Research Article

Caffeine Chronicles: Understanding the Impact of its Consumption by MSU Students

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Abstract

The motive in preparing this research report is to research the influence of consuming caffeine drinks among students in Management & Science University. This case study is done among MSU students of different faculties to test which faculty students prefer to consume caffeine and the reasons for their choices. To be able to achieve our objective for this project a set of questions would be prepared and distributed to the students and also a lot of reading and hence research on the topic of Caffeine will be conducted by us before having to conduct this project in action. A better understanding of what we are research about would help us in conducting this research as it is a complicated matter of people's choices and the unpredictable outcomes as people's preferences and conditions does differ. In this assignment a write up on suggesting conducting this research is done to mentions its objectives, its purpose and also the reasons in consuming caffeine and their effect towards the body.

Keywords:

Caffeine, Student, University, Beverages

1 Introduction

1.1 Background of Study

Caffeine has been the subject of broad research for two reasons its wide event in nature and its long history of utilization. Examiners have distinguished more than 60 plant species that contain caffeine, and history recommends that it might have been expended, in some structure, as far back as the Palaeolithic time frame (EFSA, 2016). As of late, considerably more consideration has been given to caffeine. The Food and Drug Administration (FDA) concentrated on caffeine as a major aspect of its audit of commonly perceived as sheltered (GRAS) substances which was started in the late 1960s. Caffeine again got investigation in 1987 when the FDA proposed to set up an earlier assent guideline for caffeine. The development of a wide assortment of research brings about-turn has produced a fundamental requirement for sufficient utilization information to survey those outcomes as far as a human presentation to caffeine.

In past reports (Harland B.F., 2016), the creators investigated the accessible information both on caffeine substance of nourishments and drugs and on caffeine utilization, including utilization by youngsters and pregnant ladies. This paper presents fresher and increasingly broad information (counting information from the UK, Denmark and Australia) and talks about patterns in the utilization of caffeine-containing nourishments. All dietary caffeine accessible in the USA is imported, principally as espresso and tea, yet besides as cocoa, kola nuts and caffeine itself. Notwithstanding its normally happening sources, cola and comparative sort soda pops have contained limited quantities of caffeine as a flavour part since before the turn of the century. Resulting in its substance separation in 1820, caffeine likewise has been utilized remedially and now is a part of an assortment of the solution and over-the-counter (OTC) sedate items.

The medical advantages and expenses of caffeine are questionable with various examinations to archive the two advantages and medical conditions because of caffeine. The upper admission limit (%UL) of caffeine admission is 400mg for grown-ups, and under 85mg for kids. High caffeine nourishments and beverages incorporate chocolate secured espresso beans, espresso, caffeinated drinks, coffee, soft drinks, green tea, dark tea, dull chocolate, espresso alcohol, and heated merchandise containing chocolate. For every one of these nourishments and beverages, the measure of caffeine is as normal. The real measure of caffeine can shift depending on how firmly tea or espresso is fermented, and regarding how much caffeine is added to different colas and caffeinated drinks.

The creators have noted already (Heckman M.A. et al., 2010) that the logical writing and the well-known press refer to a wide scope of qualities for caffeine content in nourishments and refreshments, particularly espresso. This scope of qualities emerges from contrasts in reference volumes, (for example, extraordinarily measured cups or different holders), diagnostic techniques, item sources (for example plant assortment

on account of espresso and tea) and strategies for readiness. For example, techniques for blending espresso and tea.

2 Literature Review

2.1 Introduction

Following a review of the theories utilized as references in developing the framework of the study, this chapter explores related literature that is based on the variables in the study outlined in the previous chapter. The framework's proposed constructs for price, advertisement and branding are all analysed further to find any potential gaps and study-relevant features. The next section of the chapter takes a deeper look at the underlying models and ideas that went into creating the study's framework and assumptions.

