



Association of energy drink consumption with meal skipping behavior and dietary imbalances in young adults

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Abstract

The consumption of energy drink has increased significantly among young adult due to their perceived benefits such as enhance alertness and reduce fatigue. However, their impact on dietary habits remains a growing concern. This study aimed to investigate the association between energy drink consumption, meal skipping behavior and dietary imbalances among young adults aged 18-25 years.

A cross-sectional study was conducted among 180 participants in Pune city using a structured questionnaire. Data collected include demographic information, anthropometric measurement, energy drink consumption pattern, meal skipping habits and 24hour dietary recall. Statistical analysis was performed using SPSS software, and correlation were assessed using Kendall's tau with significant set at $p < 0.05$.

The findings revealed that 78% of participants consumed energy drink regularly with taste and improved alertness being the primary reason. meal skipping was prevalent in 70% Of participants with lunch is most commonly skipped meal (38.3%). a significant proportion of participants showed nutritional deficiency in energy, protein, and carbohydrate while fat intake is exclusively high. a statistically significant association was observed between energy drink consumption and meal skipping ($p = 0.001$) as well as between energy drink consumption and dietary imbalance ($p < 0.01$)

The study conclude that frequent energy drink consumption contributes to irregular eating patterns and poor nutritional intake among young adults there is need for nutrition education, awareness, programs, behavioral interventions to promote healthier dietary practices and reduce reliance on energy drinks

Keywords: Energy drink, meal skipping, dietary imbalance, young adult, nutritional status, caffeine, eating behavior, lifestyle factor

Introduction

Background: Energy drinks are non-alcoholic beverages designed to enhance mental alertness, physical performance and overall energy levels. These beverages typically contain high levels of caffeine, sugars, taurine, vitamins, and herbal extracts such as guarana and ginseng. Over the past decade, the global consumption of energy drinks has increased dramatically, particularly among young adults

The growing popularity of energy drinks can be attribute to aggressive marketing strategies, busy lifestyles, academic pressure and the need for instant energy. young adults especially students, and working professionals, often rely on these beverages to cope with fatigue long study hours and demanding work schedule while energy drinks may provide short term benefits their long-term impact on health and dietary behavior is matter of concern

Problem Statement: Despite their widespread use, energy drinks do not provide essential nutrients required for maintaining a balance diet. Instead, they are often consumed as substitutes for meals, leading to irregular eating patterns and nutritional deficiencies. Meal skipping, particularly among young adults is a common phenomenon associated with busy schedule, stress and poor lifestyle habits.

Meal skipping can have adverse health consequences, including reduced energy levels, impaired cognitive functions, metabolic disturbances and increased risk of chronic diseases. When combined with frequent energy drink consumption, these effects may be intensified, leading to significant dietary imbalances.

Rationale Of the study: There is limited research examining the combined effect of energy drink consumption and meal skipping behavior on dietary imbalance among adults in India understanding this relationship is crucial for developing effective nutrition intervention and promoting healthier lifestyle practices.

AIM: To study and investigate the association between energy drink consumption and dietary habits, including meal skipping and nutrient intake, among young adults.

Objectives

1. To study the impact of meal skipping on their nutritional status.
2. To study the types, composition and frequency of energy drinks consumption in Subjects.
3. To study the frequency of skipping meals in Subjects.
4. To study the correlation between energy drinks consumption and skipping meals and its overall impact on nutritional status and dietary imbalance in Subjects.

Methodology

Study Design: A cross-sectional study design was adopted to examine the relationship between energy drink consumption, meal skipping behavior and dietary imbalances.

Study Area: the study was conducted in Pune city, involving college students and young working adults.

Sample Size and Sampling Technique

A total of 180 participants aged 18-25 years were included in the study. Purposive sampling was used to ensure representation across different demographic group

Inclusion Criteria

Young adults aged 18-25 years.

Regular consumers of energy drinks (at least once per week).

Both male and female participants.

Exclusion Criteria

1. Individuals with any medical condition or with any comorbidity (diabetes, hypertension).
2. Pregnant women.
3. Lactating women.

