

Prevalence and Effect of Caffeine Usage on Students of University for Development Studies Nyankpala Campus

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Abstract

This paper analyzed caffeine intake trends, timing, and perception in the university students with particular consideration on the level of knowledge, source of the intake, frequency of use, perceived impact of the consumption, as well as impact on studies and daily functioning. The research design was a descriptive cross-sectional one based on a structured online questionnaire that was conducted with 120 undergraduate students in the academic year 2020. They were evaluated using the descriptive statistics to summarize the knowledge, consumption trends, perceived implications, and factors that influence them. Results indicated that knowledge on caffeine among the students was more functional as it concentrated on energy boosting, alertness and stimulation rather than about caffeine pharmacology and health hazards. The most consumed sources of caffeine were soft drinks and energy drinks and the least consumed sources of caffeine were coffee and caffeine-containing pills. The consumption was largely situational and irregular with the majority of the students consuming caffeine at the discretion or as they pleased as opposed to becoming dependent on it on a daily basis. Although self-perceived addiction was low, a high percentage of students showed negative results, especially insomnia, headaches and anxiety. Social factors including peer pressure, celebrity endorsement and price had a minor effect in influencing consumption behavior. The findings of the research conclude that the use of caffeine by university students is normalized, and the reasons can be explained by academic requirements instead of addiction or social factors. Nevertheless, the discrepancy between the perceived advantages and the negative impact experienced also demonstrates the necessity of special health education on caffeine use in order to support student wellbeing.

Keywords: Caffeine consumption, Energy drinks, Academic stress, Proactive marketing,

Introduction

Caffeine consumption has obtained global reputation especially among students as a stimulant to stay awake or be alert with energy drinks becoming increasingly on the top list for students. Caffeine is a naturally occurring psychoactive drug; it is a central nervous system stimulant and also man-made added to a broad variety of food, drinks and pharmaceutical stuff. Its accessibility, —

low cost, and the status of a legal drug have elevated it as the most abused psychoactive drug in the world (Syed, Faozi, Nur, Ayu (2025). Despite being socially accepted, caffeine has pharmacological effects, just like other stimulants, such as alertness and mood, tolerance, and dependence (Owens et al, 2020).

The proportion of people who use caffeine, in their turn, has been growing in the recent ten years, largely owing to the rising popularity of the coffee culture, as well as the proactive marketing of energy drinks (Oluwole, 2021). Students of universities are especially susceptible to the effects of caffeine because of the stressful workload, irregular routines, and the social pressures that support the idea of taking caffeine to cope with exhaustion and stress (Owens et al., 2020). Among the frequent sources are energy drinks, coffee, tea, and soft drinks, and some students use caffeine with alcohol, which is linked to the increased levels of health risk (Peacock et al., 2018).

On average, the global caffeine consumption has been estimated at about 70-80 mg per person per day, which can be seen as a reflection of a general opinion that caffeine preserves alertness, concentration and cognitive functioning (Syed, Faozi, Nur, Ayu Amira, 2025). To an extent, these effects are mediated by the antagonism of adenosine receptors by caffeine to lessen perceived fatigue and elevate vigilance. As a result, students often drink caffeine in the lecture rooms and during exams to keep themselves awake and deal with school-related stress (Owens et al., 2020). Nevertheless, the scientific findings regarding the presence of a positive correlation between caffeine consumption and academic success are not consistent, as a number of studies reported, the perceived advantages of caffeine use do not correlate with a definite academic benefit (James et al., 2019; Mahoney et al., 2019). Although moderate cohort caffeine intake can produce short-term functional advantages, overuse was related to insomnia, anxiety, irritability, headaches and gastrointestinal malfunctions, especially in young adults with inconsistent sleep patterns (Syed, Faozi, Nur, Ayu, 2025). Grand Conyon

University (2025) indicate University students take caffeine in excessive amounts, 95% of college students report to consume caffeine on a regular basis, 51% use two or more different caffeine sources daily, coffee also clearly stands out as 47% of students prefer coffee. The most common caffeine consumption among students is the red bull and other seemingly energy drinks that can lead to addictions; it is believed that if the daily consumption of caffeine intake is high, it can lead to health challenges. For students, this is worrisome, as it can cause sleep disturbance and overall health challenges, (Owens et al., 2020; Kim et al., 2023). Students do not recognize the overall daily consumption caffeine consumption, since the range of products containing caffeine is too wide and there is a lack of knowledge about cumulative consumption (Mahoney et al., 2019). It is against this backdrop that the current study focuses on knowledge about caffeine consumption, reasons underlining consumption, different caffeine products, frequency of caffeine use and the impact these caffeinated products have on the physical, psychological and academic output of students.