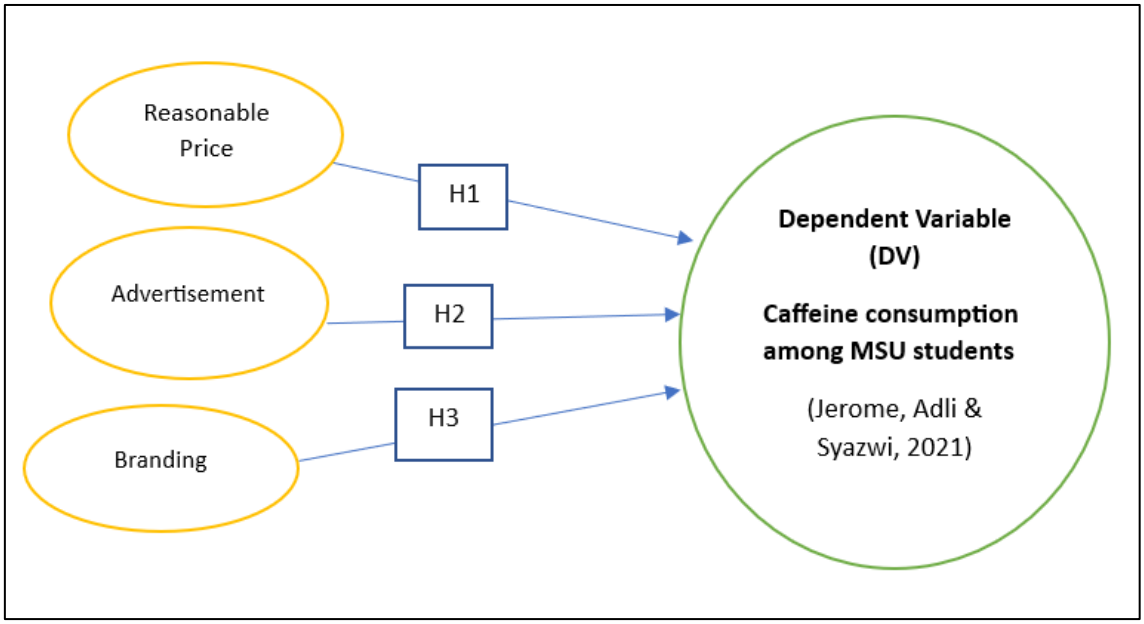

Figure 1: A research framework source from J. Janggu., Adli. S., & S. Syazwi., (2021)

2.2 Reasonable Price

Incorporating the concept of a "reasonable price" for caffeine beverages in the literature review entails examining how consumers perceive pricing fairness, Kendler KS, Myers J, O Gardner C. (2016). This involves discussing factors that influence price perceptions, such as production costs and brand reputation, as well as the economic consequences and cultural variations in what consumers consider reasonable, O Gardner C. (2016). Additionally, the review explores the relationship between pricing strategies and consumer perceptions, and the role of government regulations in shaping perceived fairness in pricing. Overall, the review aims to shed light on how aligning pricing with consumer expectations of fairness can impact businesses, policymakers, and future research in the caffeine beverage industry, Kleiman S, Ng SW, Popkin B. (2018).

H1: There is a significant influence between price towards consuming caffeine among students in MSU.

2.3 Advertisement

The section on caffeine beverage advertising in the literature review examines various aspects related to how these beverages are marketed. It covers advertising strategies, their influence on consumer perceptions, the use of health claims, cultural and ethical considerations, the impact of advertising on consumption, and a comparative analysis with non-caffeinated beverages, Bolton, (2017). Additionally, the review explores future trends and challenges in caffeine beverage advertising. This section provides valuable insights into the strategies and impact of caffeine beverage advertisements on consumer behaviour and the industry, Sanford, Gary Null. (2017).

H2: There is a significant influence between advertisement towards consuming caffeine among students in MSU.

2.4 Branding

A literature review on the branding of caffeine beverages encompasses the examination of how these products are marketed, perceived, and positioned in the consumer market, Azagba S. (2019). It comprises sections covering branding strategies, their influence on consumer perceptions and behaviour, brand positioning in the market, marketing and advertising techniques, brand evolution, cultural and regional variations in branding, and the broader implications of branding in the caffeine beverage industry, Al-Samadani, K.H. (2016). This comprehensive review provides valuable insights into the role of branding in shaping consumer preferences and the competitive landscape of the industry.

H3: There is a significant influence between branding towards consuming caffeine among students in MSU.

