TRENDS OF ENERGY DRINKS PREVAILING AMONG PATIENTS ATTENDING MEDICAL OPD, ALLIED HOSPITAL, FAISALABAD

Abstract

Energy drinks are stimulant-containing beverages (primarily caffeine, taurine, and sugars) that have become increasingly popular among adolescents and young adults. Excessive consumption has raised global public-health concerns due to associated adverse effects.

Objective: To determine the prevalence of energy drink consumption among patients attending the Medical OPD at Allied Hospital, Faisalabad; to identify factors associated with consumption; and to document reported adverse effects.

Methods: We conducted a cross-sectional study at the Medical OPD of Allied Hospital, Faisalabad. Using non-probability convenience sampling, 254 participants were enrolled. Data were collected via a structured, self-administered questionnaire and analyzed with SPSS v.26.

Results: Of 254 participants, 128 (50.4%) reported consuming energy drinks. Most consumers were male (79.7% vs 20.3% female). Consumption was highest among teenagers (77.4%) and young adults (62.2%). Sting was the most frequently used brand (41.7%). Common reasons for consumption included refreshment/taste (24.4%) and psychological satisfaction (8.7%). Over half of regular users (54.7%) reported adverse effects such as palpitations, insomnia, headache, and fatigue.

Conclusion: Energy drink use is common among patients presenting to the OPD—especially adolescents and young adults—and is frequently associated with adverse effects. Targeted public-health education is warranted to reduce risk in these vulnerable groups.

Keywords: Energy drinks; Outpatients; Caffeine; Adolescents; Young adults; Adverse effects

INTRODUCTION:

Energy drinks—beverages formulated with stimulants such as caffeine, taurine, and sugar—were first introduced in Europe, North America, and Asia in the 1960s but gained widespread popularity after the launch of Red Bull in Austria in 1987. By 2006, more than 500 energy drink brands were available worldwide, and annual U.S. sales exceeded USD 500 million.[1]

Energy drinks are marketed as stimulant beverages, primarily due to their caffeine content. Although coffee, tea, and some soft drinks also contain caffeine, they are not typically classified as energy drinks because of differences in formulation and marketing. [2] Since the 1990s, energy-drink consumption among adolescents and young adults has risen sharply, with reported prevalence estimates ranging from approximately 30% to 50% in many populations. [3]

Typical energy-drink formulations combine methylxanthines (notably caffeine) with other agents such as taurine, glucuronolactone, B vitamins, and herbal extracts. [4]Reported adverse effects associated with high consumption include increased diuresis, elevated blood pressure, palpitations, insomnia, and metabolic disturbances such as insulin resistance.[5]

High rates of energy-drink use have been correlated with certain risky behaviors, including unsafe sexual practices, substance use (e.g., marijuana), interpersonal violence, and hazardous driving behaviors. [6]Emergency department visits related to energy-drink consumption commonly involve either acute adverse reactions or co-ingestion with other substances.[7]

In Pakistan, energy-drink popularity mirrors global trends; lower-priced brands (e.g., Sting) have expanded market access and target younger consumers through aggressive marketing. [8] Reported prevalence among youth worldwide varies widely (approximately 13%–67%)[9], and studies from Pakistan report substantial use among medical students (ranges reported from ~42.9% to 61.1%), with higher consumption observed in males.[10]

This study aimed to determine the prevalence of energy-drink consumption among patients attending the Medical OPD at Allied Hospital, Faisalabad, to identify factors associated with consumption, and to document commonly reported adverse effects.

OBJECTIVES:

- To determine the prevalence of energy-drink consumption among patients attending the Medical OPD at Allied Hospital, Faisalabad.
- To identify reasons for energy-drink use and to document self-reported adverse effects.

MATERIAL AND METHODS

An institution-based cross-sectional study was conducted at the Medical OPD of Allied Hospital, Faisalabad, over a six-month period. Using non-probability convenience sampling, 254 participants were enrolled. Data collection employed a structured, self-administered questionnaire developed by the investigators after reviewing relevant literature. Ethical approval was obtained from the Ethical Review Committee of Faisalabad Medical University (IRB F.48-ERC/FMU/2021-22/228). Data were entered and analyzed using SPSS v.26. Categorical variables were compared using the chi-square test; a p-value < 0.05 was considered statistically significant.

