

Perception and Practice of Using Energy Drinks by Medical Students of Private Medical College

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ABSTRACT

Objective: To determine pattern, frequency and reasons behind usage of energy drinks among medical students of Pakistan.

Study design: Descriptive study.

Place and duration of the study: From August 2015 to January 2016 at Combined Military Hospital, Lahore.

Methodology: The study was cross sectional. Research questionnaires were distributed among and filled by 350 medical students. All the data was analyzed by using SPSS 23. The research factors and responses were correlated

Results: Of the 350 medical students, there were 186(53.1%) males and 164(46.8%) females: 124(35%) considered themselves regular users of energy drinks. The most common brand consumed was sting by 52.4%(65) users, followed by red bull used by 35.4%(44) of the users. Of 350 students, 124(35.4%) thought that energy drinks helped to stay awake longer, 88(25%) couldn't give any response regarding their perception since they didn't consider themselves active energy drink users and 62(17%) thought energy drinks decreased tiredness.

Conclusion: Majority of the medical students do not consume energy drinks. Among consumers, Sting is the most popular energy drink and the dominant perception and reasoning for energy drink consumption are the need for increased wakefulness and decreased tiredness.

Key words: Perception, Prevalence, Medical students, Energy drinks.

INTRODUCTION

Energy drink is a type of beverage which contains stimulant drugs, usually including caffeine, which is marketed as providing physical and mental stimulation, mood elevation, increased attention span, wakefulness and muscular endurance.¹ Generally coffee and tea are not considered in this category of drink despite containing caffeine.

There has been a concern that the high amount of caffeine contained in these drinks may be harmful if taken along with other drinks like coffee or herbs due to which toxicity of energy drinks has been assessed and it has been acknowledged that energy drinks could be harmful for young children taken with some other drink containing caffeine.² These energy drinks have also been associated with increased risk of cardiovascular diseases along with an increased risk of seizures.³ In addition to caffeine, they also contain guarana which provides additional tonic stimulation enhancing the effect of caffeine.⁴ Energy drinks also have high amount of sugar (24 to 29 grams average in a single serving) which might also be harmful.

Besides the harmful concerns, energy drinks have also been linked with some beneficial effects on mood and concentration. These drinks increase alertness and concentration bringing its users to a state of hyperactivity, increased memory and reaction time.⁵ Its use first started from 1987 with the creation of red bull and dramatically enhanced when other brands were

introduced in the markets after 2000, we can fairly say that we may not be completely aware of all the possible effects of energy drinks on general population.

With the increased usage of energy drinks all over the globe, it is necessary that we define the underlying reasons behind the usage of these drinks by studying the frequency, accessibility and general perception about their uses in the society.

A study conducted among the students of 3 medical colleges in Jeddah, Saudi Arabia and a similar study conducted in Marmara University Medical School, Istanbul showed that 52.6% and 32.6% students respectively had consumed energy drinks at least once.^{6,7}

A study from Agha Khan University, Karachi, Pakistan also showed that a significant number of medical students (52%) reported that they have used energy drinks to replenish energy and study for exams.⁸

Our study aimed at studying and analyzing the frequency of energy drink consumption as well as the perception of its use among the medical students of CMH Lahore Medical College.

METHODS

The study was of cross sectional type based on self-administered questionnaire with collection of data from the medical students of CMH Lahore Medical College and Institute of Dentistry. The duration of study was 3 months. The students included in study were currently enrolled in studies. Graduates and practicing doctors were excluded from study.

Sample size comprised of 350 undergraduate students from various age groups ranging from 18 to 24 years studying in 1st year to final year MBBS or BDS. There were 186 males and 164 females included in the study. Boarders and day scholars were both included in the

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study. The students from 1st and 2nd year of their undergrad study were categorized as pre-clinical while the students from 3rd year to final year of their study were categorized as clinical students.

A registered professor of public health and community medicine designed the questionnaire form for the assessment of the general use and perception of energy drinks among medical students.

The first part of the questionnaire was concerned with the collection of demographic details of the students. In this part the students were required to fill the information about their gender, residence (day scholar or boarder) and years of education (preclinical or clinical).

The second part comprised of 3 questions which asked the student whether they used the energy drinks and if they did then which drink they mostly used. Final question asked was about their perception regarding the possible benefits of using energy drinks. The options included in the question were as follows: -

- 1) stay awake longer
- 2) to improve mental performance
- 3) to improve concentration
- 4) to reduce tiredness
- 5) to improve exercise capacity
- 6) to improve memory
- 7) to elevate mood
- 8) to increase performance in exam.