3 Methodology

Therefore, a quantitative research technique based on the distribution of questionnaires and online surveys was taken in this study to empirically examine the offered hypotheses. A questionnaire is typically thought of as a logical and simple tool to gather information from individuals, but due to how frequently they are used in contexts in the modern world, they are more challenging to design. Moreover, this study setting will be non-contriver due to no IV being manipulated or changed, so this study will be a normal or natural setting and will be based on field studies. Therefore, the research interference of this study was very minimal due to non-contrived & field study in which we will just ask students to participate in the questionnaire. Next, the time Horizon for this study is cross sectional because the survey was distributed only once and there is no second season or second questionnaire. The unit in this study is students. Moreover, 345 students from Management & Science university will form the sample size for the study. The residential college students were chosen at random to make up

the regular study sample. Using random sampling procedures was difficult because of the huge numbers of students and the lack of accurate data. Hence, researchers use convenience sampling in this study.

3.1 Data Collection

Soon after the questionnaires were created, researchers distributed the form to all students in Management & Science University. The researcher will receive a complete answer questionnaire from each MSU student around the campus to get know their behaviour of consuming caffeine. To collect data for the analysis, about 380 respondents in total are expected. The questionnaire that was used in this study has three sections. Parts A and B each have five questions about the satisfaction of students and five questions about demographic data, and part C has five questions about food quality. The method of data gathering that has been made available for university students is online surveys.

3.2 Instrumentation

A research instrument is a device used to acquire, measure, and dissect information from subjects around the examination theme. You have to choose the instrument to utilize dependent on the kind of study you are leading that is quantitative or qualitative. For example, for a quantitative report, you may choose to utilize a survey, and for a subjective report, you may decide to utilize a scale. While it assists with utilizing a setup instrument, as its adequacy is now settled, you may, if necessary, utilize another instrument or even make your instrument. You have to depict the instrument utilized in the methods segment of the paper.

Research Instrument Records - give details on approval and usage of research instruments. The records show which studies have utilized a particular research instrument and incorporate the reason or variable estimated, test populace, philosophy, different instruments, things and questions, where the first investigation was referenced and how to get the real research instrument.

Research Instrument Validation and Utilization Records - give details on the approval and usage investigations of each instrument. They incorporate the reason or variable estimated, test populace, procedure, different instruments, things and questions and the hotspot for the instrument.

This study used closed - ended questionnaire because closed - ended question can provide qualitative data. By using closed - ended questionnaire it is always the answer of the respondents having limited choice which the researcher has given.

3.3 Data Analysis

Analysis data is the process the systematic ways to use the technique statistic or logically to figure, describe and recap the information to analyze the data. Various procedures analyze the data is prepared one way to figure the conclusion inductive from data and make a different sign (important phenomenon) from noise sound (statistic

chart) in data. In this study, the researcher using the data collected and analyzed the data with computerizing statical software, which is this researcher using the format Statistical Package for the social science and the short name is SPSS with version 23. The early analysis data that researchers create the frequency statistic to figure out the percent or frequency of the gender, age, education, marriage status, faculty, region and background. After that, the system will draft the statistic descriptive analysis to figure the information for summary data.

The validity and reliability of the questionnaire were analysed by the reliability test. The reliability test can be analysed for every variable that has 3 reliability tests, which is the test that the researcher has done. The reliability test is the important thing to examine because that determines the questionnaire true and can trust to use it in the research. The comparison is such a way to analyse the data that the people get the price, advertisement and branding that the respondent consuming caffeine and figure out the score that will get from a different person between the different faculty.

Regression is one of concept that the researcher wants to observe the relationship between dependent and independent after the researcher predicts the hypothesis that negative impact on the study. The observation is done when the researcher begins to report and finalize the line of research.

4 Data Analysis and Results

4.1 Descriptive Analysis

In this section is discovers of the general questions of the respondents about consuming caffeine drinks. The reasonable price of caffeinated drinks, the advertisement of caffeinated drinks, and branding product of caffeinated drinks. The descriptions of those factors are discussed in the following tables and pie chart.