Objectives of the Study

The study was guided by the following:

1. Determine undergraduate students Knowledge about Caffeine in *Nyankpala, Ghana*.
2. Identify reasons for Caffeinated Product Intake by undergraduate students in *Nyankpala, Ghana*.
3. Establish the Kind of Caffeinated Products Consumed by undergraduate students in *Nyankpala, Ghana*.
4. Identify the frequency of Caffeinated Products consumed by undergraduate students in *Nyankpala, Ghana*.

5. Perception of physical, psychological and academic impact by undergraduate students in *Nyankpala, Ghana*.

METHODOLOGY

Research Design

The study used a descriptive cross-sectional study that was conducted using both quantitative and a qualitative research approach to find out the prevalence of caffeine consumption, its trends and perceived impact on university students.

Population of the Study

The population of the study included registered undergraduate students in 2020 session.

Sample and sampling Techniques

Probability sampling was used to select a sample of 120 students in the six faculties and academic levels. This enables equal opportunity of inclusion.

Data Collection Techniques

The structured online survey Google Forms was used in the collection of data. The scale had closed and open-ended questions that addressed socio-demographic factors, caffeine knowledge and awareness, the product type and

frequency of intake and perception of physical, psychological and academic impact. The online version provided greater accessibility, anonymity and the efficiency of the response. Participation was optional and steps were undertaken to ensure that there was no duplication of participation. No recognizable data were gathered and the participants were free to leave the study with no effects.

Data Analysis Techniques

The SPSS was used to code and analyze data, and present descriptive statistics in the form of frequencies, percentages, tables, and charts.

Results And Discussion

Results

The results on table one indicates that students' knowledge of caffeine is largely functional rather than technical. Most respondents associated caffeine with staying active (23.3%), being a stimulant (22.4%), or boosting energy (18.3%). Far fewer recognized caffeine as a central nervous system stimulant (15.8%) or as the world's most widely consumed psychoactive substance (5.0%). Only a small proportion acknowledged potential side effects of excessive intake (2.5%), while very few reported having no knowledge at all (2.5%).

Table 1: Knowledge about Caffeine Among students in Nyankpala, Ghana

Knowledge about Caffeine	Frequency	Percentage
Caffeine is found in most energy drinks	2	1.7
Caffeine is impacts on the nervous system.	19	15.8
Caffeine is good but has a side effect when overused	3	2.5
Caffeine is an energy booster	22	18.3
Caffeine can be found in tea, coffee and energy drinks	2	1.7
Caffeine is the world's most widely consumed psychoactive substance	6	5.0
Caffeine makes you feel more awake during exam period	2	1.7
Caffeine is a stimulant	27	22.4
I know nothing about it	3	2.5
Caffeine keeps one activity booster	28	23.3
Total	120	100.0

Figure 1 shows the reason why respondents consume caffeinated product, the figure below shows value percentages of respondents consume

caffeine products to keep them more alert, to be productive, to stay awake, and also to have energy throughout the day.

