

Prevalence and Pattern of Caffeine Consumption among University Students - A Cross-Sectional Study

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ABSTRACT

Aim: To estimate the prevalence and pattern of caffeine consumption among students of university of Lahore and to determine the knowledge about its benefits and side effects.

Method: A questionnaire regarding the pattern, benefits and side effects of caffeine consumption were distributed to medical and nonmedical students of university of Lahore. Pilot study was conducted on 10 students before data collection. 185 university students (133 females, 52 males) were selected as a sample.

Results: Among 167 students who know about caffeine, 123(66.5%) consume caffeinated products on daily basis. Most commonly consumed caffeinated products were tea (62.4%) soft drinks (52.8%) and coffee (41.6%). 77.4% students believed that caffeine enhances physical performance, 63.4% considered caffeine a harmful substance to health. Majority (41.6%) of the students had not experienced any withdrawal effects while others (24.8%) considered fatigue to be the most common one.

Conclusion: Majority of the students showed knowledge about benefits of caffeine consumption, they also know some side effects but withdrawal effects and its therapeutic uses still needs to be addressed.

Keywords: Caffeine, students ,performance, side effects ,withdrawal effects

INTRODUCTION:

Caffeine is a CNS stimulant belongs to the organization of Methyl Xanthine¹. About 90% of caffeine found in a cup of coffee is cleared from the digestive tract within 20 minutes after oral ingestion. Its outcomes commence inside an hour and last for about three to four hours. Its height plasma level is reached in approximately 40–60 minutes, with a half-life of approximately six hours in healthy adults². Caffeine is the mild stimulant autonomic nervous system and a block adenosine receptors which inhibit many neurotransmitter³. The prevalence of caffeine which leads to its preference over other psychoactive drugs is that it increases wakefulness and widespread body co-ordination (4)Caffeine's strongest effects are felt for approximately an hour after taking it, but some consequences remaining 4 to 6 hours⁵. Caffeinated products are the most famous beverages loved worldwide. In America, over 90% of human beings consume caffeine in any form on day by day foundation⁶. Caffeine intake by means of children and young adults has increased over the past decade through both; increased coffee consumption and the so-called "power beverages." Energy drinks, consisting of Red bull, string etc⁷. Caffeine intake is commonly attributed to the intake of coffee(95-200mg in 237 ml),tea(14-70mg in 237 ml),cold-drinks(23-35mg in 355ml) and dark-chocolate (336mg in 28 pieces).Caffeine is likewise found in few non-beverage foodstuffs and medicinal drugs³.

Caffeine has a prime role in the life of college students. Amoungexams, homework, and social work,

students have an increase demand for caffeine containing products like tea, coffee, energy drinks and many others.(9).Most of the Individual elements that influence how students address with academic stressors consist of age, gender, ethnic, cultural, and socioeconomic traits. students need to perform well and obtain good grades in exams may promote the use of stimulating beverages to maintain activeness and increase study time(10). Many reports have shown that coffee is the most concentrated dietary source of caffeine as well as one of the largest sources of caffeine used by athletes prior to opposition and improved performance¹⁵.

The American Psychiatric Association (DSM_IV_TR) listed a diagnostic criteria for caffeine intoxication. These criteria encompass latestconsumption of caffeine, generally in extra of 250 mg of the subsequent signs and symptoms, growing all through or may rapidly after the ingestion of caffeine consist of restlessness, tension, pleasure, insomnia, flushing of face, increase urination, gastrointestinal disturbance, muscle twitching, disrupted thought and speech, palpitation and agitation¹¹. withdrawal of caffeine produces the following side effects: "headache, drowsiness,fatigue, reduce energy and activeness, depressed temper, issue concentration, irritability and no longer clearheaded¹².

It has been proven that moderate caffeine consumers can experience symptoms of withdrawal when daily consumption of caffeine is terminated¹³. It may also help to prevent several chronic diseases such as type 2 diabetes mellitus, Alzheimer's disease, Parkinson's disease, liver diseases and, in addition, it has anti-inflammatory characteristics. However, habitual caffeine consumption has not been reported to improve short-term memory, information processing, planning and attention¹⁴.