The gender distribution of the respondents shows a vast difference with 54.7 percent (n=211) female respondents and 45.3 percent (n=175) male respondents. As for the age group category, the largest respondents are between the age group of 18 - 22 years old with the amount of 42.4 percent of the sample (n=163) followed by the group of 23 - 29 years with 41.9 percent (n=161). The next age group, 30 – 39 with the amount of 11.2 percent (n=43) whereas, the smallest group obtained is 40 - 49 years old age group with 4.4 percent (n=17).

For the faculty encountered, most of the respondents are from SHCA faculty which is the total of 47.2 percent from the sample (n=182) while respondent from FISE has amount about 27.5 percent of the sample (n=106). Followed by respondent from SESS faculty which shows the total percent of 10.1 from the sample (n=39). For respondent from FBMP faculty shows that the total amount about 8.8 percent of the sample (n=34) while FHLS shoes the amount total about 3.6 percent from the sample (n=14). IMS faculty shows that the amount total 2.1 percent of the sample(n=8). As for the least number of respondents falls to CFS faculty with only 0.5 percent from the sample (n=2)

and for the lowest amount falls to SPH faculty which is 0.3 percent from the amount of sample (n=1).

As for the respondent that consume caffeinated drinks, 94.6 percent (n=365) of the total respondents that have choose YES for consuming caffeine drinks while NO falls into 12.8 percent (n=49). STPM and Master, level of education falls to the amount of is 5.4 percent (n=21) of respondents that didn't consume caffeinated drinks. The most type of caffeinated beverage usually consumed by respondent is coffee which is total 50.3 percent amount from the sample (n=194). For the second largest caffeinated beverage consumed by respondent is soft drinks which is 29.3 percent amount from the sample (n=113). For the third largest amount of consume is tea which is total 14.5 percent from the sample (n=56) while fourth consume amount is energy drinks which is total 5.2 percent that totals from the sample (n=20). Lastly, for the least amount of consumed on type of beverage by respondent is pre-workout drinks and chocolate that totals the amount of 0.3 percent from the sample (n=1).

4.2 Hypothesis Results

Concurring to Samuel (1978) and HartRobinson (2003) the most un-level of 0.70 for the size of the variable is considered as being tall dependability. Factors are significantly reliable yet "Caffeine Consumer". This uncovered a Cronbach's estimation of 0.50, which is lower than the most un-level of 0.70. To sum things up, the revelations of the dependability tests back the appropriateness of the instruments used all through this consider and the idea attempted is sensible inside the area of study. Thusly, the aftereffect of the instruments is sensible for the following degree of assessments.

Table 1: Reliability Indicator (Cronbach Alpha)

	Variables	Number of Item	Cronbach's Alpha Value	Standardized item
IV	Reasonable Price of Caffeinated Drinks	5	.759	.765
IV	Advertisement of Caffeinated Drinks	5	.688	.715
IV	Branding of Caffeinated Drinks	5	.792	.794
DV	Influence on Consuming Caffeine Drinks Among MSU Student	5	.714	.707

4.3 Correlation Analysis

In this section, Pearson's relationship is used to take a gander at the connection between the free factors (IVs) and the reliant variable (DV). To test the relationship, around there, the go-between in this examination is treated as a needy variable. Connection coefficients can supply a mathematical blueprint of the heading and nature of the direct connection between the IVs and DVs. Pearson's relationship coefficients (r) range from - 1 to +1 for the indication of a positive or negative relationship. Agreeing to Pallant (2007), the gauge of the preeminent regard characterizes information on the nature of the relationship, Robinson. (2007) proposed the dependable guidelines about

the coefficient range and the strength of the relationship as appeared in Table 2 underneath.

Table 2: Rules of Thumb about Pearson Correlation Coefficient size

Coefficient Range	Strength
±0.91 to ±1.00	Very Strong
±0.71 to ±0.90	High
±0.41 to ±0.70	Moderate
±0.21 to ±0.40	Small but definite relationship
±0.01 to ±0.20	Slight, almost negligible

Source: C. Javanaud, N.R. Gladwell, S.J. Gouldby, D.J. Hibberd, A. Thomas and M.M. Robins (2007)

4.3.1 Reasonable Price and Influence on Consuming Caffeine Drinks

Based on the results in Table 3, the relationship between reasonable price and caffeine consuming is positive due to the positive value. The reasonable price has 0.569 correlation with the influence on consuming caffeine drinks. Thus, when reasonable prices are high, the influence on consuming caffeine drinks is low. The value of 0.569 falls within the coefficient range of ±0.41 to ±0.70 which makes the correlation value moderate. However, the relationship between reasonable price and influence on consuming caffeine drinks is significant because the value p-value <0.0001 is less than alpha value of 0.05. Therefore, null hypothesis (H0) is rejected while the alternative hypothesis (H1) is accepted:

H0: There is no relationship between reasonable price and influence on consuming caffeine drinks.