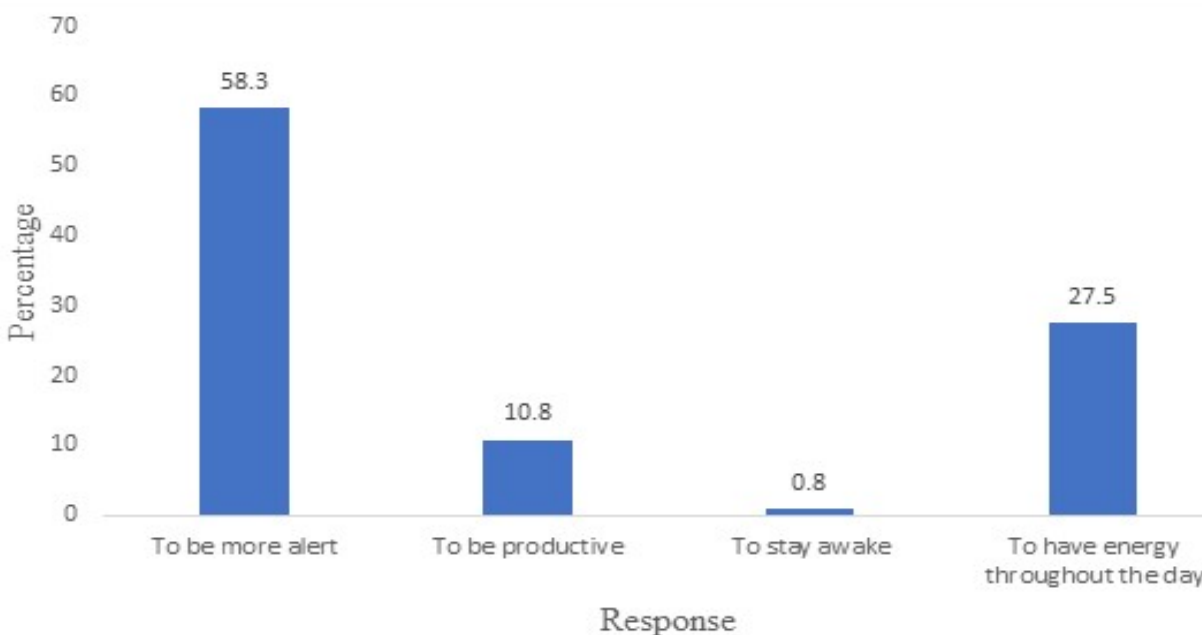


Figure 1: Reasons for Caffeinated Product Intake Among students in Nyankpala, Ghana

The results in Table 2 show that soft drinks containing caffeine (32.5%) and energy drinks (29.2%) were the most commonly consumed caffeinated

products among students. Tea also accounted for a notable proportion of intake (21.7%), while coffee (8.3%) and caffeine-containing drugs or pills (8.3%) were least consumed.

Table 2: Kind of Caffeinated Products Consumed Among students in Nyankpala, Ghana

Product	Frequency	Percentage
Coffee	9	8.3
Drugs/Pills	10	8.3
Energy Drinks	35	29.2
Soft Drinks containing caffeine	39	32.5
Tea	26	21.7
Total	120	100.0

The findings indicate that caffeine consumption was largely irregular among students. More than half of the respondents consumed caffeinated products based on personal desire

(55.8%), while 30.8% reported occasional use. Regular consumption was relatively low, with only 6.7% consuming caffeine 2–3 times a week and 4.2% using it daily.

Table 3: Frequency of Caffeinated Consumption Among Students in Nyankpala, Ghana

Response	Frequency	Percentage
2-3 times a week	8	6.7
2-4 times a week	3	2.5
Everyday	5	4.2
Occasionally	37	30.8
When I feel like	67	55.8
Total	120	100.0

The results in Table 4 show that insomnia was the most commonly reported effect of caffeine consumption, affecting over one-third of respondents (36.7%). Headaches (20.8%) and anxiety (14.2%) were also frequently reported, while 15.8% indicated no noticeable effects.

Table 4: Impact of Caffeinated Products Consumption Among students in Nyankpala, Ghana

Feeling	Frequency	Percentage
Anxiety	17	14.2
Headache	25	20.8
I don't feel any of the above	19	15.8
Insomnia	44	36.7
Normal	15	12.5
Total	120	100.0

The results in Table 5 indicate that most students did not perceive themselves as dependent on caffeine, with 82.5% disagreeing or strongly disagreeing that they were addicted and 83.3% indicating they did not need caffeine to function daily. Price was not a dominant factor in product choice for most respondents (71.7%), and consumption was not strongly influenced by peers or celebrity endorsements. While students varied in the types of caffeinated products consumed, the majority did not mix caffeine with alcohol.