A survey on the potential intake of caffeine was carried out in Brazil. The average and median potential daily intake of caffeine in the studied population were, respectively, 2.74 and 1.85mgkg⁻¹¹⁶. A study conducted in Health Research Funding (HRF) organization declares united states the country with highest amount of caffeine

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consumption¹⁷. In another survey concerning caffeine in Portugal, daily caffeine intake was estimated to range from 4.7 to 200 mg day⁻¹¹⁸. A study conducted in 2012 at four Medical colleges of Karachi, Pakistan reveals that energy drink users were 42.89% and non-users were 59.58%, of which; mostly thought that usage of energy drinks containing caffeine had been on rise due to its usefulness in reducing sleep hours, for studying or completing major projects and for refreshment purposes¹⁹. In Pakistan very little concentration has been given on other caffeinated products and there is not much data available regarding the awareness, prevalence and side effects of consuming caffeine. According to a Gilani Research Foundation survey carried out by Gallup Pakistan; for most Pakistanis, tea-time is an occasion for social gathering and a break from the daily routine²⁰.

Compared to the national average, college students consume five times more the amount of caffeine from caffeinated drinks, yet the majority of students also do not believe that caffeine is associated with negative health fitness effects. Studies confirmed that the top three reasons for ingesting caffeine among students include, educational purposes (62.6%), social consumption (70%), and desire for its taste (72.4%)²¹. The research determine the frequency of caffeine intake among university students for their academic and other purposes, most commonly consume caffeinated beverage, and the most popular circumstances in which university students consume caffeine and to assess knowledge of its benefits, side-effects and withdrawal symptoms among students.

The aim of the study is to determine the use of caffeine among students for academic and non-academic purposes, to determine the type of caffeinated products mostly used and to assess the Knowledge of its benefits and side effects among students of university of Lahore.

METHODOLOGY

A cross-sectional study was conducted among the students of University of Lahore from May to August 2016. Sample size was 185 students of university of Lahore both medical and non-medical students are included in random sample 133 were females and 52 were males. Data were collected by self administered questionnaire which was developed after extensive literature review. A pilot study was conducted on 10 students of the university. Questionnaire contain 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. Questionnaire with informed consent were distributed separately among the university students. collected data were analyzed through SPSS version 20 and descriptive statistics were applied to developed the frequency tables and graphs

RESULTS:

A total participants was 185 in which 52(28.1%) were male and 133(71.9%) were females. most of the students (81.1%) were lying in (21-25yr) of age group. 142(77.2%) students belong to medical field and 42(22.8%) belong to non-medical fields. 63.8% were hostile and 36.2% were day scholar. 90.3% students were know about caffeine and 87.6% students know about the products which contain caffeine. 66.5% students consume caffeine on daily basis 27% consume occasionally 17.8% absolutely not consume caffeinated products. 34.5% participants start consuming caffeine 16-20yr of age ,30.3% start consuming 10-15yr of age ,19.3% 6-10yr of age,10.9% 1-5yr of age. Tea is most commonly consumed caffeinated product (33.8%) followed by soft drinks (28.6%) ,coffee (22.5%),energy drinks (14.3%) and tablet form (0.9%) shown in figure 1. mostly students(47%) consumed 1 cup of tea/coffee daily and (45.3%) consumed 2-3 cups daily ,(6.8%) 3-5 cups daily,(0.9%) consumed 5-7 cups daily shown in figure 2. (77.4%) consumers believed caffeine enhance performance. 63.4% consumers believed caffeine is harmful to health. 84.7% believed caffeine is addictive. 26% consumers believed caffeine can disturbed coordination .28.8% consumers believed caffeine help to lose weight. most of the students consumed caffeine for the purpose of to be more awake (29.8%),to cure headache(20.8%) , satisfy craving (16.7%), for taste (17.9%),to be more active(13.7%) shown in figure 3. most of the students consume caffeine in situations like studying for exams (47.8%) ,when they have headache (21.7%),driving long distance(8.7%),at working place(5.4%). many participants experienced side effects after taking caffeine. 33.6% can't sleep,23.2% frequent urination,4.8% nervousness and hot flushes,5.6% restlessness shown in figure 4. Many participants experienced withdrawal effects when they not consume caffeine fatigue (16.1%),headache(14%),craving for caffeine (13%),drowsiness (11.4%),anxiety and depression (5.2%) shown in figure 5. some students mentioned the reasons of not consuming caffeine 46.6% not consumed due to its side effects,28.6% due to fear of its addiction.

