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Perception towards Caffeine Consumption Habits among University Students in Kelana Jaya

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Abstract

Caffeine has obtained reputation globally in recent times, with rising caffeine consumption backed by evidence that suggests it may have health benefits. At present, caffeine is commonly used as a stimulant across various age groups, particularly among university students and teenagers. Coffee and tea are among the most common sources of caffeine, while energy drinks are increasingly becoming a significant provider to overall caffeine intake. Caffeine consumption is widespread among teenagers who hold mixed views regarding its safety. The objective of this study is to comprehend the attitudes of university students towards their caffeine consumption practices. Data was collected through a self-reported questionnaires from 157 students, consisting of 120 females and 37 males, who were conveniently selected from various levels of study. Around 43.9 percent of students believe that caffeine helps keep them awake rather than providing a source of energy. Higher caffeine intake during times of stress and exam periods are linked to unhealthy eating habits. A positive correlation was found between total daily caffeine intake and the perception that regular caffeine consumption improves academic performance, increases energy levels, and enhances alertness.

Keywords: Caffeine, Students, Perceptions, Habits, Consumption

Introduction

Caffeine-containing beverages have been consumed widely regardless of age, as they are available to adults, adolescents, and even young children. Caffeine not only occurs in coffee, but also in cocoa and tea, with synthetic caffeine being increasingly added to most energy drinks these days (Calvert et al., 2024). Regulatory agencies globally have approved moderate caffeine intake as being safe. This substance is commonly used as an additive in beverages produced for medicinal purposes, athletic performance improvement, or weight loss (Kruger et al., 2024).

Even though the consumption of caffeine is growing every day, the overuse of caffeine may have side effects, including dental problems, dangerous behavior, and insomnia, among

others. Caffeine use among the youth in the world is already high and there are many varieties of caffeinated products that are easily accessible in the market. One of the most common stimulants is caffeine, but people overlook its possible dangerous consequences on the body (Nazarudin et al., 2024).

Guarana, a natural source of caffeine, a common ingredient of energy drinks, can also be located in chocolate bars, energy bars and some over-the-counter drugs. According to Abdul Aziz et al., (2025) small quantities of caffeine can help a person feel alert and concentrate however, high doses can cause insomnia and anxiety. It is possible that a patient could develop a tolerance to caffeine and need more and more to get the same effect. Caffeine has varying effects with its individual effects lasting up to 12 hours: however, the short-term effects of caffeine normally last between 5 to 30 minutes.

The effect of caffeine on the body varies from person to person, but research indicates that consuming up to 400mg per day is generally considered a safe amount for the general population (Ching & Ling, 2021). The caffeine and sugar levels in each energy drink are high, often surpassing those found in soft drinks. Caffeine levels can differ among energy drinks, so it is essential to check the label before consuming them. Caffeine withdrawal symptoms may start within 12 to 24 hours and can persist for up to 7 days, but the simplest approach is to gradually decrease the amount consumed each time. This approach allows the nervous system time to adjust to functioning without the drug. Caffeine offers no nutritional value and can be excluded from the diet. Moreover, it does not counteract the effects of alcohol, despite the common misconception that drinking coffee helps someone sober up (Jamal, 2024).

According to recent empirical research it was shown that the consumption of caffeine is rooted in modern social life and especially in adolescents, university students and working adults. Research based on surveys conducted in various countries has shown that caffeine is generally viewed as a harmless and even positive drug, with increased concentration levels, social affiliation and increasing productivity, whereas the possible harms such as sleeping disturbance, anxiety, dependency are disregarded (Nazarudin et al., 2024). Qualitative studies also propose that the use of caffeine is a socially supported behavior that is reinforced by social norms, required to meet institutional expectations and marketing discourse which position consumption as both cause and effect of success (Jamal, 2024).

The use of caffeine has become an increasingly normalized part of daily life, especially in students and the working population, where it is commonly promoted as a productivity, alertness and social aid (Kruger et al., 2024). Although biomedical evidence on the physiological effects of caffeine is vast, little has been done to examine how people perceive the intake of caffeine, understand the risks and benefits of this product, and make caffeine part of their lives. This creates a gap in social science research since perceptions are important in influencing consumption patterns, self-regulation and health perceptions. The research problem, consequently, is in learning how social, cultural and institutional factors determine the image of caffeine use and how these images dictate patterns of consumption.