The students were asked to choose the best possible option from the given statements i.e which option would they consider as the predominant reason behind use of energy drinks. All the students regardless of being a user of energy drink or not were asked to answer this question as the question was predominantly concerned with awareness or the perception about the general usage of energy drinks in the student population included in the study.

The participation in research was voluntary. Due consent was taken. All the students filled the forms alone without any external influence, after complete instructions on

how to fill the form were given to them.

The data attained was analyzed by using the IBM SPSS statistics software version 23. All the factors in data were correlated and their relation analyzed and expressed in the form of graphs, tables and pie charts. The descriptive analysis included frequencies and percentages for the demographic variables (gender, residence, year of clinical education) and consumption of energy drinks (including usage, brand and perception about the benefits).

The variables were correlated as their relations analyzed based on chi square test. p value of less than 0.05 were considered significant.

RESULTS

Of the 350 students who filled the questionnaire, 186 (53.1%) were males and 164 (46.9%) were females; 124 students (35.4%) considered themselves the regular users of energy drinks while 226 students (65%) were non-users.

The most popular energy drink found was Sting used by 65 (18.6%) of the student population followed by red bull used by 44 students (12.6%) of the student population. The other energy drink brands were comparatively less commonly used by the students (Figure 1)

Out of 350, 124 students (35%) thought that energy drinks were used mostly because they helped a person stay awake longer, followed by 17% of the student population that thought that energy drinks were mostly used because their use decreased tiredness. Ten percent of the student population under analysis thought that energy drinks were used because they elevated the mood (Table 1).

On doing cross data analysis it was found that males used energy drinks more commonly than females (78 male versus 46 female users), and this difference was significant statistically ($p=0.007$) (Table 2).

A significant association (p value) was also seen when the year of education i.e. clinical or preclinical was

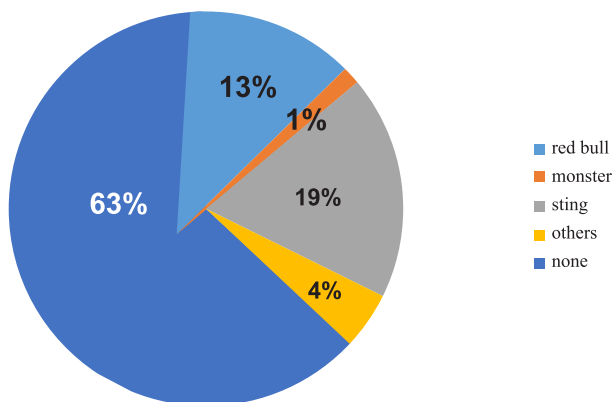


Figure 1. Frequency Distribution of Use of Energy Drink (n=350)

Table 1. Perception about the benefits of energy drinks

		Percent
Can't say	88	25.1
Makes you stay awake longer	124	35.1
Improves mental performance	7	2.0
Improves concentration	17	4.9
Reduces tiredness	62	17.7
Improves exercise capacity	11	3.1
Elevates mood	38	10.9
Increases performance in exams	3	0.9
Total	350	100.0

Table 2. Use of energy drinks versus male or female users cross tabulation

		GENDER		Total	P value
DO YOU USE ENERGY DRINKS		MALE	FEMALE	Total	P value
	YES	78	46	124	0.007
	NO	108	118	226	
Total		186	164	350	

Table 3. Cross tabulation of use of energy drinks clinical versus pre-clinical

		GENDER		Total	P value
DO YOU USE ENERGY DRINKS		MALE	FEMALE	Total	P value
	YES	94	30	124	0.023
	NO	144	82	226	
Total		238	112	350	

correlated with energy drink usage. It was found that preclinical students used more energy drinks than the clinical students (94 preclinical versus 30 clinical students and this difference was significant statistically ($p=0.023$)(Table 3).

Out of the 124 users, 57 students were day scholars while 67 were boarders. No significant correlation was seen between the usage of energy drinks and residence (day scholar vs. boarder) ($p=0.058$).

