"Caffeine and Its Impact with Physical and Status of Mental Health among University Students in the United Kingdom"

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

Short Communication

ABSTRACT

This research study aims to analyze the impact of caffeine on the physical and mental health of university students within the United Kingdom. The research has made use of a mixed-methods methodology, involving both the qualitative and quantitative analysis methods, to collect and analyze secondary data to meet the objectives. The data for this study has been collected from case studies enunciated and highlighted in the previous research studies in this subject area and using that data, the analysis was conducted to analyze the impact of caffeine in the context of the target population. The results of the study suggest that impact is a function of the quantity of caffeine consumed by university students. This is to say that if the quantity suggested by the health experts has been consumed by students, then there is no potential negative health outcome. But if an increased quantity has been consumed, then, as per the findings of this study, several negative mental health statuses of students in the UK may be observed.

1. INTRODUCTION

Caffeine is the most broadly consumed simulant for boosting the central nervous system around the world. It is the most examined and studied constituent of the human diet. Caffeine can be consumed from the foods made from tea, chocolate, and coffee where

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cocoa beans are the primary source of caffeine. Though, synthetic caffeine is commonly added to beverages and food products to increase their stimulant properties [1]. Numerous researches [1,2] have examined ingested caffeine by students and adults It is suggested by estimates that adults take almost 180 to 190 mg of caffeine which is almost two cups of coffee on a daily average, as pointed out in the study by Richards and Smith [3]. Coffee appeared as the primary source of this stimulant followed by tea and soft drinks. Though the intake of this stimulant in greater content might lead to adverse mental health effects A recent study demonstrated numerous unwanted symptoms related to the consumption of a greater amount of caffeine daily. These symptoms include tremors, agitation, headache, anxiety, sleep problems, and restlessness. Therefore, the impact of caffeine on mental health among university students in the UK remains the main focus as they are the highest consumers of this stimulant.

1.1 Research Aims and Objectives

The present study aims to examine the health effects of the intake of Caffeine with a specific focus on mental health status among university students of the UK. The main elements and sources of caffeine being studied include tea, coffee and chocolate.

1.2 Problem Statement

It has been shown by previous researches that university student's particular might be at higher risk of adverse mental health impacts due to their greater intake of caffeine. For instance, high caffeine consumed by university students is related to several identified mental health problems which also lead to poor sleep duration as well as increased daytime sleep. University students who strive to loser control their weight are most probable to consume a huge amount of this stimulant. Considering all these facts collectively, it becomes important that further study and investigation are essential in this discipline for analyzing potential combine impacts of caffeine on behaviour, mental distress, and physiology among students who are most vulnerable to its negative impacts. Considering the gap developed from previous research that the impact of caffeine on university students is not widely studied, this topic wants detailed attention.

2. LITERATURE REVIEW

According to the study of Kim, [4,5] caffeine leads to upsurges anxiety. It works by delaying the impacts of adenosine, a chemical in the brain that makes the person feel tired. At a similar period, it activates the discharge of adrenaline, the "fight-or-flight" hormone-related with augmented energy. Though at augmented doses, these impacts might become additional pronounced, that leads to nervousness and anxiety. Khan et al. [2] further proposed that caffeine-induced fretfulness illness is one of four caffeine-associated syndromes recognized in the "Diagnostic and Statistical Manual of Mental Disorders" (DSM), which is circulated by the APA "American Psychiatric Association". Tremendously greater daily consumptions of 1,000 mg or additional per day have been stated to source nervousness, anxiety, and the same symptoms in most consumers, on the other hand, even a moderate consumption might lead to similar impacts in caffeine-sensitive indi viduals.

Furthermore, rendering to the analysis of Al-Turki et al. [1] additional that advised daily dosage of caffeine consumption can lead to other health problems. These include increased stress levels and breathing problems. One more study highlighted that 25 healthy men discovered that those who consumed about 300 mg of caffeine faced more than double the stress in comparison to those who consumed a placebo.

On the other hand, it is also stated that consumption of a higher amount of caffeine increased mental attentiveness also in the time when the mind and brain need to relax and sleep these are specifically the night time when caffeine is consumed and sleep patterns are blocked. This ultimately leads to a sleep disorder that eventually causes mood disorder and behavioural disorder. This happens specifically in the case of those students who are habitually involved in late-night studies and consumed a high amount of caffeine while studying and working on coursework night long.

