociology explains our collective behavior. Emile Durkheim considered as founder of sociology, had the following observation "People integrated with society are relatively happier and less likely to commit suicide."

Most caffeine is ingested in the form of coffee (71%), soft drinks including energy drinks (16%), and tea (12%). Approximately 80% of the world's population consumes a caffeine containing product every day. In experimental studies, the most common effects of caffeine are increased alertness, reduced fatigue, and improvements in measures of reaction time, vigilance, and tasks requiring a sustained response. At the ingredient level of coffee, caffeine content may be the same in all but value addition and element of experience makes us pay the price premium. A survey of Italian college students found that 85% of energy drink consumers had mixed these beverages with alcohol within the past month. Combining the stimulant effect of caffeine and the depressant effect of alcohol reduces the symptomatic lethargy associated with drunkenness, leading drinkers to underestimate their levels of intoxication. Energy drink consumption has been linked to a "toxic jock" identity, comprised of a pattern of risk-taking, self-identification as a "jock," and endorsement of conventionally masculine norms, in college undergraduates of both genders. Weekly or daily energy drink consumption is strongly associated with alcohol dependence.

Gender has become performative then biological in the world. Redefinition, contestation, and assertion of gender identities are enacted wrongly in behavior associated with addictive substance consumptions. Study of alcohol consumption in a pub is able to reveal fluidity of gender construction and hegemonic (dominant view) masculinity they wish to portray. It is not considered normal for a man to be sitting alone in a café than for a woman in west. But it is great if you as a man regularly visit a pub. Prevailing attitude is "you are not a man if you cannot go out and enjoy yourself." Man deserves to get a kind of reward for a week of hard work by visiting a pub.

Stigma of alcohol consumption in particular appears to be gender based being summed up "women love you when you drink but hate you when you are drunk." Redefined masculinity seems to exhibit and exist in a pub, where you must gulp gallons of alcoholic beverages and still be able to show control. Women attempting to exhibit this behavior in a pub are exhibiting their performative gender than biological.

Men consider alcohol drinking as 'an act of friendship' and this functioned as a dominant way to communicate with, and support each other. This men dominant behavior can be harmful to health (excessive drinking) but also potential to be helpful socially. Alcohol is an important resource which men (and women) use to (re)construct a range of gendered identities. Masculine norms are socially constructed beliefs, values, and expectations of what it means to be a man and often dictate rules that men are expected to follow in order to demonstrate manliness. Salient masculine norms are winning, sexual prowess, emotional control, risk-taking, dominance, self-reliance, pursuit of status, physical aggression, work priority, controlling women and heterosexual orientation. Products capable of highlighting these norms through group consumption behavior are likely to be mimicked by the herd of these emerging adults of the society. Energy drinks by their association, endorsement and communication portray these gender defining norms to be emulated by others group members.

NEED/IMPORTANCE OF THE STUDY

Energy drink consumption is associated with the normative and performative functions. It is normative as part of growing up in the group. It may be performative as it may reflect the gender and social identity. Normative and performative functions of consumption are culture dependent as well, we wanted to evaluate these normative and performative functions association with energy drink consumption of students of Jaipur and contrast it with western studies.

STATEMENT OF THE PROBLEM

We observed that engineering students carry more often a single type of green bottle in their hands during the lunch break. So, we tried to evaluate this observation further by knowing the difference in these consumption patterns of the students of these streams.

OBJECTIVES

We wanted to evaluate correlations between the streams of education students are pursuing with their most preferred beverage. The objective of this study was not only to determine the relation between the preferences according to the stream of education but also to determine the reasons for this preference in the students of Jaipur.

RESEARCH METHODOLOGY

People consume caffeine for emotional, rational and social reasons. Innocence by association is what a caffeinated drink is doing when they say that 'Darr ke aagee Jeet hai.' This simple association with the fear of insecurities associated with peer pressure to look cool and masculine is helped by consuming these caffeinated drinks. We observed that engineering students carry a single type of green bottle in their hands during their lunch break. So, we tried to evaluate this observation further by knowing the difference in this consumption pattern of engineering and management students. We wanted to evaluate correlations between the stream they are pursuing and their most preferred cold drink brand. The objective of this study was not only to determine the relation between the preferences according to the stream of education but

also to determine the reasons of this preference in the students of Jaipur.

HYPOTHESIS

Respondents were 256 students all in the age group of 18-25, comprising of 154 engineering and 102 management students. They were surveyed about their most preferred beverage during the lunch break and reason for this preference through a questionnaire. This is hypothesized that energy drink consumption is associated with the normative and performative functions. It is normative as part of growing up in the group. It may be performative as it may reflect the gender and social identity. The statistics was compiled and evaluated using a SPSS data set analysis with a null and alternate hypothesis stating:

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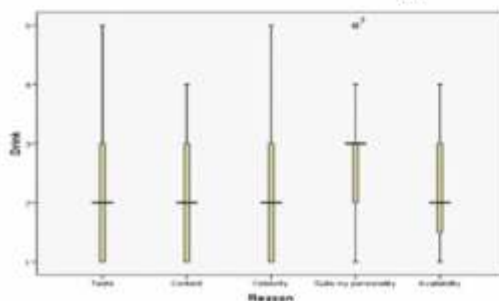
FINDINGS, RESULTS & DISCUSSION

Our data being mostly ordinal it required parametric testing as an appropriate method of evaluating finding and result.

