

FREQUENCY OF ENERGY DRINK CONSUMPTION AMONG KHYBER MEDICAL UNIVERSITY–INSTITUTE OF MEDICAL SCIENCES KOHAT PAKISTAN

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ABSTRACT

Objective: The main objective was to assess the prevalence of energy drink consumption among undergraduate medical students of a public medical college in Kohat Pakistan

Materials and Methods: After ethical approval, a cross-sectional study was conducted from February to September 2024 at the Department of Community Medicine KMU-Institute of Medical Sciences Kohat. Relevant information was collected using a self-structured questionnaire that included all the direct and indirect variables, such as demographics and other determinants of energy drinks. The data was analyzed using SPSS-23.

Results: The study involved 228 MBBS students from first to final year. Among them, 160 (70.2%) reported drinking energy drinks, and 68 (29.8%) said they did not. Most participants were male, with 146 males (64%) and 82 females (36%). In terms of how often they drank energy drinks, 70 students (30.7%) had them once a day, 16 (7%) drank them twice a day, and 10 (4.4%) had them three times a day. Only 4 students (1.8%) consumed more than three energy drinks daily, and 62 (27.2%) drank them occasionally. Additionally, 88 students (38.6%) had tried to stop drinking energy drinks, while 74 (32.5%) had never attempted to quit. Eight students (3.5%) also smoked while drinking energy drinks, but most, 154 students (67.5%), did not smoke. Taste is the primary motivation for consuming energy or cold drinks, with 92 (40.4%) of respondents prioritizing flavor, social gatherings also play a significant role, attracting 42 (18.4%) consumers.

Conclusions: The study concluded that the prevalence of energy drink consumption was high among the study participants and showed a strong relationship with age, year of study, taste and social gatherings, monthly pocket money, residence, and physical exercise, etc. Thus, effective strategies are needed to reduce the frequency among medical students.

Keywords: Energy drinks consumption, frequency of energy drinks consumption, Sting, Red Bull

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INTRODUCTION

Energy drink consumption is rising day by day. Beverages like Sting, Charged, and Red Bull are the most frequently used energy drinks which contain certain products that include glucuronolactone, ribose, B vitamins, amino acids such as taurine, and amino acid derivatives like carnitine. ¹ These drinks are heavily consumed for their certain effects including increased energy, enhanced alertness, reduced fatigue, accelerated metabolism and boosted physical performance. ² Despite these benefits, heavy consumption of energy drinks among adults and

teenagers are concerned as these have certain acute and chronic health risks. ³ Sometimes, water and minerals are replaced with energy drinks after sports which leads to health problems. ⁴

In Pakistan, a study was conducted that showed a prevalence of 42.89% among the young generation. ⁵ Energy drinks are popular among medical students and athletes for managing stress and improving focus as they contain caffeine. ⁶ However excessive use of caffeine can sometimes cause many complications like gastrointestinal discomfort, muscle twitching, restlessness, persistent feelings of restlessness, anxiety, and insomnia. ⁷⁻⁹ Moreover, high caffeine levels in the blood can cause irregular heartbeats, increased blood pressure, and even heart attacks. Chronic use of EDS can lead to cardiovascular complications like sudden death. ¹⁰ A Daily intake of caffeine of 6mg/kg/day is safe for adults but for children, caffeine intake should not exceed 2.5mg/kg/day. ¹¹ Energy drinks consumption can also damage tooth enamel or root exposure leads to tooth hypersensitivity. ¹²

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In Pakistan, a study was conducted at Agha Khan University which showed Red Bull and Sting major energy drinks consumed 101 (43.4%) and 44 (15.8%). (13) Red Bull is famous for its large caffeine, taurine, vitamins, and sugar content. ¹⁴ Despite the common use of energy drinks and their complications among students, many medical students lack enough knowledge about their ingredients and potential health risks. Educating medical students about the effects of drinks is crucial, as they will play a key role in educating young people in the future. Our study aims to evaluate the frequency and patterns of energy drink consumption among medical students at KMU-IMS Kohat Pakistan.

MATERIALS AND METHODS

A cross-sectional descriptive study was conducted at the Department of Community Medicine, KMU-Institute of Medical Sciences Kohat, Khyber Pakhtunkhwa Pakistan from February 2024 to September 2024. After obtaining ethical approval, students from 1st year to Final Year MBBS students were selected based on a 95% confidence interval and 7% margin of error; with 42% of energy drinks consumption from a prevalence study conducted among medical students in Islamabad Pakistan. All the students who are currently enrolled at KMU-IMS were included. A self-structured questionnaire was constructed in which all the direct and indirect variables i.e., demographics and other determinants affecting energy drinks were used to collect relevant information. The data was analyzed using SPSS software and presented in the form of tables.

RESULTS

The study involved 228 MBBS students from various academic years including 44 (19.3%) first-year students, 60 (26.3%) second-year students, 22 (9.6%) third-year students, 92 (40.4%) fourth-year students, and 10 (4.4%) final year students. The sample predominantly consisted of males 146 (64%) and females 82 (36%). The participants ages ranged from 18 to 26 years with a mean age of 21.63 ± 1.855 years. Of the total participants, 94 students (41.2%) were from rural areas while 134 (58.8%) belonged to urban areas. Additionally, 22 (9.6%) students were day scholars, whereas 206 (90.4%) students were hostelites. In financial ranges, an income in the 5-10k range comprised 74 (32.5%) participants. This was closely followed by the 15-20k range, with 66 (28.9%) participants. The 10-15k range included 46(20.2%) participants, while 42 (18.4%) participants fell into the category of more than 20k. The survey results revealed that a majority of the students consume energy drinks with a prevalence of 160 (70.2%) individuals while 68 (29.8%) students reported that they do not consume these beverages. The daily consumption of energy drinks revealed that 70 (30.7%) consume these beverages once a day, while nearly 16 (7%) consume them twice a day, with 10 (4.4%) three times.