DISCUSSION

Over the past few years, the use of energy drinks has increased dramatically all over the world especially among youngsters. In Pakistan, a same pattern is seen possibly because of increased media marketing of energy drinks. Our study indicated that a significant population among medical students (34.2%) used energy drinks regularly. This finding is on a par with a 42% prevalence of energy drink usage in a study conducted in Karachi in 2012.⁹

According to our research, males used energy drinks more commonly as compared to females. This male preponderance was consistent with the findings of researches conducted elsewhere.¹⁰ This might be because

of the social stigma we think might be present in Pakistani community according to which females are taught to be more cautious about using things which might be harmful or might look bad or dishonorable to the family. In contrast, males use energy drinks more because parents might put less constraint on them giving them more degree of freedom. This warrants further research as similar reason might be present behind smoking disparity in population of male vs females (male smoke more commonly than females in Pakistan).¹¹ Another possible reason behind usage of energy drinks more commonly by males is probably the predominance of exercise and the need to increase endurance in this gender category as athletics are encouraged among males more often than in females in Pakistan. We think that the peer pressure and male directed marketing/advertisements may encourage the males to use energy drinks more often than females. Use of energy drinks might also have a possible public perception of link with masculine behavior and better performance in sports.

In the analysis, as mentioned, we did not find significant correlation between the use of energy drinks and residence (day scholar or boarder). We think this means

that parental influence has little to do with energy drinks consumption and usage. For the category of students that use energy drinks included in our research, we think it's a likely possibility that parents don't concern themselves with the fact whether their children use energy drinks.

In our results as mentioned we found a significant correlation between the use of energy drinks and the year of education (clinical vs. preclinical) according to which students in the preclinical years used energy drinks more often than the ones in the clinical years. This might be because early life in medical school might require adjustment or adaptation due to sudden increase in the workload because of which students are forced to use any means necessary for increased efficiency and decreased sleep. These means might include smoking and CNS stimulant drugs along with energy drinks. Since energy drinks might be considered the least harmful means of attaining the desired effects, students might be compelled to use this means more commonly. This warrants further research on the subject as it would shed the light on even bigger issues that may include the factors that lead a healthy individual on a path of addiction to drugs or smoking.

With regards to usage of a specific brand of energy drink, we think that the availability of an energy drink most probably acts as a significant factor behind the use of a specific energy drink. In most of the retail shops of Pakistan, the energy drinks readily available as per our own personal experience are Sting and Red bull. It was certainly according to our own expectation that our data analysis indicated these energy drinks as the ones that were commonly used.

Most of the students thought that energy drinks were used commonly because they increased wakefulness and decreased sleep. This is mostly thought to be due to high amount of caffeine in energy drinks. Caffeine is a centrally acting psychomotor stimulant that is thought to act in three possible ways that include mobilization of intracellular calcium, antagonism of cAMP receptors and inhibition of phosphodiesterase receptors at higher doses.¹²

The other ingredients that were once thought to be implicated in the causation of benefits or harms associated with the energy drink consumption have mostly been negated, however weak case for glucose, taurine and guarana has been put forth.¹³ Furthermore, it should be noted that the effect of caffeine on sleep is not just to simply decrease sleep. Its use has been associated with increased cognitive function (high degree of alertness, increased awareness and decreased response time). This is thought to fairly compensate for the lack of sleep but it also causes day time sleepiness, tiredness and exhaustion.¹⁴ One might argue that energy drinks in the long run may decrease awareness or cause more desire to sleep to compensate for the hours of sleep lost.

As indicated in our research there were also a certain number of students who thought energy drinks reduced tiredness and elevates mood. We think that the reason behind this perceived effect of energy drinks could be a placebo effect. Other possible reasons include high amount of caffeine and sugar in these drinks. High sugary diet has been linked with elevation of mood.^{15,16}

We understand the limitations of the research with regards to sample size and population, but the study put forth paves a way to further researches establishing and correlating the factors that involve energy drinks that may pose a risk on overall population of young adults and may lead to consequential results. Young adolescents are found to be the predominant age group that uses these energy drinks. One need not overlook the abundance of their usage and the chemical nature of these drinks the knowledge of which many of its users might not have. So, in a way they could be exposing themselves with ingredients that they themselves might not be aware of. Necessary measures should be taken to increase awareness among the population of students.

This however does not completely establish energy drinks as necessarily harmful. We must also look more deeply into the possible benefits that energy drinks might give to medical students

CONCLUSION

Although not a majority, a significantly large population of students use energy drinks. The most common energy drink used is sting followed by red bull. According to the perception of most students, energy drinks were used to stay awake longer.

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