

Research Article

Knowledge, attitude and practices towards consumption of caffeine containing drinks among the student population of Ras al-Khaimah medical and health sciences university, UAE

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ABSTRACT

Background: Caffeine, world's most widely consumed and legally accepted psychoactive substance which is commonly found ingredient in many drinks like coffee, tea, carbonated drinks and energy drinks. The objective was to explore how much dependent are the teenagers and young adults on caffeine containing drinks, reasons and circumstances for the consumption and to know the knowledge and attitude of the consumers about the health effects of the caffeine containing drinks.

Methods: A validated questionnaire was administered randomly to about 298 students from MBBS, BDS, B Pharma and Nursing programmes of RAK Medical and Health Sciences University (RAKMHSU).

Results: Out of 298 students in the study, 97% (n=290) of them drink caffeinated beverages in the form of coffee (53%), tea (43%), energy drinks (17%), carbonated drinks (18%) and all of the above (11%). The major reasons for consuming varied, where more than half of them gave the reason as to keep them awake for study purpose (53%), to get refreshed (51%), taste and flavour (49%). About 56% were of an opinion that they do experience different symptoms if they don't consume their daily caffeine intake. 54% students admitted their caffeine consumption has been increased after joining the university. When knowledge and attitude were questioned, 63% of them think caffeine addiction is a health issue and majority of them were aware of the ingredients of these drinks but not the safest amount.

Conclusions: Drinking caffeine containing drinks by the students are variable from different sources, so monitoring is necessary for the daily intake and there is need for educational programmes about the health effects related to high consumption of caffeine.

Keywords: Caffeine, Addiction, Coffee, Tea, Energy drinks, Educational programmes

INTRODUCTION

Caffeine, world's most widely consumed psychoactive substance by both adults and children, which is legal, easy to obtain and socially acceptable to consume. Caffeine is a central nervous system stimulant of methyl

xanthene alkaloid class, naturally occurring in coffee beans, tea leaves, cola nuts, yerba-mate leaves, cocoa beans and guarana seeds.¹

Apart from water, tea and coffee has become world's popular beverages in most of the individual's life as a daily routine. Consumption of energy drinks and soft

drinks has become popular practice worldwide, especially among younger populations. An extract from cola nuts and synthetic caffeine are used in many cola drinks and energy drinks. The psychoactive properties of caffeine have released extensive research that demonstrates that caffeine can have both positive and negative health effects on individuals.

Modest intake of caffeine that is 200 – 300mg per day are beneficial to health.¹ A safe level of daily caffeine intake is regarded as one not exceeding 400 mg per day.² Excessive daily intake above 400 mg may however cause agitation, sleep disturbances, anxiety, irritability, nervousness.³ A regular, long term and excessive intake may lead to an addiction and adverse health consequences.¹ Caffeine, like sugar, may activate the dopaminergic reward system and thence lead to addiction.⁴ The adverse health effects of caffeine are even more apparent in sensitive populations, namely children and adolescents.⁵

During childhood and adolescence, the brain undergoes intensive development, especially those centers responsible for performance, planning and emotional control, where frequent caffeine consumption by these groups may have adverse health impacts. Additionally, energy drinks can contain ingredients such as guarana, taurine, inositol, group B vitamins, glucuronolactone and others which enhance the action of caffeine.¹ The extensive advertising of these drinks and their accessibility in grocery stores, convenience stores and supermarkets has made them both acceptable and readily available for all age groups in a population.⁶ It was

reported that energy drinks are available to buy in more than 140 countries, and half of the consumers of these drinks consisted of children, adolescents and young adults.⁷ Many studies have been conducted to explore the intake and attitude towards energy drinks among the adolescents mainly in countries like United States of America, Saudi Arabia, and Europe. Tea and coffee are most popularly consumed beverages by both adults and teenagers throughout the World including United Arab Emirates, in spite of this there are not much studies related to consumption of caffeine containing beverages. Over this, all these studies were done mainly in homogeneous group of young population. United Arab Emirates is having native Emirati population and also population from different nationalities. Similarly, RAK Medical and health sciences University is also having students from different countries. By keeping this in mind, we carried out this study to analyze the consumption of caffeine containing beverages by heterogeneous group of students at RAKMHSU with context to amounts of drink and preferences. And also to check their awareness about the composition of such beverages and possible risks associated with it.

METHODS

A survey was performed using pre-validated 20 items questionnaire, on 298 students aged between 17 and 25 years from MBBS, BDS, B Pharma and Nursing programmes of RAK Medical and Health Sciences University. Ethical clearance from the Institutional Ethics Committee was obtained and then the questionnaire was administered to the students.

Table 1: Questionnaire.