Fig. 1

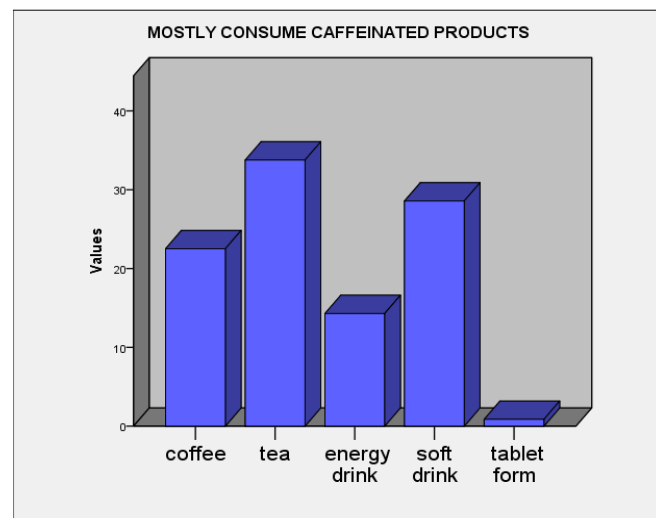


Fig. 2

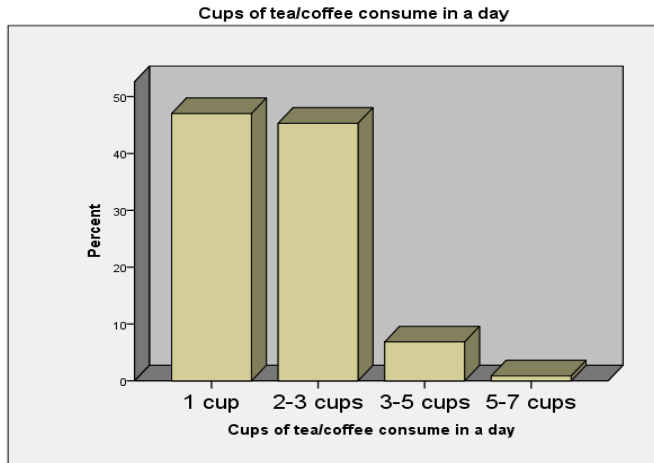


Fig. 5:

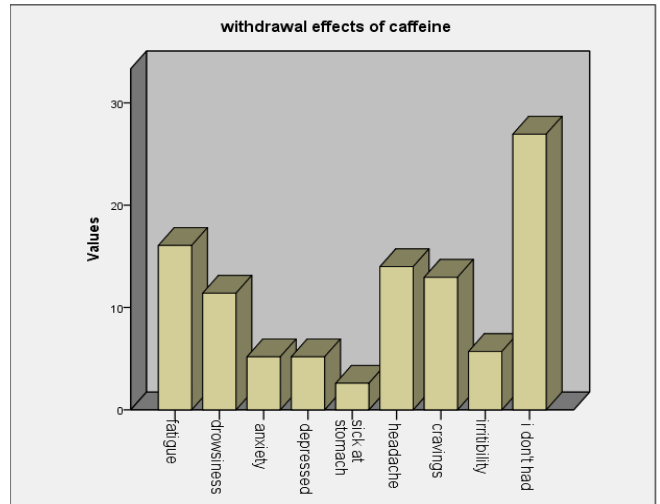
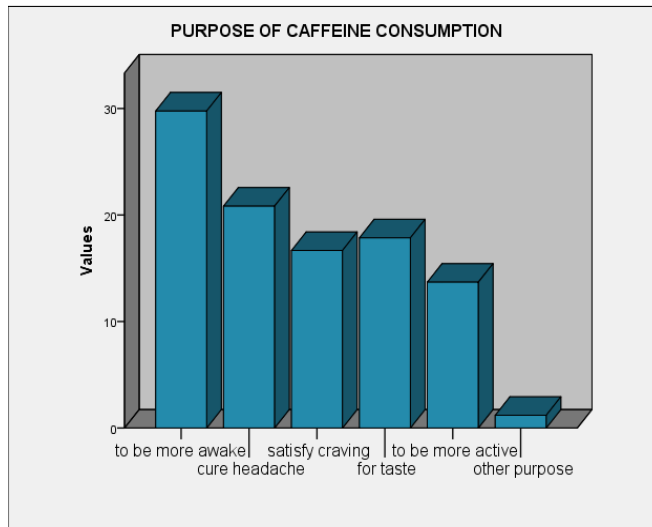


