Consumption pattern of nutritional health drinks and energy drinks among university students in Ajman, UAE

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ABSTRACT

Objective: To determine the preference, awareness, and frequency of consumption of health drinks and energy drinks among University students in Ajman, UAE.

Materials and Methods: A cross-sectional study was carried out among 125 Gulf Medical University students. A self-administered structured questionnaire was used for data collection. Data analysis was done using SPSS version 11.0. Differences between variables were assessed using Chi-square test.

Results: It was found that 92% of the students consumed energy drinks while only 8% took health drinks. Among the energy drink consumers, 95% preferred the brand Red Bull while only 5% preferred Effect. Those who consumed health drinks took it occasionally at least once a day whereas energy drink consumers took at least two cans per day. It was found that 64% of the students started taking health drinks from the age of 3 to 5 years and more than 92% of students started taking energy drinks from 15 years of age onwards. It was also observed that 72% of the students were influenced by advertisements in television and retail outlay. Around 85% of energy drinkers thought that it would enhance their brain development while 10% preferred it due to its taste, 5% thought that it would increase their height. The majority of the students (95%) were ignorant about the high calorie and caffeine content in these energy drinks.

Conclusion: The study showed that the majority of students preferred energy drinks over health drinks. Students thought that energy drinks could boost their mental energy and the majority was unaware of the high calorie and caffeine content. Therefore, proper health education regarding nutritional benefits as well as the adverse effects of energy drinks should be taught to the students at the entry level in the university.

Key words: health drink, energy drink, preference, awareness, consumption pattern, university

INTRODUCTION

There is an ever increasing demand for nutritional and energy supplements in the modern world. Health drinks provide nutrition and energy for both adolescents and adults. Among growing children health drinks are generally labeled and marketed as nutritious drinks and are usually consumed as an alternative to milk. On the other hand, energy drink is a kind of beverage which claims to enhance both mental and physical energy.

There are many brands and choices of energy drinks available today in the market. These carbonated or non-carbonated drinks generally contain large amounts of sugar or sugar substitutes, artificial sweeteners, caffeine, taurine and a number of stimulants. In the past few decades, energy drinks have entered the everyday life of adolescent and adult clients¹. Attributed to heighten mental vigor or to provide a swift energy boost, these beverages have become aplenty in university campuses, clubs and recreational centres²,³.

Energy drinks obtain energy enhancing properties mainly from carbohydrates and caffeine. Half a pint of energy drink usually contains 75-250 mg of caffeine⁴. Many
researchers have evaluated the physiological and cognitive performances since energy drinks contain substantial amounts of caffeine, sugar, taurine and other undisclosed stimulants that can potentiate the pharmacological effects outside the limits of caffeine alone\textsuperscript{5-9}. But so far very few studies have been devoted to exploring the correlation between consumption of energy drink and drug abuse. The combination of caffeine and alcohol can reduce the symptomatic fatigue and therefore lead drinkers to fail to guess the level of alcohol intoxication\textsuperscript{10,11}. This is because the depressant effect of alcohol can mask the stimulant effect of caffeine. Energy drinks are endorsed by and marketed for their stimulant effects and unsubstantiated claims offering an array of advantages including enhanced physical and mental attention, performance, endurance and weight loss. Many research studies have also confirmed caffeine withdrawal in adolescents and children, which may increase drastically with the active sales and marketing of energy drinks among these age groups.

Adolescents, who are in a transitional stage of physical and psychological development, are one of the most nutritionally sensitive groups who have not acquired the deserving scrutiny. However, very few researches have critically examined the demographics of energy drink and health drink consumption to date, particularly among college students in the UAE. Hence, the objective of the current study was to assess the preference, awareness, and percentage consumption of health drinks and energy drinks among University students in Ajman, UAE.