General information	
1. Age of participant	2. Gender
3. Study program	4. Nationality
Practices	
5. Do you drink caffeinated beverages (i.e. Coffee, tea, energy drinks, carbonated drinks etc.)?	6. What is your preferred caffeinated beverages? (you may choose more than one option)
7. How often do you consume caffeinated drinks?	8. At what age, did you start consuming caffeinated beverages?
9. Why do you consume caffeinated beverages? (you may choose more than one option)	
10. How many cups/cans/bottles of caffeinated beverages you consume? (please mention small (s)/medium (m)/large (l)	
11. Which of the following do you experience, if you don't consume your daily caffeine intake? (you may choose more than one option)	12. On what part of the day or night you have the most consumption of caffeine?
13. Do you feel that your caffeine consumption has increased since you have joined the university?	14. Could you go 48-72 hours without caffeine?
15. On a scale 1-5, with 1 being the lowest, how much do you think you depend on caffeinated beverages to get through a day?	
Knowledge and attitude	
16. In general, why do you think caffeine consumption has increased over the years? (you may choose more than one option)	17. Do you think that caffeine addiction is a health issue in today's society?
18. Are you aware of the ingredients contained in an energy and carbonated drinks	19. What is the 'safest' amount of caffeine consumption per day?
20. Which of the following symptoms you think are side effects of consuming caffeinated drinks?	

The questionnaire was divided into 3 sections which includes general information, practices, knowledge and attitude of the study groups (Table 1).

Student's participation was totally voluntary and clear explanation was given to the students regarding the study and consent was taken prior to administering the questionnaire. The questionnaire was anonymous but participant's general information including age, gender and nationality were collected.

Results of the study were statistically analyzed using SPSS software 20 package. Descriptive statistics and Chi-square test was used to analyze the data.

RESULTS

Out of 298 students in the study, majority of them (78%) students were female and 22% males in which 238 were aged between 17-20 years and 60 were above 20 years old. Among these, 97% (n=290, p<0.001) of them drink caffeinated beverages in the form of coffee (53%), tea (43%), energy drinks (17%), carbonated drinks (18%) and all of the above (11%) (Figure 1). Half of the students (53%) consume caffeinated beverages daily and about 26% weekly. 47% (140) of students started consuming the caffeinated beverages when they were less than 16 years of age and 38% (113) between 16-18 years. The main reasons for consuming these beverages were to keep them awake for study purpose (53%), to get refreshed (51%), taste and flavor (49%), for energy (36%), as a daily drinking habit (36%) and to release stress (27%) (Figure 2). 69% (205) students experience headache or irritation or fatigue or palpitation if they don't consume their daily caffeinated beverage (Figure 3). 54% (n=160) students were of the opinion that their caffeine consumption has been increased after joining the university and 70% (208) students admitted that they cannot go 48 – 72 hours without consuming caffeine containing beverages.

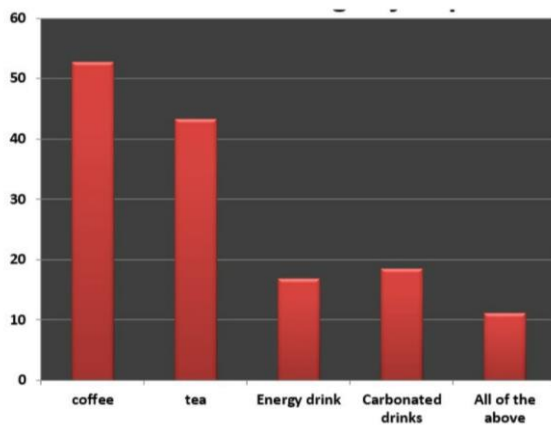


Figure 1: Percentage of students preferring which type of caffeinated beverages.

When the knowledge and attitude of the students were checked, more than half of them (63%) have the knowledge that caffeine addiction is a health issue in today's society (Figure 4). 60% of the students believe that due to school and study activities the consumption of caffeine containing beverages has increased over the years. Majority of the students (87%) were aware of the ingredients contained in energy and carbonated drinks but not the safest amount of caffeine consumption per day (Figure 5).

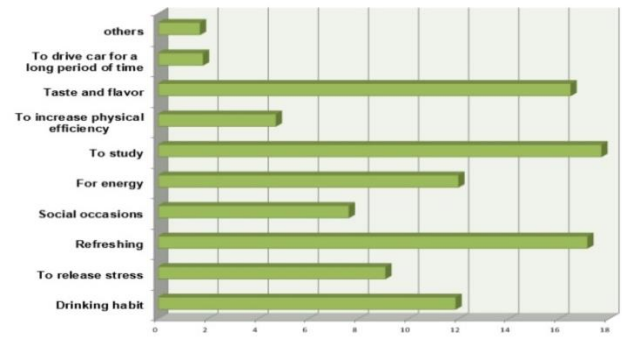


Figure 2: Percentage of students having different reasons for consuming caffeinated beverages.

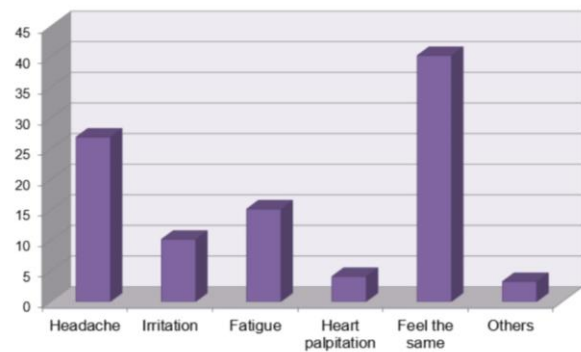


Figure 3: Percentage of student's who experience different symptoms if they don't consume their daily caffeine intake.