Another study established that an augmented amount of caffeine also leads to Insomnia. Studies have discovered that greater caffeine intake seems to upsurge the time required to fall asleep. It might also reduce aggregate sleeping time, particularly in elderly people. By dissimilarity, little or modest amounts of caffeine do not appear to impact sleep very much in

individuals deliberated as "good sleepers," or even those individuals with self-reported insomnia. In this regard, Richards and Smith, also found that it also leads to digestive issues and mood disorders as combine with the effect of consuming a huge amount of caffeine. Coffee's purge impact has been credited to the discharge of gastrin, which is referred to as a hormone produced by the stomach that speeds up action in the colon. What is more, decaffeinated coffee is shown to generate a similar response Though, caffeine itself likewise appears to rouse bowel movements by augmenting peristalsis, the shrinkages that move particles of food through the person's system of the digestive tract. Given this impact, it is not wondering that an increased amount of doses of caffeine might lead to loose stools or also result in diarrhoea in students who are more vulnerable to negative impacts of the caffeine. All these side-effects of an increased amount of caffeine can ultimately lead to mood or behavioural disorder because the mood and positive behaviour depend on an individual's sound health Another researcher added in these findings that that mood and sound mental health depends on a satisfactory amount of sleep the normal person has daily, but an increased amount of caffeine can disrupt this entire function or health cycle [6].

2. METHODOLOGY

2.1 Research Design

An appropriate research design is based on the selection of suitable research approaches and philosophies. Therefore, in this research positivism research philosophy and deductive research approach are employed to generate results. This is due to several reasons, one reason is that this research cross-sectional. This is because the analysis of impacts of caffeine on mental health status is examined for various caffeine products including tea, coffee, and chocolates and data is analyzed both qualitatively and quantitatively and application of mixed methods are supported by deductive research [7] approach and positivism philosophy.

2.2 Data Collection Method

To gather unbiased and reliable data, secondary methods are applied in this research. This is due to several reasons. The first is that secondary information is considered as reliable and authentic and second that secondary data is peer-reviewed and checked before its publication

that is why it does not contain any errors. This is the foundation of accurate and reliable results of the study based on information that is error-free and peer-reviewed. On the other hand, secondary data is collected from online data banks and publication platforms such as Emerald, Google Scholar, Taylor and Francis, and Jstor [8]. This helps to investigate the findings of other researchers and comparing them with the primary findings of the current study. It helps to increase the reliability, consistency, and accuracy of primary findings. Moreover, secondary data is collected for several students who consumed caffeine in colleges, and the number of students directly received negative health impacts is collected from UK health data banks. The secondary data is collected based on inclusion criteria, where numerical information such as statistics of caffeine consumption and number of caffeine consumers at universities is collected for the latest period that is between 2015 and 2019. Moreover, secondary information in terms of relevant research articles is also collected based on these criteria where articles that are published in the last 8 years are included with the relevancy of the topic variables whereas all other irrelevant and older studies are excluded. This is done to maintain reliability, and accuracy of the results

2.3 Data Analysis Method

The data analysis methods are applied based on study variables, the researcher design, and the type of research. As this research is cross-sectional and intends to quantify the health effects of the coefficient on the students of the UK, this implies that both qualitative and quantitative research methods are suitable in this research Qualitative methods to allow the examination of the data on a theoretical basis which is content or thematic analysis method and quantitative methods allow to quantify the cause and effect relationship [7] based on graphs, charts figures, and statistics published in the area of study being investigated. Therefore, in this research mixed methods are applied which contains the application of both qualitative and quantitative analysis In terms of qualitative analysis, the secondary findings of caffeine consumption and health effects published by other researchers are compared and contrasted on university students, and then based on quantitative analysis, those findings are discussed with the statistics published by UK health authorities on caffeine consumption by students and their health outcomes. Thus

comparison and analysis if both of these findings lead to generating reliable results of this study [8].

2.4 Findings and Analysis

2.4.1 Consumptions of caffeine in UK universities and its health impacts

The consumption of caffeine in terms of coffee and colas is on the rise in the entire United Kingdom and the students of the United Kingdom are recognized as massive consumers of the coefficient in either way through coffee, tea, chocolate, or cold-drinks. It can be well-explained with the graph obtained from Statista on caffeine consumption in the United Kingdom. Fig. 1. shows that there are almost 27% of the students consumed 2 cups of coffee per day and almost 17% of the students signified that that consumed six and more cups of coffee per day [6].