Appropriate Statistical Methods of Testing				
Type of Scale	Sample Problem	Measure of Central Tendency	Measure of Dispersion	Possible Type of Statistical Significance
Interval	Compare actual Vs. Hypothetical value Of attitude score.	Mean	Standard Deviation	t or z-test
Ordinal	Determine the Ordered preference For all brands in class.	Median	Percentile	Sign-test; other non parametric test
Nominal	Identify gender of, brand adopters	Mode	None	Chi square-test

Sources : adopted from S.S. Stevens & Sidney Siegel

Stated reason for choice of beverage is mostly taste.



Consumption Connection With Gender and Stream of Education

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Binomial Test				
	Category N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
Education	Group 1 Engineering	154	.60	.50 .001 ^a
	Group 2 Engineering	102	.40	
	Total	256	1.00	

a. Based on Z' Approximation

Two Sample Kolmogorov Smirnov

Test Statistics^a

	Drink
Most Extreme Differences	Absolute .217
	Positive .000
	Negative -.217
Kolmogorov-Smirnov Z	1.702
Asymp. Sig. (2-tailed)	.006

a. Grouping Variable: Education

Nonparametric Correlations

Correlations		Education	Drink	Reason	
Kendall's tau_b	Education	Correlation Coefficient	1.000	-.305**	.179**
		Sig. (2-tailed)	.	.000	.002
		N	256	256	256
Drink	Education	Correlation Coefficient	-.305**	1.000	.073
		Sig. (2-tailed)	.000	.	.369
		N	256	256	256
Reason	Education	Correlation Coefficient	.179**	.073	1.000
		Sig. (2-tailed)	.002	.369	.
		N	256	256	256
Spearman's rho	Education	Correlation Coefficient	1.000	-.324**	.195**
		Sig. (2-tailed)	.	.000	.002
		N	256	256	256
Drink	Education	Correlation Coefficient	-.324**	1.000	.087
		Sig. (2-tailed)	.000	.	.364
		N	256	256	256
Reason	Education	Correlation Coefficient	.195**	.087	1.000
		Sig. (2-tailed)	.002	.364	.
		N	256	256	256

** . Correlation is significant at the 0.01 level (2-tailed).

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.802	1	13.802	10.382	.001
Within Groups	337.694	254	1.330		
Total	351.496	255			

		Education	Drink	Reason	Gender	
Kendall's tau_b	Education	Correlation Coefficient	1.000	-.205**	.179**	.495**
		Sig. (2-tailed)	.	.000	.002	.000
		N	256	256	256	256
Drink	Correlation Coefficient	-.205**	1.000	.073	-.110	
		Sig. (2-tailed)	.000	.	.169	.055
		N	256	256	256	256
Reason	Correlation Coefficient	.179**	.073	1.000	.197**	
		Sig. (2-tailed)	.002	.169	.	.001
		N	256	256	256	256
Gender	Correlation Coefficient	.495**	-.110	.197**	1.000	
		Sig. (2-tailed)	.000	.055	.001	.
		N	256	256	256	256
Spearman's rho	Education	Correlation Coefficient	1.000	-.224**	.195**	.495**
		Sig. (2-tailed)	.	.000	.002	.000
		N	256	256	256	256
Drink	Correlation Coefficient	-.224**	1.000	.087	-.120	
		Sig. (2-tailed)	.000	.	.164	.055
		N	256	256	256	256
Reason	Correlation Coefficient	.195**	.087	1.000	.215**	
		Sig. (2-tailed)	.002	.164	.	.001
		N	256	256	256	256
Gender	Correlation Coefficient	.495**	-.120	.215**	1.000	
		Sig. (2-tailed)	.000	.055	.001	.
		N	256	256	256	256