**MATERIALS AND METHODS**

A cross-sectional study was carried out among 125 students of Gulf Medical University (GMU). Both male and female students willing to participate were included and the study, which was approved by the institutional Research & Ethics committee. A self-administered structured questionnaire was used for data collection. The twenty-five item questionnaire comprised items pertaining to preference, awareness and consumption pattern.

Data were entered into Microsoft Excel spreadsheet and analyzed using SPSS version 11.0. Differences between variables were assessed using Chi-square test.

**RESULTS**

A total of 125 students participated in the study, among whom there were 85 females (68%) and 40 males (32%). It was found that 92% of the students consumed energy drinks but less than 8% took health drinks. Health drink consumers occasionally took at least one can per day but energy drink users regularly took at least two cans per day.

Around 85% of the respondents thought that energy drinks would enhance mental energy and brain development (P<0.05).

It was observed that 48% of the respondents liked having cool health drinks, 30% preferred them hot and the remaining 22% preferred neither hot nor cold. It was found that 50% of respondents ranked their drink under best category while 22%, 20%, and 8% ranked them as good, better and satisfactory respectively. It was also observed that the majority of respondents (70%) had purchased their health drink from a retailer, 12% from a wholesaler, 10% from a cafeteria and the remaining from other sources. The age structure of respondents taking health and energy drinks is given in Figures 1 and 2.

It can be seen from Figure 1 that 64% of the students started taking health drinks from the ages
of 3 to 5 years and more than 92% started drinking energy drinks from 15 years of age onwards (Figure 2). The health drink consumption pattern drastically reduced after the age of 10 years while energy drink consumption started increasing after the age of 15 years. Television and display at retail outlets are the two important media for the awareness of product. It was also observed that 72% of the students were influenced by advertisements on television and at retail outlets. As given in Table 1, 85% of energy drink consumers preferred it as they thought it would enhance their brain development while 10% took for its taste, and 5% as they thought it would increase their height. A large number of respondents (n=65) had experienced caffeine-related symptoms such as headache followed by tiredness, drowsiness and decreased cognitive performance (Table 2). The majority of respondents (95%) were ignorant about the high calorie and caffeine content in these energy drinks. Preference for the various brands of health drinks is given in Figure 3. Most of the consumers preferred to use a glassful per day as it was convenient in terms of amount and price. Brand value was considered as a key factor while purchasing a health drink, out of which Horlicks was the most preferred brand name among the customer. It was also observed that 46% consumed only one type of health drink while 40% preferred at least two types. From Figure 4, it can be seen that the most preferred energy brand is Red Bull followed by the brand Effect.

Table 1. Reasons for the preference of energy drinks

<table>
<thead>
<tr>
<th>Reasons</th>
<th>No. of Respondents</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Brain development</td>
<td>106</td>
<td>85</td>
</tr>
<tr>
<td>Taste</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Height</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 2. Caffeine-related withdrawal symptoms

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>No. of Respondents</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>65</td>
<td>52</td>
</tr>
<tr>
<td>Tiredness/fatigue</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Sleepiness/drowsiness</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Difficulty in concentrating/ cognitive performance</td>
<td>20</td>
<td>16</td>
</tr>
</tbody>
</table>

DISCUSSION

The results indicated that the majority of students consume more energy drinks than health drinks. Unfortunately, the majority of the students (>95%) were ignorant about the high calorie and caffeine content in these energy drinks. Energy drinks obtain their energy enhancing properties mainly from carbohydrates and caffeine. Half a pint of energy drink usually contains 75-250 mg of caffeine. There have been at least 66 investigations of caffeine withdrawal in the medical literature published within the last decade. The common symptom of caffeine dependence is headache, which begins 12 to 24 hours after the final consumption of energy drinks. The majority of energy drink users had experienced headache followed by fatigue, drowsiness, distress, and difficulty in concentrating, while the other caffeine withdrawal symptoms included decreased psychological performance, melancholy, irritability, nausea/vomiting, and muscle ache/stiffness. Caffeine dependence symptoms are given official recognition in ICD-10, WHO’s International Classification of Diseases and diagnosis in DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders). Unlike soft drinks, no restriction is applied on promotion and marketing under the FDA’s 1994 Dietary Supplement Act.
There is an ever-growing concern about the high caffeine content with respect to energy drinks and its potential adverse consequences. Caffeine toxicity may be defined as the distinguishing symptoms that appear immediately as the result of excessive caffeine consumption. Caffeine intoxication is characterized by anxiety, restlessness, insomnia, gastrointestinal disturbances, tremors, tachycardia and psychomotor agitation.