H1: There is a relationship in between reasonable price and influence on consuming caffeine drinks.

Table 3: Correlation between reasonable price and influence on consuming caffeine drinks

Correlations

		Caffeineconsuming1	Reasonable1
Caffeineconsuming1	Pearson Correlation	1	.569**
	Sig. (2-tailed)		.000
	N	386	386
Reasonable1	Pearson Correlation	.569**	1
	Sig. (2-tailed)	.000	

	N	386	386

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

4.3.2 Advertisement of Caffeinated Product and Influence on Consuming Caffeinated Drinks

Based on the results in Table 4, the relationship between advertisement of caffeinated product and caffeine consuming is positive due to the positive value. The advertisement has 0.670 correlation with the influence on consuming caffeine drinks. Thus, when advertisement of caffeinated product is high, influence on consuming caffeine drinks is low. The value of 0.670 falls within the coefficient range of ±0.41 to ±0.70 which makes the correlation value is moderate. However, the relationship between advertisement of caffeinated product and influence on consuming caffeine drinks is significant because the value p-value <0.0001 is less than alpha value of 0.05. Therefore, null hypothesis (H0) is rejected while the alternative hypothesis (H1) is accepted:

H0: There is no relationship in between advertisement of caffeinated product and influence on consuming caffeine drinks.

H1: There is a relationship in between advertisement of caffeinated product and influence on consuming caffeine drinks.

Table 4: Correlation between advertisement of caffeinated product and influence on consuming caffeine drinks

Correlations

		Caffeineconsuming1	Advertised1
Caffeineconsuming1	Pearson Correlation	1	.670**
	Sig. (2-tailed)		.000
	N	386	386
Advertised1	Pearson Correlation	.670**	1
	Sig. (2-tailed)	.000	
	N	386	386

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

4.3.3 Branding of Caffeinated Product and Influence on Consuming Caffeinated Drinks

Based on the results above, the relationship between branding of caffeinated products and caffeine consuming is positive due to the positive value. The branding has 0.669 correlation with the influence on consuming caffeine drinks. Thus, when branding of caffeinated product is high, influence on consuming caffeine drinks is low. The value of 0.669 falls within the coefficient range of ±0.41 to ±0.70 which makes the correlation

value moderate. However, the relationship between branding of caffeinated products and influence on consuming caffeine drinks is significant because the value p-value <0.0001 is less than alpha value of 0.05. Therefore, null hypothesis (H0) is rejected while the alternative hypothesis (H1) is accepted.

H0: There is no relationship between branding of caffeinated product and influence on consuming caffeine drinks.

H1: There is a relationship in between branding of caffeinated product and influence on consuming caffeine drinks.

Table 5: Correlation between branding of caffeinated product and influence on consuming caffeine drinks

Correlations

		Caffeineconsuming1	Branding1
Caffeineconsuming1	Pearson Correlation	1	.669**
	Sig. (2-tailed)		.000
	N	386	386
Branding1	Pearson Correlation	.669**	1
	Sig. (2-tailed)	.000	
	N	386	386

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

5 Discussion, Conclusion and Recommendations

Findings of the study recommend that the entirety of the properties proposed in the model had critical effects on the influence on consuming caffeine drinks among students in MSU.