This signifies that there are a huge number of students who consume a massive amount of caffeine every day and therefore severe health outcomes are obvious. These negative health outcomes can be analyzed with the statics proposed by some researcher [9]. The experimental results propose that several students do perceive their caffeine consumption negatively and they think it leads them towards negative health outcomes as shown in Fig. 2 [3]. Most of the students reported that they sense a

requirement to reduce their consumption of caffeine. The most number of students reported that increased utilization and consumption of caffeine although helps them to wake and start their day with energy and stay focused on their studies especially during the time of exams and project submission. But few students agreed and opinion that they faced withdrawal symptoms deprived of steady caffeine intakes. This is also supported by the findings of Van Beek [9] that negative behaviour and withdrawal from other activities have resulted from excessive consumption of caffeine and they feel anxiety and digestive order when they consume a huge amount of caffeine. According to the results of the study proposed by Richards and Smith [3] that negative health was not a concern of the majority of the students of UK universities who consume excessive caffeine. But, in the same survey, several students pointed out that they do not sense it is a precedence to ingest caffeine daily and that they do not think that their caffeine consumption is a problem as shown in Fig. 2.

But the students in the same survey pointed out that their caffeine consumption has led to sleep disorder and almost 2.28% of the students opinioned that they cannot sleep properly after coffee consumption. Therefore, the above figure indicates that 2.7% of the students' reported that their caffeine consumption must be controlled and limited.
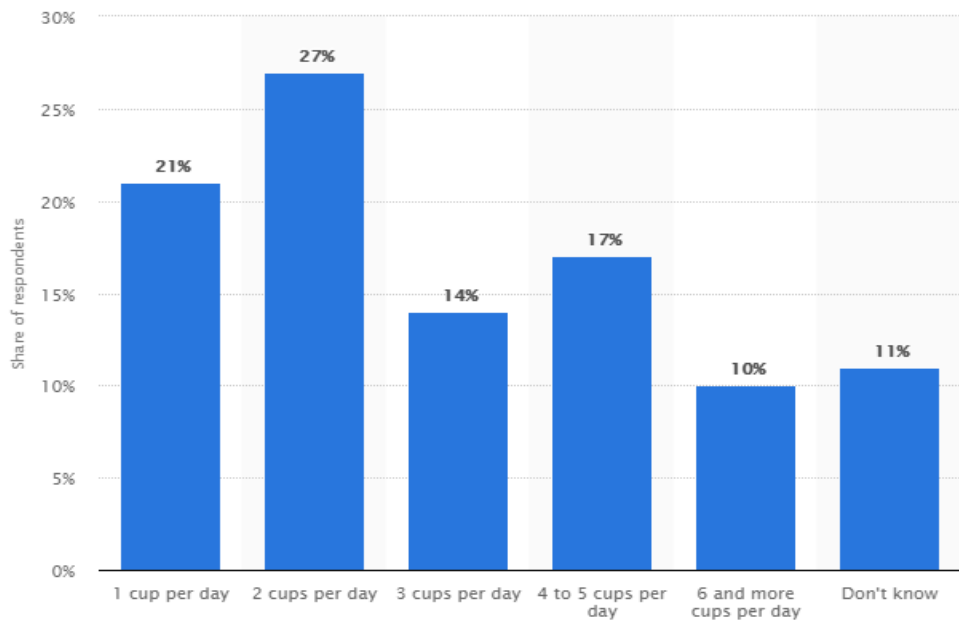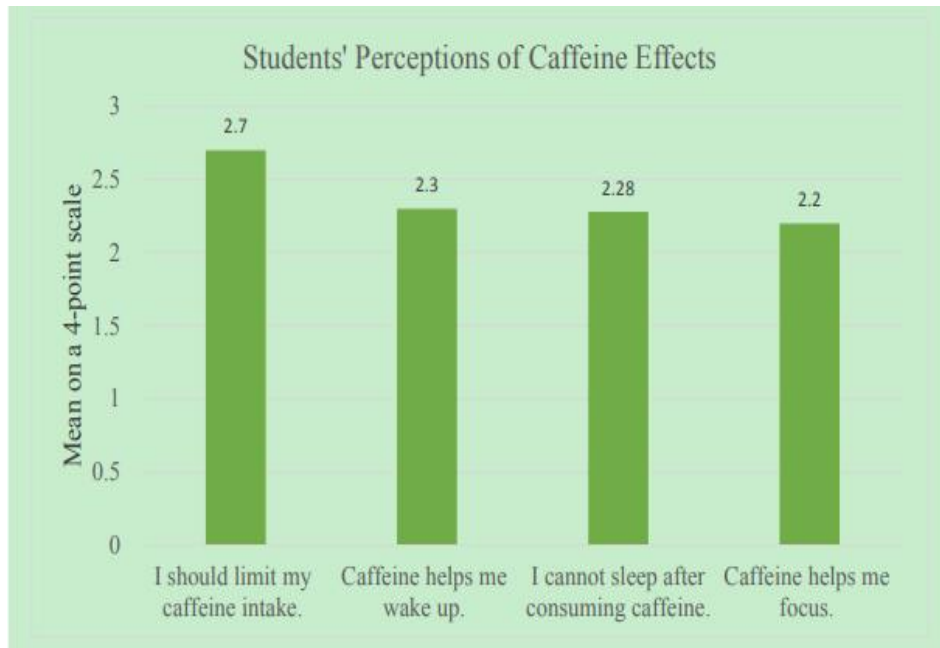