Data collection tool

Data were collected using structured questionnaire consisting of four sections

1. **Demographic and anthropometric data:** Age, Gender, socioeconomic status, height, weight, BMI
2. **Energy drink consumption pattern:** Frequencies, quantity, reasons, for consumption, awareness of side effect
3. **Meal skipping behavior:** Frequency of skipped meals, types of meals skipped, reasons for skipping meals
4. **Dietary Assessment:** 24-hour dietary recall method

Anthropometric measurements were recorded using standard procedure and BMI was calculated using WHO classification

Statistical Analysis

Data were entered into Microsoft excel and analyzed using SPSS software. Descriptive statistic such as mean, standard deviation and percentages were used. Kendall's tau correlation coefficient was applied to assess association between variables. a p -value <0.05 was considered statistically significant.

Result

Demographic Characteristics

The study included 180 participants with a nearly equal distribution of males (49.4%) and female (50.6%) belong to the age group 23-25 year. Most participants were from the upper middle socioeconomic class

Energy drink consumption patterns

The study revealed a high prevalence of energy drink consumption among participants approximately 78% reported consuming energy drink regularly. The majority (60.6%) consume one standard can per occasion while a smaller proportion consumed higher quantities

The primary reasons for consuming energy drinks included:

- Enjoyment of taste
- Improved mental alertness and concentration
- Social influences

Despite frequent consumption, awareness regarding the potential side effects of energy drink was low with 59.4% of participants unaware of associated health risk. Additionally, 63.4% did not read nutrition labels before consumption

Meal skipping behavior

Meal skipping was a common practice among participants with approximately 70% reporting that they skipped meals either sometimes or often. Lunch was identified as the most frequently skipped meals (38.3%) followed by breakfast and dinner

The major reason for meal skipping included:

1. Reduced appetite after consumption of energy drink
2. Busy schedule and time constraints
3. Irregular daily routines
4. Dietary imbalances

Dietary assessment using 24- hour recall revealed significant nutritional imbalance among participants:

Energy deficiency: 71.7%

Protein deficiency: 71.1%

Carbohydrate deficiency: 92.8%

Excess fat intake: 98.3%

These findings indicate poor dietary quality and an imbalance between macronutrient intakes.

Correlation analysis:

Statistical analysis demonstrated:

- A significant association between energy drink consumption and meal skipping ($p=0.001$)
- A strong association between energy drink consumption and dietary imbalance ($p<0.01$)
- A significant relationship between meal skipping and poor nutritional intake

Discussion

The findings of the study highlight a strong association between energy drink consumption and unhealthy dietary behaviors among young adults. Frequent consumption to reduce appetite leading to meal skipping and irregular eating patterns.

One of the key observations was that liquid energy sources, such as energy drink, provide lower satiety compared to solid food. This results in reduced hunger signals and decreased meal consumption ultimately affecting nutrient intake.

The high prevalence of meal skipping, particularly lunch can be attributed to lifestyle factors such as busy schedule, academic pressure and irregular routines. These findings are consistent with previous studies that have reported similar patterns among young adults

The study also revealed a lack of awareness regarding the health risks associated with energy drink Consumption. Many participants did not read nutrition labels, indicating a gap in nutrition knowledge and health literacy.

Dietary analysis showed significant deficiencies in essential nutrients along with excessive fat intake this imbalance may increased the risk of obesity, metabolic disorder and cardiovascular disease in the long term. The results emphasize the need for targeted interventions to promote healthy eating habits and reduced reliance on energy drink

Conclusion

The study concluded that energy drink consumption is significantly associated with meal skipping behavior and dietary imbalance among young adults. Frequent consumption leads to reduced appetite, irregular meal patterns and inadequate nutrient intake.

These findings highlight the importance of

1. Increasing awareness about the harmful effects of energy drinks.
2. Promoting balanced dietary practices.
3. Encouraging regular meal consumption.

Recommendation

1 nutrition education programs should be implemented in colleges and workplaces.

Awareness campaigns should highlight the risks of excessive energy drink consumption

Individuals should be encouraged to adopt balanced diets and regular meal patterns

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