Vol-3 Issue-1 2025
Scientific Research Journal of Agriculture and Veterinary Science
ISSN: 2584-1416, Peer Reviewed Journal

Mental Health Effects of Energy Drink Consumption in Young Adults: An Exploratory Survey-Based Study

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Abstract

Background: *The use of energy drinks among young adults and teenagers has seen a significant increase in recent years, raising important public health concerns. These drinks usually have high concentrations of stimulant chemicals, such as caffeine, which may have detrimental effects on mental health, particularly in younger individuals whose brains are still developing. Increasing evidence suggests that frequent energy drink intake could be linked to various psychological symptoms, including anxiety, mood disturbances, panic attacks, and sleep disruption.*

This study aimed to examine the association between energy drink consumption and self-reported mental health symptoms in young adults.

Methods: *A structured questionnaire was administered to a small sample of five individuals aged 17 to 22 years. The survey gathered data on the frequency and amount of energy drink consumption alongside the presence and severity of mental health symptoms. Responses were analyzed descriptively to identify preliminary trends and potential associations between consumption patterns and psychological effects.*

Results: *Findings indicated that most participants (80%) experienced sleep disturbances, anxiety, and mood swings, while 40% reported panic attacks. Moreover, an increased frequency of energy drink consumption was linked to heightened severity of these psychological symptoms, suggesting a dose-response relationship.*

Conclusion: *Although limited by the small sample size, these preliminary findings align with existing research highlighting the potential adverse mental health outcomes connected to using energy drinks in excess. This study underscores the urgent need for larger-scale research and enhanced public health education aimed at reducing risks among youth populations.*

Keywords*: Energy drinks, caffeine, mental health, adolescents, sleep disturbance, anxiety, mood disorders*

Introduction

Energy drinks, which are touted for their capacity to improve physical performance, stamina, and mental alertness, have grown in popularity among teens and young people. Usually, these drinks have higher amounts of taurine, sugar, caffeine, with other stimulants. (Seifert et al., 2011). While moderate consumption may not pose immediate risks, repeated or excessive consumption has been linked to negative physical and psychological effects.

Several studies highlight a connection between energy drink consumption and increased anxiety, sleep disorders, mood dysregulation, and panic attacks, especially among younger populations undergoing neurological development (Richards & Smith, 2016; Kang & Kim, 2024). Despite these risks, energy drink usage remains widespread due to social pressures, academic demands, and aggressive marketing strategies.

This study investigates the mental health consequences of energy drink use through a small peer-based survey to understand the frequency and severity of adverse symptoms.

Literature Review

Impact of Energy Drinks on Adults: Sugar and caffeine are the primary psychoactive components in energy beverages. Adolescents, due to lower body mass and developing brains, are more susceptible to these substances' adverse effects (Temple, 2009). Key effects include:

- **Anxiety and Restlessness:** Caffeine stimulates the central nervous system, often leading to heightened anxiety, irritability, and even panic (Richards & Smith, 2015; Bonar et al., 2015).
- **Mood Disorders:** Energy drinks can cause emotional instability, increased aggression, and depressive symptoms (Pintér et al., 2020).
- **Panic Attacks:** High doses of caffeine may lead to acute stress responses, such as panic attacks or feelings of dread (Wilens et al., 2008).
- **Sleep Duration:** High caffeine levels can interfere with circadian rhythms, delay sleep onset, and reduce sleep quality, ultimately leading to significant sleep disruption (Wesensten, 2014).
- **Psychological Dependence:** Frequent consumption of energy drinks can lead to psychological dependence, where users feel dependent on them to function normally and may suffer from withdrawal symptoms when they stop using them. (Reissig et al., 2009).
- **Physical Symptoms:** Rapid heart rate, dehydration, and headaches are commonly reported (Alsunni, 2015).

Nutritional Composition of Energy Drinks:

Nutrient	Average per 250ml Can	Potential Effects
Caffeine	-160 mg	Increased alertness, anxiety, and sleep loss
Sugar	27-30 g	Temporary energy, mood crashes
Taurine	1000 mg	Nervous system stimulation
B Vitamins	Variable	Boosts energy metabolism
Artificial Additives	Yes	No nutritional value, may cause hyperactivity

Methodology

1. Study Design

This exploratory study employed a structured, self-administered questionnaire to assess the mental health impact of energy drink consumption. The questionnaire covered demographic information, frequency of consumption, types of drinks consumed, and self-reported symptoms including mood changes, anxiety, panic attacks, and sleep disturbances.