Research Question

- How does coffee work to make sure someone becomes more alert?
- Is it true that too much caffeine consumption can give more energy?

- How can caffeine improve performance of students?

Research Objective
- To determine the way caffeine works in order to make sure someone becomes more alert.
- To investigate if too much caffeine consumption can give more energy.
- To understand if caffeine can improve performance of students.

Literature Review

Become More Alert

One of caffeine's most classic effects is its ability to promote wakefulness and alertness, as it is rapidly absorbed and distributed throughout the body, including the brain. Caffeine exerts its effects by inhibiting the sleep-promoting receptors in the brain known as adenosine receptors. It serves multiple functions, including the regulation of the sleep-wake cycle (Buckley et al., 2021). Consequently, it can activate pathways that slow neural activity and enhance the sensation of sleepiness. A dosage of less than 200 mg is sufficient to reduce feelings of fatigue, improve mood, and increase alertness. Additionally, it has the potential to enhance physical performance and cognitive function. However, even small amounts of caffeine may lead to an elevation in blood pressure and heart rate, as well as increased urine production (Lone et al., 2023).

Appropriate moderation is essential, reducing the level of caffeine intake usually leads to greater effectiveness and caffeine cannot be regarded as a replacement for sufficient sleep. A dose of 100mg and above can defer the sleep, and 300 mg of caffeine can significantly boost daytime wakefulness in sleep deprived and restless individuals (Kazmi et al., 2021). According to Ching and Ling (2021), caffeine dosage of 4mg per kilogram body weight significantly increases the sleep onset latency in the test periods through the night especially light and moderate caffeine drinkers. In addition, caffeine also shows a range of positive outcomes on the brain, such as enhanced alertness and well-being, enhanced concentration, improved mood, and decreased depressive symptoms (Abdul Aziz et al., 2025).

Give Energy

Caffeine generally activates parts of the nervous system and brain to make one focus more and feel more energized and relieve fatigue. When the blood concentration reaches the peak, consumers will be most likely to have the common effects of caffeine which include energy increase. It happens because caffeine blocking in the brain results in the impairment of various receptors that are directly involved in some of the key processes such as learning, memory, and sleep, among others (Kruger et al., 2024). But as the receptors normalize their functions, they will slow down the brain activity which may cause drowsiness and sleepiness. The presence of caffeine inhibits those receptors, and the chemical messages are affected, which temporarily eliminates fatigue and improves alertness (Rauf et al., 2025). There are those who might experience a nervous or anxious feeling when taking it and this might negate the stimulating effects of caffeine.

The immediate impact that is realized in the body of caffeine when the substance is effectively absorbed by a person usually takes place between 5 to 30 minutes depending on the individual. The use of caffeine also has some effects of increasing the breathing and heart rate, which can also result in an improvement in mental alertness and physical energy

(Hachenberger et al., 2025). It also helps in staying awake as it connects to the adenosine receptors in the brain without activating them resulting in fatigue. Even though many ways to boost energy can be found, the caffeine can be considered the most well-known instant fix especially when one feels tired. It is a stimulant that improves the functioning of the brain and the nervous system in which even a small dose of caffeine can make a person feel refreshed and alert (Tucker & Beltran, 2025).

Improve Performance

Caffeine is also a supplement of choice amongst most sportsmen and women who are involved in endurance running races and has been shown to be good in improving performance. It has also been proven that the effect of caffeine on the nervous system is stimulating as it has been shown to minimize the perceptions of effort and the feeling of fatigue (Silva et al., 2025). Nevertheless, caffeine is not as effective in high-intensity training, especially in untrained people where it has not had any effect. Caffeine is an effective substance, which is able to promote mental and physical performance. To the individual who takes caffeine, improvement in performance has been observed (Feng et al., 2025).