About 4 (1.8%) indicated more than three times. Only 62 (27.2%) report no consumption at all. Sting was the most common brand consumed by 54 (23.7%), followed by Red Bull with 46 (20.2%) consumers. The primary motivation for students to consume energy drinks was social gatherings or events by 136 (85%) participants, followed by advertisements at 2 (1%) and social media at 22 (13.7%).

Additionally, 88 (38.6%) participants reported attempting to quit energy drink consumption while 74 (32.5%) had never tried to quit. 8 (3.5%) participants admitted to smoking tobacco while consuming energy drinks, whereas the majority 154 (67.5%), participants did not smoke. Taste is the primary motivation for consuming energy drinks with 92 (40.4%) of individuals. Social gatherings also play a significant role, attracting 42 (18.4%) of consumers. Despite this, motivations related to being active or seeking energy are much less influential with only 16 (7.0%) of participants. Trends also have minimal impact, as only 6 (2.6%) cite them as a motivation.

DISCUSSIONS

In the modern era, the consumption of energy drinks is dramatically high and its evaluation is important. The main energy drink brands in Pakistan included Sting which is the most majorly used energy drink, in second place comes Red Bull. The age of most of the students in this study was 22 years, with the lowest figure being 18 years and the high being 25 years, but another study conducted in Saudi Arabia had most of the students 18-20 years old, and the highest age recorded was 26 years (14), Most of the students lived in hostels 56.3% which gave them free hand to use energy drinks without proper checks and balances while in comparison to other side study it was reported that 65% lived in urban areas. Most

Table 1: Socio-demographic characteristics of medical students

Variables	ED user = 160	ED non-user = 160
Gender		
Male	108 (74%)	38 (26%)
Female	52 (64.4%)	30 (36.6%)
Year of study		
1st year	24 (15%)	20 (29.4%)
2nd year	44 (27.5%)	16 (23.5%)
3rd year	10 (6.3%)	12 (17.6%)
4th year	72 (45%)	20 (29.4%)
5th year	10 (6.3%)	0
Location		
Urban	90 (56.3%)	44 (64.7%)
Rural	70 (43.8%)	24 (35.3%)
Stay		
Day scholars	20 (90.9%)	2 (9.1%)
Hostelites	140 (68%)	66 (32%)

Table 2: Knowledge about ingredients of energy drinks

Variables	Number (%)
Brand consumed	
Sting	54 (23.7%)
Red bull	46 (20.2%)
Source of information about ED	
Ads	2 (1%)
Gathering/events	136 (85%)
Social media	22 (13.7%)
Daily consumption of ED/CD	
Once a day	70 (30.7%)
Twice a day	16 (7%)
Thrice a day	10 (4.4%)
More than thrice a day	4 (1.8%)
Not consumed daily	62 (27.2%)
Tried to quit ED/CD	
Yes	88 (38.6%)
No	74 (32.5%)
Motivation for ED consumption	
Taste	92 (40.4%)
Social gatherings	42 (18.4%)
For energy	16 (7.0%)
Trends	6 (2.6%)

of those students, 18.4%, were involved in energy drink usage and got high pocket money from their parents, but according to another study, it was suggested that 29% of students with high pocket money use more energy drinks.¹⁵ Some students said that they had never had an energy drink intake in their life. The majority of individuals preferred a sedentary lifestyle, but very few exercised daily. Energy drink usage with a sedentary lifestyle leads to many health concerns, especially obesity. In our study, the prevalence of energy drink consumption was found to be 160 (70.2%) as compared to prevalence from another other study that reported a prevalence rate of 42.89%, suggesting a moderate level of consumption among the surveyed population.¹³ Of 160 participants in this study, males predominantly consumed energy drinks comparable to other studies conducted in Islamabad had 21(10%) males.¹⁴ Males are predominant in usage because they are mostly outdoors as compared to females. A study at a Turkish university found that the main reasons students tried energy drinks for the first time were curiosity (51.3%), wanting to improve their physical performance (15%), and to fight off sleepiness (9.2%), while our study showed that attraction for students was mainly taste (40.4%), social gatherings (18.4%) and energy (7%).¹⁶

CONCLUSIONS

The high prevalence of energy drink consumption among medical students highlights the significant

influence of Taste, social gatherings/events, and peer pressure on their choices. Moreover, among participants, the study found that the majority of students consumed energy drinks; more than half of energy drink consumers were males due to their outdoor and heavy activities; most of the surveyed individuals have no concern about the ingredients of energy drinks and they took them for taste and in events/gatherings. Additionally, the study revealed many relations between energy drink prevalence and other factors of age, MBBS years, residence, energy drink brands, monthly pocket money, exercise, lifestyle, etc. Furthermore, there is a dire need for awareness and sensitization targeting adolescents and teenagers who are particularly vulnerable to accessible energy drinks, to avoid unnecessary consumption of energy drinks among medical students.

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Following authors have made substantial contributions to the manuscript as under

Authors	Conceived & designed the analysis	Collected the data	Contributed data or analysis tools	Performed the analysis	Wrote the paper	Other contribution
Zaman A	✓	✗	✓	✗	✓	✗
Arsalan M	✓	✓	✗	✓	✓	✗
Zaman MK	✗	✓	✗	✗	✓	✗
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Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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