



PREVALENCE AND PATTERN OF CAFFEINE CONSUMPTION AMONG MEDICAL STUDENTS - A CROSS-SECTIONAL STUDY

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ABSTRACT

Caffeine is widely consumed by students for its stimulant effects, yet its usage patterns, perceptions, and effects vary. This study aimed to assess caffeine consumption patterns, awareness, and perceived benefits and risks among students. A cross-sectional survey of 370 participants revealed a high prevalence of caffeine consumption, with 66.5% reporting daily intake. Tea was the most commonly consumed caffeinated product (33.8%), followed by soft drinks (28.6%) and coffee (22.5%). While 77.4% of students believed caffeine enhanced performance, 63.4% considered it harmful to health. The findings highlight the role of caffeine in academic performance and stress management while underscoring the need for awareness regarding its potential health risks. Caffeine is a widely consumed psychoactive substance particularly among students, due to its stimulating effects on alertness and cognitive function. This paper explores the physiological and psychological effects of caffeine, its benefits and risks, and its prevalence among students. While caffeine can enhance concentration and academic performance, excessive consumption can lead to negative effects such as insomnia, anxiety, and dependence. The high prevalence of caffeine consumption among students, often in the form of coffee, energy drinks, and sodas, raises concerns about long-term health impacts. A questionnaire regarding the pattern, benefits and side effects of caffeine consumption were distributed to medical students of Konaseema Institute of Medical Sciences and Research Foundation. Pilot study was conducted on 10 students before data collection. 370 university students (266 females, 104 males) were selected as a sample.

KEYWORDS :

INTRODUCTION

Caffeine is a central nervous system stimulant commonly found in beverages such as tea, coffee, soft drinks, and energy drinks, as well as in pharmaceutical products. It is one of the most widely consumed psychoactive substances in the world, with a significant proportion of consumption occurring among students [1]. Caffeine is primarily consumed for its stimulating effects, which include increased alertness, enhanced cognitive performance, and temporary relief from fatigue [2]. Due to academic pressures, irregular sleep patterns, and the need for sustained concentration, students frequently turn to caffeine-containing products to improve their performance [3].

Caffeine consumption is particularly high among students, who use it to enhance cognitive function, reduce fatigue, and sustain focus during academic activities. Studies suggest that caffeine can improve memory, reaction time, and overall cognitive efficiency [4]. However, excessive consumption has been associated with adverse effects, including insomnia, nervousness, increased heart rate, and withdrawal symptoms such as headaches and mood disturbances [5]. Research also highlights the potential health risks of chronic caffeine consumption, including its impact on cardiovascular health and gastrointestinal function [6]. Additionally, gender and environmental factors play a role in caffeine consumption patterns, with hostel residents showing higher intake levels due to peer influence and irregular study schedules [7]. Given its widespread use, understanding student caffeine consumption patterns and perceptions is crucial in promoting awareness and encouraging responsible consumption habits.

Positive And Negative Effects Of Caffeine

Caffeine has both beneficial and adverse effects, depending on the dosage and individual tolerance levels. On the positive side, caffeine enhances cognitive function, improving memory, focus, and reaction times. It can also boost physical performance by increasing adrenaline levels, making it a popular choice among athletes. Additionally, moderate

caffeine consumption has been linked to a reduced risk of certain neurodegenerative diseases, such as Parkinson's and Alzheimer's [8].

However, excessive caffeine intake can lead to several adverse effects, including insomnia, nervousness, increased heart rate, and dependence [9]. Studies have shown that chronic caffeine consumption can contribute to withdrawal symptoms, such as headaches, fatigue, and mood disturbances, which may negatively impact students' well-being [10]. Moreover, the association between caffeine consumption and health-related concerns, such as cardiovascular risks and gastrointestinal discomfort, has been widely discussed in the literature [11].

Caffeine consumption trends vary based on demographic and cultural factors. Some studies suggest that students rely on caffeine not only for academic performance but also for social and habitual reasons [12]. Additionally, differences in caffeine intake patterns between males and females have been observed, with varying preferences for caffeine sources and levels of consumption [13]. Given the widespread use of caffeine among students, it is crucial to understand their consumption habits, the factors influencing their intake, and their perceptions regarding its benefits and risks. This study aims to analyze caffeine consumption patterns, motivations, perceived benefits, adverse effects, and withdrawal symptoms among students, providing valuable insights for public health awareness and education.