RESULTS:

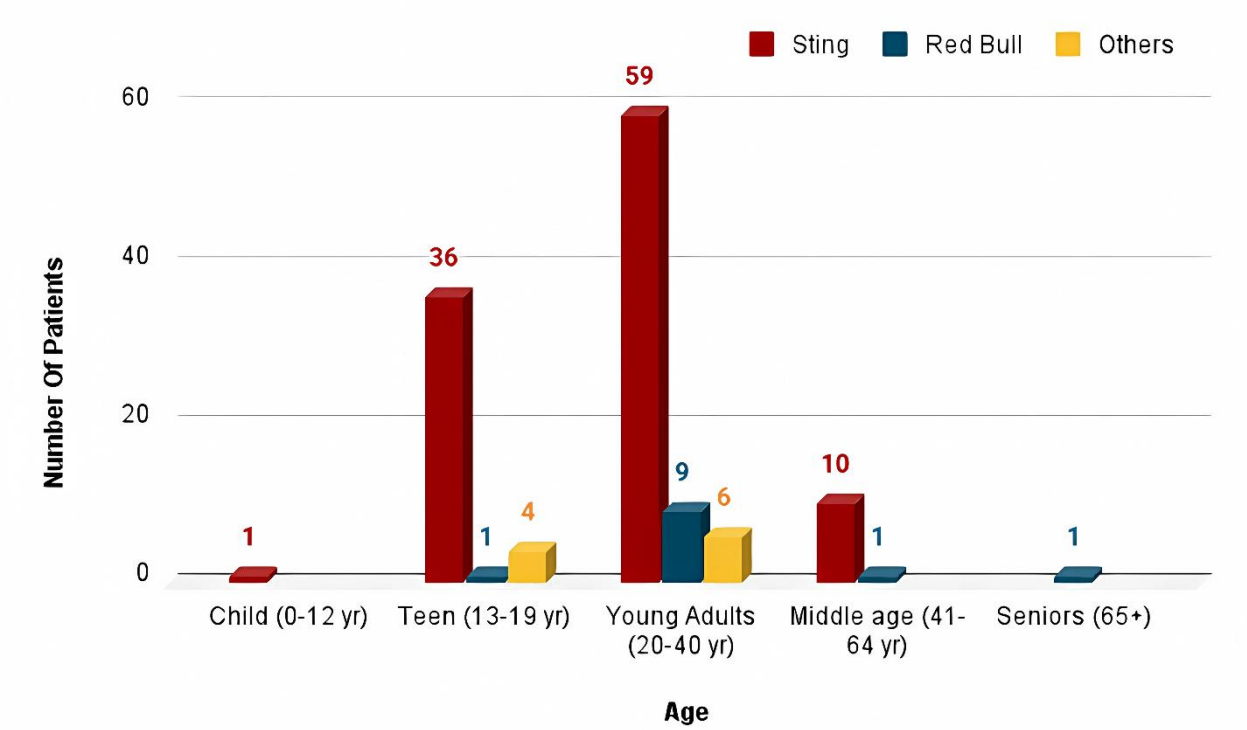
Socio-demographic Details:

All 254 approached individuals participated (response rate 100%). Of these, 160 (63.0%) were male and 94 (37.0%) female. Age distribution was as follows: young adults (20–40 years) 119 (46.9%), middle-aged (41–65 years) 60 (23.6%), teenagers (13–19 years) 53 (20.9%), seniors (>65 years) 18 (7.1%), and children (0–12 years) 4 (1.6%). Overall, 128 participants (50.4%) reported consuming energy drinks.

Trends of Energy Drinks:

Among the 128 energy-drink consumers, 102 (79.7%) were male and 26 (20.3%) were female. Consumption was high in adolescents and young adults: 41 of 53 teenagers (77.4%) and 74 of 119 young adults (62.2%) reported use (p = 0.556). Sting was the predominant brand (106; 82.8%), followed by Red Bull (12; 9.4%), Monster (5), Lucozade (3), and Burn (1). One

participant (0.8%) reported using multiple brands.



The primary reasons for consumption were refreshment/taste (62; 48.4%), psychological satisfaction (22; 17.1%), energy provision (15; 11.7%), promotion of wakefulness (13; 10.2%), and influence of advertising (9; 7.0%). Other reasons (7; 5.5%) included studying, completing assignments, and athletic activities. Over the previous 12 months, 51 participants (20.1%) consumed energy drinks weekly, 40 (15.7%) monthly, and 37 (14.6%) daily (see Table 1.1).

Table 1.1 Frequency and Quantity of Energy Drink Consumption in the Past 12 Months

Frequency of Use	1 Can/Bottle (Count) (%)	2 Cans/Bottles (Count) (%)	Total (%)
Daily	26 (20.3%)	11 (8.6%)	28.9%
Weekly	24 (18.8%)	26 (20.3%)	39.1%
Monthly	20 (15.6%)	21 (16.4%)	32.0%
Total	70 (54.7%)	58 (45.3%)	100%

Note: Totals and percentages refer to the 128 participants who reported consuming energy drinks.