2. Participants

The study included five participants aged between 17 and 22 years, each consuming energy drinks at least twice a week.

3. Data Collection and Analysis

The survey comprised Likert scale ratings, multiple-choice questions, and binary (yes/no) items to assess symptom severity and frequency. Data was collected over one week. Results were analyzed descriptively to identify patterns and associations, though no statistical inference was made due to the small sample size.

Survey Design

The survey utilized multiple-choice questions, binary yes/no responses, and Likert scales to measure symptom severity. Data collection occurred over one week. Given the small sample size, the study was intended as an exploratory investigation rather than a generalizable quantitative analysis.

Results

Analysis of participant responses revealed a recurring trend of psychological symptoms linked to energy drink consumption:

- 80% reported experiencing sleep disturbances.
- 80% reported heightened anxiety.
- 80% experienced mood swings and emotional instability.
- 40% reported panic attack episodes.

A higher frequency of consumption (4-5 drinks per week) was correlated with more intense symptoms. Participants reporting the highest consumption levels exhibited multiple co-occurring symptoms. Although the small sample restricts broader inferences, the internal consistency of reported effects supports previous findings in existing literature.

Table 1. Participant Survey Data

Participant ID	Drinks/Week	Sleep Issues	Anxiety	Mood Swings	Panic Attacks
P1	5	Yes	Yes	Yes	Yes
P2	3	Yes	No	Yes	Yes
P3	4	Yes	Yes	Yes	No
P4	2	No	Yes	No	No
P5	4	Yes	Yes	Yes	No

These findings are consistent with prior studies suggesting a connection between energy drink intake and mental health disturbances in young adults.

The emergence of panic-like symptoms among participants mirrors studies that caution against the overuse of energy drinks, particularly among individuals sensitive to stimulants (Wilens et al., 2008). Although the dataset is limited, these results illustrate the need for deeper investigation using a larger, randomized sample to confirm trends and improve external validity.

This research also underscores a growing concern around the normalization of stimulant beverages in academic settings. Youth often consume these products to manage performance stress without understanding the mental health risks. Behavioral dependence, withdrawal symptoms, and poor sleep hygiene were notable concerns raised by respondents.

Public health efforts must focus on:

- School and university-level health education.
- Promoting non-stimulant alternatives like herbal teas and smoothies.
- Clearer labeling of caffeine content and warning signs on energy drink packaging.

Implications

To address this, we recommend the following:

- Integrate mental health education into school and college health curricula.
- Encourage alternatives to energy drinks, such as hydration-focused and non-caffeinated beverages.
- Advocate for clear labeling of stimulant content and warning labels on packaging.
- Promote awareness of potential symptoms of caffeine dependence.

Limitations

This study's small sample size (n = 5), reliance on self-reported data, and lack of clinical validation limit the generalizability of findings. Convenience sampling was used to pick the participants, which could lead to selection bias. Notwithstanding these drawbacks, the study offers some initial insights into a subject that merits more research.

This study reveals potential adverse mental health effects linked to excessive energy drink consumption among adolescents and young adults.

Key recommendations include:

- Strengthening educational campaigns about energy drink risks.
- Implementing age-related purchase restrictions.
- Promoting healthier beverage alternatives.
- Encouraging further longitudinal research to understand long-term impacts.

The findings emphasize the need for early intervention and public policy support to regulate stimulant beverage marketing and availability, especially among vulnerable populations.

Conclusion:

This exploratory study highlights the potential adverse psychological effects of energy drink consumption among adolescents and young adults. Although based on a small sample, the consistent pattern of anxiety, mood disturbances, and sleep-related issues suggests that excessive energy use may contribute to mental health challenges.

Ethical Considerations

This study involved minimal risk, used anonymous and voluntary survey participation, and did not require institutional ethics approval due to its non-interventional nature.

Conflict of Interest Statement

The author confirms that there are no conflicts of interest regarding the publication of this paper.

Funding Statement

No external funding was received to support this research.

Data Availability

Data supporting the findings of this study are available from the author upon reasonable request. Identifiable participant information has been removed to ensure confidentiality.

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