The findings of the present study have important regulatory and clinical consequences, acknowledging the fluctuating and consistently high caffeine content of energy drinks, in combination with the aggressive marketing to adolescents and uneducated youths. This is consistent with our observation that more than 72% of respondents were influenced by the media. The majority of the students started taking energy drinks from the age of 15 years onwards while health drink consumption pattern drastically declined from 10 years to 15 years of age. This can be attributed to sensory attributes and the belief that consumption would result in weight gain. This was found to be true because weight reduction was categorically associated with a curtailment of liquid calorie than solid calorie consumption. Despite the fact that most reports to date have not been facts or evidence-based studies, there is an ever growing theoretical support for a link between high energy consumption and serious health related issues.

This study had also shown that most of the students infrequently changed their brand once they had made a brand preference based upon taste. This has substantial consequences, demonstrating that not only the price, but also sensory quality of health drink should be considered in order to retain the repeated purchases by purchasers.

It is obligatory in a number of countries, particularly European nations to display and carry health warning labels. As reported by Kathleen et al, energy drink consumption is firmly correlated with behavior syndrome. It may be a useful marker to identify students at risk for substance abuse and/or other health-compromising behavior. Therefore it would be more apt, if details such as quantity of caffeine, sugar and other ingredients of energy drinks are mentioned in the product labeling. It would also be desirable if the product label includes warning about the dangers and uncertainties when consumed alone and in combination with alcoholic drinks. The inevitable onrush of stimulant effects contributed by energy drinks may instigate the users to quest for more intense effects of prescription and forbidden drugs. Certainly, it is also important for clinicians to be familiar with the potential physical and mental impact associated with energy drinks. Identifying the characteristics like caffeine intoxication, withdrawal and dependence may be especially appropriate when treating the adolescent population that may be more prone to consume energy drinks.

CONCLUSION

From the consumption pattern, it was observed that the majority of students preferred energy drinks over health drinks. The students thought that energy drinks could boost their mental energy and the majority was unaware of the high calorie and caffeine content. In recent years, consumption of caffeine containing energy drinks and aggressive marketing of these products had grown drastically. The laws and regulations pertaining to energy drinks, including product labeling and health warning alerts differ across various continents. The lacuna of regulatory laws has resulted in intense sales of energy drinks, which are focused principally towards adolescents for psychedelic, efficiency enhancing and stimulant substance effects. Recently there have been increasing accounts of caffeine inebriation, dependence and withdrawal from energy drinks. Restrictions on the fervent marketing and the advertising of energy drinks to young adults may contain overconsumption of energy drinks. Many clinical, pharmacological and epidemiological studies had established that a link exists between caffeine addiction and physical dependence of stimulants like alcohol, nicotine, etc. This habit may serve as an entrance to other forms substance dependence as well as could predict subsequent nonmedical use of prescription stimulants. It is worthwhile to note that Red Bull had been banned in France for the past few decades mainly due to the concerns of health authorities regarding one of the ingredients taurine, an amino acid used as metabolizer and mental energy booster.
Therefore, proper health education regarding the nutritional benefits as well as the adverse effects of energy drinks should be taught to the students at the entry level in the University. Inquiries and investigations have led to the regulation of energy drinks in many European nations and their unconditional ban in Denmark and France.

References


This study was presented at the 4th Annual Scientific Meeting of Gulf Medical University, held on 05 and 06 November, 2012.