** . Correlation is significant at the 0.01 level (2-tailed).

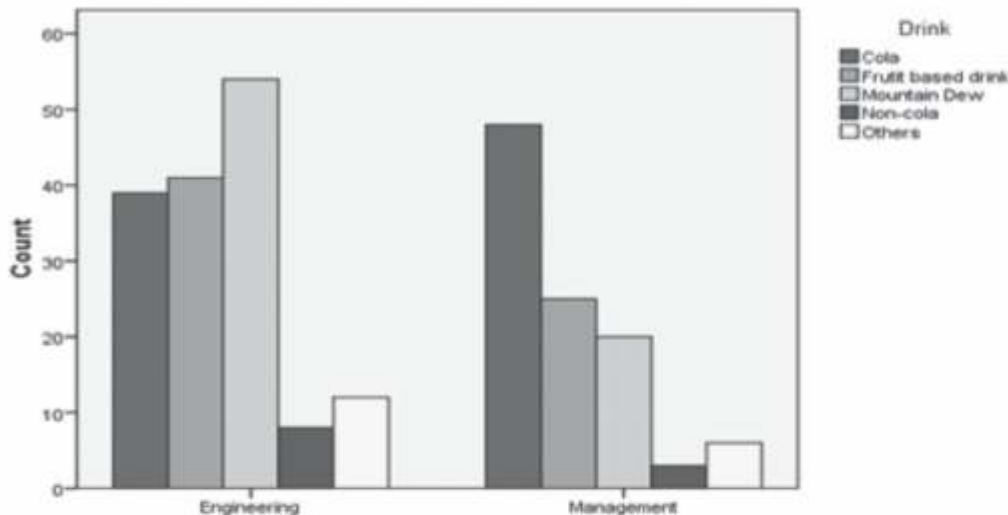
Since, biserial correlation coefficient cannot be calculated directly from SPSS, as it is used when one of the variables is a discrete dichotomy (stream of education).

Pearson Correlations calculation for calculating point-biserial correlation

		Education	Drink
Education	Pearson Correlation	1	-.198**
		Sig. (2-tailed)	.001
		N	256
Drink	Pearson Correlation	-.198**	1
		Sig. (2-tailed)	.001
		N	256

** . Correlation is significant at the 0.01 level (2-tailed).

R^2 is an extremely useful measure of substantive importance of an effect. However it is difficult to use R^2 to infer causal relationship. Correlation coefficient is $-.198$, $R^2 = (-.198)^2 = .392$. Hence we can conclude that education accounts for .392 % of the variability in the choice of the drink. This choice is in favor of Mountain Dew for engineering students.



Symbolism of beverage consumption functions to express societal issues of growth and development, gender and sexuality, and level of social status. Symbolism and social expression is called the synchronic beverage structure. There is a statistically significant difference in the consumption pattern of engineering and management students. Null hypothesis was rejected, as there was statistically significant difference observed in the cold drink consumption and education. This difference between engineering students and management students was confirmed in 'F' test, significant at < 0.001 by regression ANOVA.

CONCLUSIONS

Problem behavior theory is able to explain the health compromising behavior as normative social functions for emerging adult life. Gender is now no more biological but a way of doing things. Social class and professions dictate our consumption. We redefine and portray identities associated with addictive substance consumptions. Consumption of tea, coffee, tobacco and smoking tends to be higher in students studying late in night in professional courses. Substance addiction in the students of professional colleges of India is increasing. Frequency of energy drink consumption was positively associated with marijuana use, sexual risk-taking, fighting, seatbelt omission, and taking risks on a dare for the sample as a whole, and associated with smoking, drinking, alcohol problems, and illicit prescription drug use for white students but not for black students. Sometimes this is associated with utility (examination), hedonic and some

time to look masculine or to define gender that is performative than biological. We equate Mountain- Dew consumption with this substance addiction and a way to express their masculinity and still appear in control just like alcohol consumption of the west.

Scope for Further Research

Most adults are capable of handling caffeine intake but children with less body mass and developing brain are likely to have exaggerated effect of caffeine. With caffeine being added to more and more products, impact of advertising of these caffeinated products need to be evaluated with addition of caffeine to be more strictly regulated. The American Academy of Pediatrics recommended in 2011 that children and teenagers steer clear of caffeinated drinks because caffeine interferes with sleep and can increase anxiety along with the heart rate. Alcohol consumption preferences are gender related due to social and biological reasons. More and more people use energy drinks to infuse them in a cocktail. Alcohol consumption preference is considered social as cocktails are sweeter, cuter, and fruitier than a alcoholic drink. Lesser it looks and tastes like hard liquor and more it looks and tastes like party food, friendship, freedom and fun more females are likely to consume it. Female ability to breakdown alcohol is less as for the same body mass they contain only 2/3 dehydrogenase, the enzyme that breaks down alcohol.

Energy drink manufacturers are hiring lobbyist firms to influence policy makers on energy drinks containing caffeine. FDA on the other hand is closely looking to regulate caffeine content in energy drinks. A 2011 review of the literature on caffeine showed that it is nearly impossible to pinpoint consistent disease factors that link large doses of caffeine to arrhythmia in the general population.

Between 2004 and October 2012 in US, 17 people died and more than 100 had chest pains, cardiac arrest and other health problems after consuming 5-Hour Energy, Monster and Rockstar beverages, according to FDA data. The FDA noted that the reports do not mean the drinks necessarily caused those ailments.

Consequences of our inability to control caffeine content in the beverages in the guise of energy drinks will result in many lethal social, legal and health related consequences and our inability to control their association with normative and performative functions within the society.

Keywords:

Caffeine, Engineering and management students, Gender, Masculinity, Normative, Performative

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