Table 5: Influence of Caffeine Consumption Among students in Nyankpala, Ghana

Attributes	STRONGLY DISAGREE	DISAGREE	STRONGLY AGREE	AGREE
	Freq. %	Freq. %	Freq. %	Freq. %
Do you always consume the same type of caffeinated products	6(5)	39(32.5)	32(26.7)	43(35.8)
Is price the most important factor for you for caffeinated product choice	32(26.7)	54(45)	15(12.5)	19(15.8)
Are you addicted to caffeine products	60(50)	39(32.5)	10(8.3)	11(9.2)
Do you need caffeine products to function for the day	60(50)	40(33.3)	10(8.3)	10(8.3)
Do you agree to whether caffeine is healthy	18(15)	47(39.2)	21(17.1)	34(28.3)
Do you take caffeinated products mostly at night	26(21.7)	47(39.2)	21(17.5)	26(21.7)
Do you mix caffeinated products with alcohol	73(60.8)	42(35)	4(3.3)	1(0.8)
Does celebrity endorsement influence your caffeine product intake?	64(53.3)	36(30)	14(11.7)	5(4.2)
Do peers influence your caffeinated product intake	64(53.3)	36(30)	13(10.8)	7(5.8)

Discussion

Based on the findings, students know a lot about caffeine and the outcomes of caffeine use. This focuses on energy, alertness and stimulation, instead of the pharmacological characteristics and health risks. This is consistent with research in other settings with university students who have found that caffeine is widely perceived as an energy drink but has low awareness regarding its use as a psychoactive drug that has some unfavorable effects (Mahoney et al., 2019). Like in this study, a lack of awareness of side effects has been reported among young adults, which implies the normalization of caffeine consumption and misunderstanding of the consequences (Oluwole, 2021).

The main causes of caffeine intake, which include maintaining alertness, productivity, being awake, and energetic, can be attributed to the current literature reports that caffeine use among students is associated with academic needs and fatigue relief (Owens et al., 2020; James et al., 2019). This motivation is a reflection of the various university-based research studies, which show that caffeine consumption is highest when there is an academic stress and not necessarily as a recreational activity.

Contextual trends are also indicated in the patterns of choice of products. This pre-eminence of soft drinks and energy drinks is the opposite of studies in high-income settings where coffee can be the primary source of caffeine (Syed, Faozi, Nur, Ayu, 2025), but is in line with similar settings where affordability, accessibility and marketing, encourage the consumption of packaged drinks (Peacock et al., 2018). This points out the way in which socio-economic and environmental provisions define caffeine sources among populations.

The nature of consumption shown in this study confirms the observation of

Mahoney et al. (2019) who stated that most students use caffeine not as a habit but in situations of stress and anxiety especially during test periods, and in many cases, students underestimate the total intake per day. In spite of this anomaly, the prevalence of insomnia, headaches and anxiety is high, which is consistent with known facts about the negative effect of using caffeine, particularly at night, indicating sleep disorders and neurological symptoms (Oluwole, 2021).

The low level of perceived dependence and the weak role of peers or celebrities align with the literature that indicates that students tend to think of using caffeine as a coping mechanism and not an addictive or socially motivated behavior (Owens et al., 2020). Such a difference between negative experiences and the low self-perceived dependence supports arguments in the literature regarding the caffeine use normalization in university students.

Conclusion And Recommendation

This study concluded that the use of caffeine among university students is very common and is mainly influenced by pressure as a result of schooling and the need to combat fatigue. Students tend to have a functional knowledge on caffeine. The consumption pattern is mostly irregular and situational with soft drinks and energy drinks becoming the predominant sources of caffeine because of the availability and affordability. Although self-reported dependence is relatively low, a significant percentage of students report adverse effects, especially insomnia, headaches, anxiety, which shows a lack of relationship between perceived safety and physiological reality outcomes. Based on these findings, the following recommendations were made:

1. Universities ought to invest more in health education of students by incorporating information about

caffeine in the orientation programs, health wellness courses, and health education campaigns in the campuses. This awareness should focus on the safe doses of caffeine, common caffeine sources and the long- and short-term health consequences of excessive caffeine use.

2. Campus health services are charged to work with food and beverage vendors to offer better labeling of the caffeine in beverages on sale on campus and to promote lower-caffeine beverages.

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