Caffeine can elevate the levels of circulating epinephrine, also known as adrenaline, which makes the hormone accountable for the 'fight or flight' response, thereby enhancing performance. It can enhance stamina and also boost muscular strength. Caffeine can enhance the body's capacity to burn fat through lipolysis, which involves the breakdown of fat within fat cells (Chen et al., 2025). Caffeine enhances individual performance, as evident in those who consume it, including athletes who rely on caffeinated energy drinks to achieve optimal performance during their competitions. Although caffeine can enhance performance, it should not be taken in large doses, as it may drain energy rather than provide it. Caffeine seems to enhance physical performance in both untrained and trained people (Wang et al., 2022). Figure 1 provides a simplified illustration of a research framework

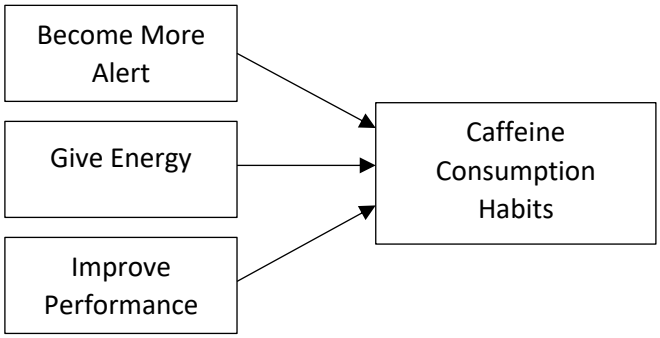

Figure 1: The research framework

Methodology

This research employed an online survey to gather insights (become more alert, give energy and improve performance) and caffeine consumption habits among university students in Kelana Jaya. The data collection process lasted approximately two weeks to gather 157 participants. The information is gathered by conducting a survey by disseminating the questionnaire via Google Forms. The questionnaire is split into three sections: the first focuses on demographic information, while the second and third concern the independent variables that become more alert, give energy and improve performance. The attached form includes

brief explanations for each section, providing clarity on their content. The participants are also made aware that all of their information will remain confidential

Findings

Demographic Analysis

The demographics of the 157 respondents who took part in this survey are summarized in Table 1.

Table 1
Demographic Profile (N=157)

Variable	Classification Variable	Frequency	Percentage (%)
Gender	Male	37	23.6%
	Female	120	76.4%
Ethnicity	Malay	135	86.0%
	Indian	13	8.3%
	Chinese	5	3.2%
	Others	4	2.5%
Level of Study	Foundation	9	5.7%
	Diploma	58	36.9%
	Bachelor	78	49.7%
	Master	12	7.7%

Normality Analysis

The normality analysis was performed to evaluate the normality assumption for the continuous variables that employed in the study. It is necessary because many statistic tests assume that all the data are normally distributed and the deviations from this assumption might lead to an inaccurate finding. For the independent variables, Q-Q plots were created. The point on the Q-Q plot should form a relatively straight line if the data is regularly distributed. The Q-Q plot show that become more alert, give energy and improve performance had point that roughly follow the straight line, indicating that the variables are acceptable and have strong internal consistency (Figure 2).