Fig. 1. Caffeine consumption in the UK. Source: [6]

Fig. 2. Students' perceptions of caffeine effects

Moreover, the experimental results proposed by Richards, and Smith [3] also proposed that above 61% of the caffeine consumers in UK universities perceive that the appropriate number of coffee cups per day leads to fewer health effects in negative terms that they have less anxiety disorder and less behavioural issues when they intake limited amount of caffeine. This can also be backed with a scientific study proposed by Van Beek [9] the caffeine when consumed in limited amounts leads to maintained sleep order and thus there are fewer behavioural and cognitive issues with the students. On other hand the results of this study proposed that there are huge impacts that student's faced, for example, reduced digestive system effectiveness, it also led to restlessness because they were not able to sleep after consuming a massive amount of caffeine throughout the day [1]. Therefore scientists have just suggested that quantity equivalent to 300 to 400 mg of caffeine can be consumed by the students to maintain their mental health status and particular they must not consume caffeine at night time. That is why the vast number of students from UK students know the adequate quantity of caffeine to be consumed per day. On the other hand, the survey result of the same study proposed that 35% of the student consumer perceives that amid one and two cups are sufficient and it does not lead to unbalancing of mental health status.

Standards inferior to this threshold set by experts, thus demonstrating some scepticism to coffee influence on health. Furthermore, 84% of caffeine consumer students think that the consequence is alike in males and females students, and 80% that decaffeinated caffeine has a similar influence to caffeinated coffee on individual health [1]. These fallouts provision that students have passable knowledge on the amount to be consumed, the influence on gender, and the kinds of coffee, justly in line with technical evidence. There is no obvious fallacy of the impacts of coffee on the health of university students. This signifies that the health impact in mental health status deepens on the quantity being consumed for caffeine by UK university students. This also implies that increased cups of coffee lead to negative mental health status.

3. DISCUSSION

The argument over the effects of coffee or caffeine on the human body has passed through several stages where it provided both negative as well as positive health impacts on human superficially students of UK universities. The findings of this research indicate that increased consumption of caffeine among students leads to sleep disorder and thus entire mental health is disturbed. Therefore, the researchers and health experts have suggested reduced consumption of

caffeine among the students. Their present study has also discovered valuable insights on caffeine consumers and perceptions over the negative health impacts of caffeine [4]. The study has discovered that there are both negative and positive impacts. The results of the study have also indicated there are a massive amount of students who consume caffeine on daily basis and almost 27% of them are consumers of almost 2 cups of coffee and 17% consume almost 6 cups of coffee on daily basis. This can also be supported with the findings of Jahrami et al. [10] where the researcher pointed out that in the UK there has been a rise in caffeine consumption specifically in breakfast and at night time which leads to improper sleep patterns of the students ate increase stress and anxiety levels of the students. This is because of observational study and its findings that validate a fundamental connection amid caffeine consumption and currently pointed out anxiety-associated symptoms stated by students in UK universities. The pharmacology of caffeine and connected methylxanthines is multifaceted, as they moderate diversity of biotic targets. However, scientific and experimental inquiries of caffeine pharmacology deliver biotic likelihood to some of these impacts, as drawn in a recent inclusive review of the impacts of caffeine consumptions among students.

4. CONCLUSION

From the above study, it has been found that the mainstream of university students consume caffeine on an everyday basis. It was also found that coffee is the chief product of consumed caffeine amongst the university students of the United Kingdom. The mean consumption was 268 mg/day that is 2 to 3 cups, with students taking more caffeine than adults. Greater caffeine consumption by the local populace carries with it a greater likelihood of headache, anxiety, and psychological suffering. At the same time, caffeine consumption is related to nervousness in students at the multivariate level, no such reflection was made in adults as if they consume a lower amount of caffeine than students. Additionally, the impact of caffeine has also been revealed to relate to feelings of unhappiness, dissatisfaction and discomfort amongst the students. It has also been found from the research conducted in this study that a majority of students have not shown any harsh negative impact attributable to caffeine on health, but some of them reported that they experienced lack of sleep when they consumed too much caffeine above what is the suggested quantity by health experts.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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