Methodology-

A cross-sectional study was conducted among the students of Konaseema Institute of Medical Sciences and Research Foundation from May to August 2024. Sample size was 370 students of Konaseema Institute of Medical Sciences and Research Foundation. In random sample 266 were females and 104 were males. Data were collected by a self-administered questionnaire which was developed after extensive literature review. A pilot study was conducted on 10 students of the college. Questionnaire contains demographic profile included

age, gender, discipline, occupation and education of father and mother, monthly income and contain multiple choice questions as well as some open ended questions regarding knowledge of students about caffeine, most commonly consumed caffeinated product type, frequency of use, benefits, side effects and withdrawal effects of caffeine consumption. Students were asked multi-response questions regarding situations and purposes in which they use caffeine. Questionnaires with informed consent were distributed separately among the university students.

RESULTS

Demographic Characteristics Out of 370 participants, 104 (28.1%) were male and 266 (71.9%) were female. The majority of students (81.1%) belonged to the 21-25-year age group. A significant proportion (63.8%) were hostel residents, while 36.2% were day scholars.

Caffeine Awareness and Consumption Patterns A total of 90.3% of students were aware of caffeine, and 87.6% knew about caffeine-containing products. Daily caffeine consumption was reported by 66.5% of participants, while 27% consumed caffeine occasionally, and 17.8% completely abstained.

Age of Initiation Among caffeine consumers, 34.5% began consuming caffeine between 16-20 years, 30.3% between 10-15 years, 19.3% between 6-10 years, and 10.9% between 1-5 years.

Preferred Caffeinated Products Tea was the most commonly consumed caffeine-containing product (33.8%), followed by soft drinks (28.6%), coffee (22.5%), energy drinks (14.3%), and caffeine tablets (0.9%).

Frequency of Consumption Among caffeine consumers, 47% consumed one cup of tea or coffee daily, 45.3% consumed 2-3 cups, 6.8% consumed 3-5 cups, and 0.9% consumed 5-7 cups daily.

Perceived Benefits And Risks A total of 77.4% of caffeine consumers believed it enhanced performance, while 63.4% considered caffeine harmful to health. Additionally, 84.7% believed caffeine was addictive, 26% thought it could disturb coordination, and 28.8% believed it aided weight loss.

DISCUSSION

The findings indicate a high prevalence of caffeine consumption among students, largely driven by the need to stay awake and enhance performance. Academic stress and peer influence significantly shape caffeine consumption habits [14]. The study highlights how caffeine serves as a coping mechanism for students, allowing them to combat fatigue, maintain alertness, and sustain focus during periods of academic pressure [15].

However, while moderate consumption may be beneficial, excessive intake can lead to adverse effects such as insomnia, nervousness, increased heart rate, and long-term dependence [16]. Chronic caffeine consumption can also result in withdrawal symptoms, including fatigue, headaches, and mood disturbances [17]. The psychological dependence on caffeine observed in students suggests the need for increased awareness regarding responsible consumption habits [18].

Gender differences also play a role in caffeine consumption patterns, with males showing a preference for energy drinks and females favoring tea and coffee [19]. Hostel residency is another contributing factor, as students living in hostels often consume higher amounts due to peer influence and irregular study schedules [20].

The study underscores the importance of educating students about caffeine's benefits and risks to encourage responsible consumption. Awareness campaigns should be implemented to provide guidance on healthier alternatives, such as adequate sleep, hydration, and time management strategies. Institutions should consider promoting balanced caffeine use and offering healthier options in campus cafeterias [21].

In conclusion, caffeine consumption is prevalent among students due to academic demands and social influences. While moderate intake may offer cognitive benefits, excessive consumption poses health risks. Encouraging informed choices and promoting balanced caffeine use can help mitigate adverse effects while supporting student well-being and productivity [22].

Recommendations

The abuse of caffeinated products lead to many health consequences. Health Professionals need to be aware of these consequences of caffeine consumptions on health and provide Health education to students. Students should limit the use of caffeinated beverages on daily basis to prevent its addiction. Decaffeinated herbal tea are good alternative to coffee and caffeinated tea. These are good for health and provide energy that may improve performance. Many green tea increase mental and physical activity without risk of side effects and withdrawal symptoms

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