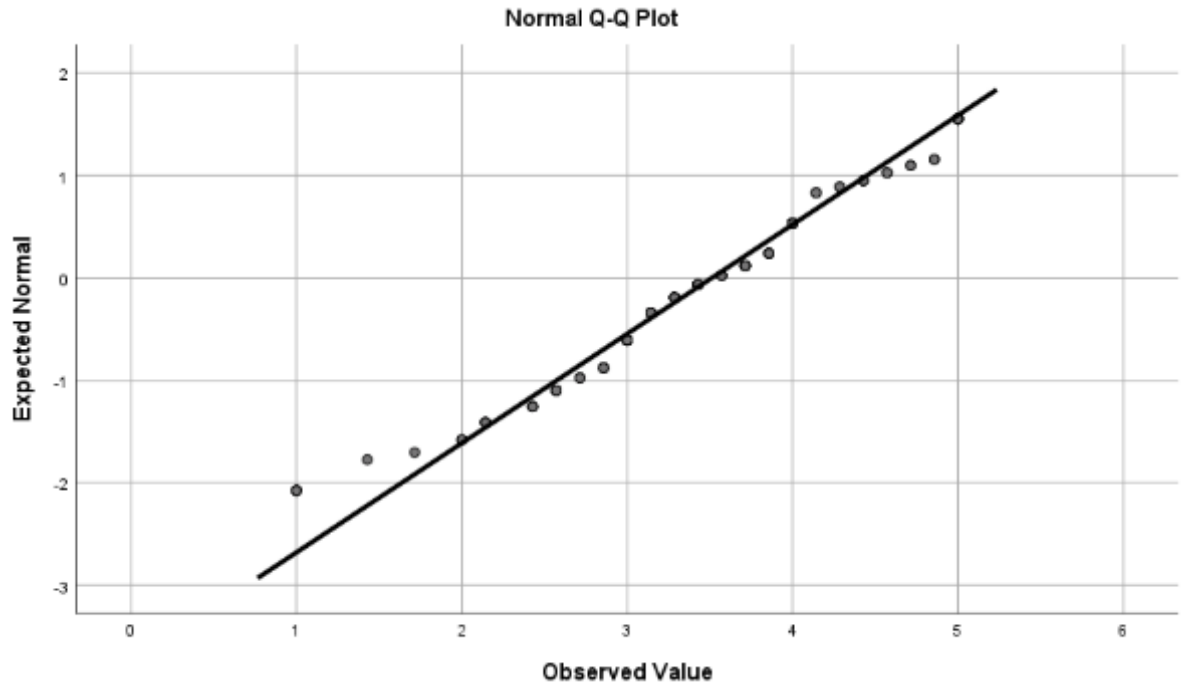

Figure 2: Independent variables Q-Q Plot

Reliability Analysis

Following performing a reliability test, the findings for the independent variables are provided in Table 2. The results of the reliability analysis indicate that every one of the variables has a Cronbach's alpha value that is more than 0.7. The values associated with to be more alert, which come in at 0.945, have the greatest Cronbach's alpha values, while the values associated with the performance improvement, which come in at 0.915, have the lowest values. This indicates that there is generally considered acceptable and have a strong internal consistency.

Table 2
Reliability (N=157)

Variables	Cronbach's Alpha	No. of items
Become More Alert	0.945	7
Give Energy	0.937	7
Improve Performance	0.915	7

Pearson Correlation Coefficient Analysis

A two-tailed significant test has been conducted to determine the correlation coefficient was statistically significant. Table 3 shows that the result from the correlation analysis that used in this study to shows the significant relationship between all the independent variables. Based on the table, it shows that there is significant relationship between perception and factors toward caffeine consumption habits.

Table 3
Pearson r Correlation (N=157)

		Become More Alert	Give Energy	Improve Performance
Become More Alert	Pearson Correlation	1	.847**	.789**
	Sig. (2-tailed)		0.000	0.000
Give Energy	Pearson Correlation	.847**	1	.879**
	Sig. (2-tailed)	0.000		0.000
Improve Performance	Pearson Correlation	.789**	.879**	1
	Sig. (2-tailed)	0.000	0.000	

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

Following the completion of a correlation analysis and the validation of all assumptions, hypothesis testing is carried out to determine if the hypotheses should be accepted or rejected. Table 4 is a summary table that summarizes the factors that students take into consideration before deciding to consume caffeine, as well as the relationship between the variables. Because the p-value is lower than 0.05, we can conclude that all hypotheses are acceptable.

Table 4
Summary of Hypothesis

No	Hypotheses	P-Value	Remark
H_1	There is a significant relationship between making more alert and caffeine consumption habits.	0.000	Supported
H_2	There is significant relationship between energy given and caffeine consumption habits.	0.000	Supported
H_3	There is a significant relationship between improved performance and caffeine consumption habits.	0.000	Supported

The study has found that there is a significant effect of alert, energy and performance on caffeine consumption habits in university student in Kelana Jaya, Selangor.

Conclusion

The independent variables of increasing alertness, providing energy, and enhancing performance influence the dependent variable of caffeine consumption patterns. All these are the most typical effects experienced by the majority of caffeine users. On the positive side, caffeine can have beneficial effects, but excessive intake can harm an individual's health. Excessive caffeine intake will not only deteriorate the body's state but may also cause anxiety, trembling, and other symptoms in individuals who are not dependent on caffeine.

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