Adverse/Withdrawal Effects of ED:

Of the 128 consumers, 70 (54.7%) reported at least one adverse effect, while 58 (45.3%) reported none. Among those reporting adverse effects (n = 70), tachycardia and insomnia were the most frequent (each 18/70; 25.7%), followed by headache (12/70; 17.1%) and fatigue (11/70; 15.7%). A combination of all listed effects was reported by 6/70 (8.6%); other less common effects were reported by 5/70 (7.1%). Concurrent use of other commonly consumed stimulants/substances was reported by 102 of 128 consumers (79.6%): tea (46; 45.1%), cigarettes (25; 24.5%), cola drinks (18; 17.6%), and coffee (13; 12.7%). No participants reported alcohol or illicit drug use (e.g., charas).

Regarding weight, 78 participants (30.7%) reported no weight gain, 36 (14.2%) reported weight gain, and 15 (5.9%) were unsure.

DISCUSSION

Energy-drink consumption has risen markedly in Pakistan over the past decade. In this study, 50.4% of OPD patients reported consuming energy drinks, a prevalence similar to rates reported among Pakistani medical student populations (e.g., 52% at Aga Khan University [8] and ~42% in anotherstudy conducted in medical colleges of Karachi in 2012[11]), though some studies report lower rates (e.g., 34% at Wah Medical College[12]). These findings suggest that energy drink use is widespread across different population subgroups.

We observed higher consumption among males (63%), consistent with other reports, e.g., 61% male prevalence at Aga Khan University [8] and similar findings amongst medical students and interns fromJeddah. [13]This gender disparity may reflect targeted marketing that links energy drink use to masculinity, sports, and risk-taking behaviors. Consumption was particularly high among adolescents and young adults in our sample.This is comparable to findings from a Saudi population-based study.[14]

Sting was the predominant brand reported in our sample, followed by Red Bull; in contrast, a study at Wah Medical College has reported Red Bull as the most common brand[12], reflecting potential regional market differences. Participants cited refreshment/taste, psychological satisfaction, energy provision, and wakefulness promotion as leading reasons for use; these findings align with international studies. For example, a study at Marmara University reported curiosity, performance enhancement, and overcoming sleepiness as primary motives[15],while Aga Khan University students cited studying, energy boost, and flavor as common reasons.[13]

Consumption frequency in our sample was highest on a weekly basis (39.1%), followed by monthly (32.0%) and daily (28.9%). These patterns are broadly comparable to some regional studies; for instance, a Saudi study reported 41.1% weekly, 33.6% daily, and 25.1% monthly consumption.[16]

In our study, 54.7% of regular energy-drink users reported at least one adverse effect. The most frequently reported symptoms were palpitations and insomnia (each18/70; 25.7%), followed by headache (17.4%) and fatigue (15.7%). These findings are consistent with a study from Jeddah, Saudi Arabia, in which palpitations (30.4%), insomnia (29.5%), and headache (16.2%) were the most commonly reported effects. [13] Likewise, a Canadian survey reported that 55% of energy-drink consumers experienced at least one adverse event, including tachycardia (24.7%), sleep disturbance (24.1%), headache (18.3%), gastrointestinal symptoms (5.1%), chest pain (3.6%), and seizures (0.2%). [17] Altogether, the evidence suggests that adverse events related to energy-drink consumption are common internationally and are likely driven largely by high caffeine content, interactions with other ingredients, and concurrent use of other stimulants. Clinicians should therefore routinely ask patients, particularly adolescents and young adults, about energy-drink use when evaluating unexplained palpitations, insomnia, or headaches, and public-health efforts should prioritize targeted education to reduce preventable harms.

Weight is also affected by consumption of energy drinks. Regarding weight gain, only 36 (14.2%) individuals reported that they had gained weight, contrary to a study conducted among medical colleges of Karachi, where the majority of users experienced weight gain, 102 (29.14%), after taking energy drinks.[12]

Limitations: This study used a cross-sectional, convenience-sampling design, which limits causal inference and generalizability. Self-reported measures are subject to recall and reporting bias. Experimental or longitudinal studies are needed to determine causal effects of energy-drink consumption and to examine long-term metabolic and cardiovascular outcomes.

CONCLUSION

Energy-drink consumption was common among OPD patients, particularly adolescents (77.4%) and young adults (62.2%), and over half of regular users reported adverse effects, most commonly palpitations and insomnia. These findings highlight the need for targeted public health interventions and educational campaigns aimed at adolescents and young adults to reduce harmful consumption patterns and associated health risks.

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Author Contributions

Study concept and design: MIA, AM, AR, UH; Methodology: MIA, UH, MAh; Acquisition of data: MIA, AM, MU, OA, BA; Analysis and interpretation of data: UH, AR; Drafting of the manuscript: UH, MU, AM; Critical revision of the manuscript: MIA, MAh, AR, UH, BA; Statistical analysis: UH, MAh; Administrative or technical support: OA, BA; Study supervision: MIA, BA.

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MIA = Muhammad Ilyas Alozai, AM = Aaqib Mohammad, AR = Abdur Rehman, UH = Umer Hussain, MAh = Muhammad Ahmad, MU = Muhammad Uzair, OA = Osama Alozai, BA = Bilal Alozai

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