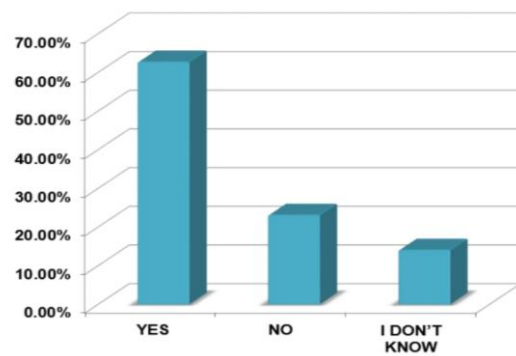


Figure 4: Percentage of student's opinion about caffeine addiction is a healthy issue in today's society.

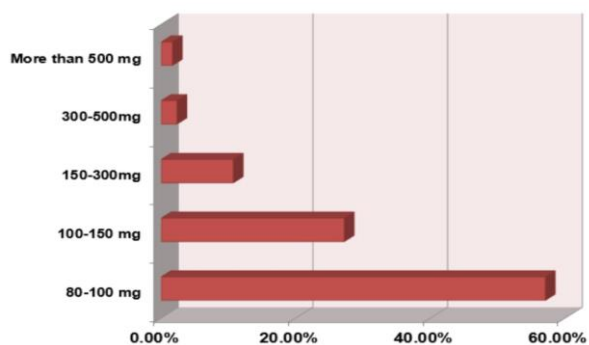


Figure 5: Percentage of student's knowledge about safest amount of caffeine as per consumption day.

DISCUSSION

There is growing popularity for caffeinated beverages which are consumed at all ages due to their availability, popularity and stimulating effect. It is enjoyed worldwide even by the young people. Health risks caused by their excessive consumption has been demonstrated in many studies.

The present study demonstrates, consumption of caffeinated beverages is a popular practice among the students, particularly during studies, to stay refreshed and also for energy. Some are addicted to drink these beverages for its taste and flavor. Similar survey was done in University of Life sciences, Poland comparing between middle school pupils and university students. They found that cola drinks were popularly consumed by both the groups (97% school pupils and 93% university students) to improve well-being and to enhance intellectual or physical performance.¹ But in present study, students consumed more of coffee and tea.

Another research was conducted by the authors in Jeddah, Saudi Arabia related to consumption of energy drinks among adolescents. About 55% of adolescents consumed energy drinks once or more each week, and 43% believed that these drinks provide immediate energy. Furthermore, about half of adolescents had no knowledge of the ingredients in energy drinks, and they also did not know that these drinks contain caffeine.⁸ In our study, majority of the students were aware of the ingredients especially in the energy and carbonated drinks.

A survey conducted on energy drink consumption patterns among college students of North Carolina, USA reported 51% of participants consumed greater than one energy drink each month. The majority of users consumed energy drinks for insufficient sleep (67%), to increase energy (65%), and to drink with alcohol while partying (54%). Weekly jolt and crash episodes were experienced by 29% of users, 22% reported ever having headaches, and 19% heart palpitations from consuming energy drinks.⁹ In our study, though majority of the students didn't consume energy drinks but consumed

more of coffee & tea, still experienced headaches, irritation, fatigue or palpitations if they don't consume their daily intake of these beverages.

A study was done among college students of a Medical University in Thailand on sleeping quality and sleeping pattern in relation to consumption of energy drinks, caffeinated beverages and other stimulants. It was reported in the study that prevalence of poor sleep quality was found to be 48.1%. A significant percent of students used stimulant beverages (58%). Stimulant use was found to be statistically significant and positively associated with poor sleep quality.¹⁰

Another study done on selected group of students in a University of life sciences, Poland showed that students consumed many more energy drinks during examinations (1424 ± 1577 ml/week) than during the academic year (441 ± 579 ml/week).¹¹

One more analysis done on consumption of caffeinated energy drinks by students of junior and senior high schools in Poland reported that 67% students consumed the drinks and these young people selected a particular energy drinks looking at the taste, price and effect.¹²

Many research shows that the consumption of various sources of caffeine, along with energy drinks by children, adolescents and young adults can lead to health disorders and complications due to excessive caffeine intake.^{7,12}

There are some studies which conclude that moderate doses of caffeine (200 – 300 mg) often produce enhanced feelings of well-being, improve concentration, and increase arousal and energy. High doses (>400 mg), however, lead to feelings of anxiety, nausea, jitteriness and nervousness and caffeine intoxication may lead to restlessness, insomnia, gastrointestinal disturbances, tremors, tachycardia and psychomotor agitation.^{4,13,14}

CONCLUSION

Drinking caffeine containing drinks by the students are variable from different sources. Consumption of caffeine containing drinks in higher doses has negative health effects, so self-control and monitoring is necessary for the daily intake. This can be achieved through awareness programmes and there is need for educational programmes about the health effects related to high consumption of caffeine.

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