5.1 Conclusion of the Study

Purpose of this study was to investigate the influence on consuming caffeine drinks among student in MSU This study examines caffeine intake among the students at Management & Science University. By determining the caffeine intake among the students of differents faculties in Management & Science University, future studies can be conducted that which kind of students that are most likely will consume caffeine and the effect of excessive caffeine intake on those students. On the off chance that understudies could be in danger for medical problems, future investigations could look at its effect on scholarly execution. Caffeine, a focal sensory system energizer, is the most much of the time ingested pharmacologically dynamic substance on the planet. Happening normally more than 60 plants, including espresso beans, tea leaves, cola nuts, and cocoa cases, caffeine has been essential for multitudinous societies for quite a long time. Students are one of the most frequent users of the caffeine so this research was conducted in order to investigate the number of students of various faculty in devouring caffeine drinks whether it is every day, week or month, amount of caffeine

that can be taken per day, the effect of continuous caffeine consuming and the physical condition and wellbeing of students. Based on this examine research, we can conclude that most students do consume caffeine, and each has their own reasons that make them choose to consume them.

In investigating the influence on consuming caffeine drinks among student in MSU, researchers have been doing with three factors which is reasonable price, advertisement, and branding. Each of the factor were investigated whether it has a strong relationship in influencing student in MSU to consume caffeine. Most of the student do consume caffeine but the motive that drive them to consume them is unclear and need to be investigate further.

For the first factor that influenced student to consume caffeine is advertisement., it shows the highest mean and standard deviation of respondents somewhat agreed with the information about caffeine product can found through internet. Therefore, it can be said mass media definitely plays an important role spreading information throughout the world. In this era of modern technology, most people intend to search such info with just a click of a button. With an easy click, marketers especially from restaurants or influential person definitely sees this an opportunity to market their desire preference. Apart from social media, respondent also agreed food channel as their second choice in gathering information. This is because, food channel will show a variety type of caffeine drinks and the effect they have.

In addition, activity such travelling have higher possibility to discovering searching for respondent. This is because most researcher would tend to search the best place to find respondent while travelling.

5.2 Limitation of the Study

The potential impediments of the study are discussed in this section. The time limitation and lack of financial assets as well as research information, some restriction perhaps genuine in this study. As it was hard to get local and international visitors to cooperate to fill out the questionnaire that been given to.

Researcher’s time is constrained in light of the fact that the analysts possibly had the opportunity to disperse the survey form when visitors are willing to spare a few minutes to answer the questionnaires. Nonetheless, the questions cannot be effectively addressed "yes" or on the other hand "no" on the grounds that this survey has an open and shut inquiry. Generally, most respondents did know and wanted to fill the appropriate responses in the open questions. Due to this fact, it can make the analysts extremely hard to the researchers.

5.3 Recommendations of the Study

By determining the caffeine intake among the students of different faculties in Management & Science University, future studies can be conducted that which kind of students that are most likely will consume caffeine and the effect of excessive caffeine intake on those students. If students could be at risk for health issues, future studies

could examine its impact on academic performance. As such here are some recommendations that might be valuable for the future.

Every college, university and some of skill college should organize a subject that related to beverage which is to make every student understand what the meaning of caffeine is and also to enhance the knowledge in recognizes type of beverage that has different type of recipe were created since long ago.

University could hold occasional survey to investigate how many of the students do drinks caffeine. For example, MSU could create a mandatory caffeine intake survey in the eklas system so that the overall caffeine intake of MSU students is easier to know and can be used for future research.

Company could make more discount for the caffeine drinks so that more students could consume caffeine. As example Starbucks could release a special student discount for the coffee and tea to get more attraction for the students to consume them.

5.4 Future of the Study

For the future of the study, the researcher research for the level of awareness, determines the ratio students who know or do not have any idea of the influence on consuming caffeine drinks among student in MSU. Unfortunately, the researcher aware that respondent's unlikely behavior answering the survey provided. They are most particular in gathering information from social media. Researchers hope that this research could truly answer the questions of what is influencing caffeine consuming among MSU students and could be used as a reference for future study for the better of all the students in MSU. Caffeine is a strong, yet unrecognized medication. Even though there are advantageous results in caffeine admission, the negative impacts show that one should restrict their caffeine utilization.

6 About the author

Jerome is a former student from Management & Science University where he studies degree in Culinary & Arts, currently he pursued Master studies in UITM Puncak Alam for second semester.

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Corresponding author is currently working as a lecturer in Management & Science University where he stays almost 5 years continuing teaching French Cuisines and teaching Food Safety subjects. He is our new supervisor that teaches us step by step to complete this research task.

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