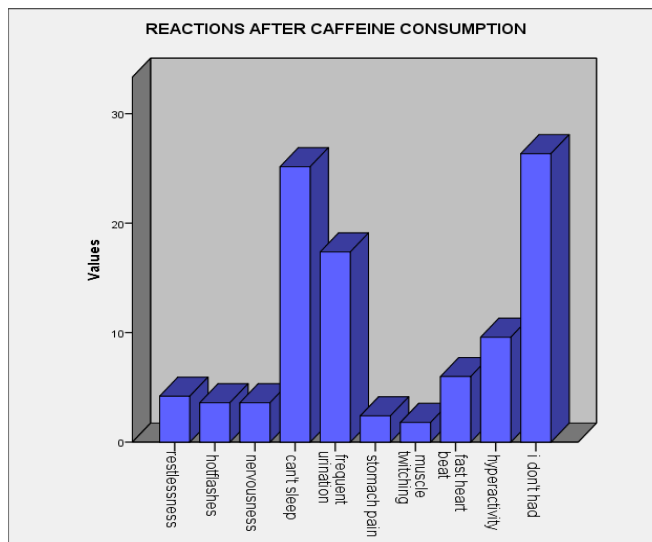
Fig. 3:



DISCUSSION

Our study was an attempt to observed the prevalence and pattern of caffeine consumption among student of University of Lahore, to assess the factors that affect caffeine intake and to evaluate the health outcomes of caffeine on the human body. The usage of caffeine is related to increased alertness and improved performance while studying for exams, to cure headache, at work vicinity and riding long distance. In the present study it was found that 66.5% of the participants used caffeinated beverages on daily basis. While the study conducted in university of Free-State south Africa found that many of their participants used caffeine due to educational purposes (62.6%), socially consumptions (70%) and for the flavor (72.4%), hangover (11%), even as long riding (10.7%), and to enhance the performance in games (4.7%)² In the current study, it is observed that 66.5% students consumed caffeine daily and purpose of caffeine consumption mentioned by students was that, to stay awake (29.8%), to cure headache (20.8%), satisfy craving (16.7%), For taste (17.9%), To be more active (13.7%) and (1.2%) participants consumed caffeine for other purposes. Majority percentage of the participants (84.7%) in this research perceived addiction to caffeine whereas 15.3% did not perceived addiction to caffeine. (63.4%) believed caffeine is harmful to health, (77.4%) believed caffeine enhanced performance, (26%) believed it disturbed coordination and (28.8%) believed that caffeine helped to lose weight. Approximately (35.2%) of the students said that they do not experienced any reactions upon caffeine intake whereas a study achieved with the aid of University of Kentucky Doctora dissertation determined that (40%) participants perceived restlessness, 38.3% excitement, 11.7% nervousness and 20.3% perceived withdrawal effect fatigue, 15% drowsiness. while in current study insomnia was the most common symptom with about 33.6% of the participants experiencing it, followed by frequent urination in 23.2% of participants. (10) The current study described that caffeine has many effects on students health and behavior due to their dependence on caffeine.

Fig. 4



CONCLUSION

66.5% of the participants use caffeinated beverages on daily basis, 27% consume occasionally while only 17.8% did not use caffeinated beverages. The most common factors responsible for caffeine consumption were found to be stay awake followed by, satisfy craving and to become in exams and during work. Insomnia was the most common health's effect of taking caffeine. The second most common effect included increase urination. Most of the students commonly experienced fatigue followed by craving for caffeine and headache as some withdrawal effects. The research finding indicate that more than half of the students believed caffeine enhances the performance and it cause addicted and cause side effects.

SUGGESTIONS

The present study described the pattern of caffeine consumption among the students of University of Lahore. 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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