Energy Drinks Consumption by Students at Universities in Trnava

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Abstract: The paper deals with the increased consumption of energy drinks as well as sugar-sweetened beverages among young adults. The work mentions the negative impact of energy drinks and sugar sweetened beverages on cardiovascular and neurological system, the possible causes of metabolic problems as well as the dental risks connected with their consumption. The pilot study was realized on the sample of young adults, 18-26 years of age students of universities seated in Trnava, Slovakia. The aim of the study was to analyse the knowledge on energy drinks among young people and their combinations with other substances, and find more about the frequency of energy drinks consumption based on gender and age. The collected information was bound with two groups of students, the first newcomers during the exam session, as they have to cope with a new type of experience, different way of assessment and who are more often under the stronger pressure than before. The second group were the students in their last year of study when completing theses and finishing their degree at university. The information was collected through the anonymous questionnaires, properly collected in the compliance with the ethical principles of Helsinki Declaration and SPSS statistical program was used for proper data processing.

Keywords: *energy drinks; sweetened beverage; consumption; risks; health impact.*

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1. Introduction

Postmodernism is not a key solution for the development of our culture and society nowadays as the elements of postmodern thinking can also negatively affect the general socio-cultural level of social life, but also special areas, morality, school, politics, economy, etc.

The postmodern society often encounters various allowed and in some cases accepted behaviors connected with specific understanding of freedom or the possibility of free choice reflected in the consumerist way of life but the main problem today is that consumption has become the norm (Mulpachr, 2008, p. 89). The economy counts on a relentless desire for new things and experiences and people feel responsible and consider consumer behavior a moral obligation in the inverted traditional relationship between needs and satisfaction. People love the promises of the unknown, and it's not just about material things like food, clothes, car, but also experiences. It is considered amusing to experience an experience. (Bauman, 2019, p. 18)

A good consumer therefore loves the unknown, the unknown, is open to fun and experimentation, his real needs basically do not play a role here but important is desire and the ideal consumer should permanently experience a state of dissatisfaction with needs and long for new things (Bruce, 2008, pp. 96-97.) Consumption is supported mainly by advertising, which attracts people from billboards or television screens like Try the unknown! Bite and experience passion!

Globalization has thus brought man unimaginable opportunities to choose goods and buy, but at the same time he has been thrown into a world of constant hustle and bustle. Through advertising, it is easy to reach the most influential and vulnerable groups (Beck, 2018, pp. 237-239). Children and youth can be the group with their unusual consumer habits plasticity and in this intention the support of the media industry evoking: try me, experience the taste, choose more energy etc.

The popularity of energy drinks has been increasing in recent years what is actually reflected in the increased consumption of energy drinks (Alsunni, 2015, p. 468) and sugar sweetened beverages (Mirmiran et al., 2015, p. 1536). Popularity of energy drinks are connected with well-being (Seidl, 2000, p. 636), better mood (Alford, 2001, p. 141), but also with better performance of sportsmen (Campbell et al., 2013, p. 7.) and in fitness (Kammerer, 2014, p. 4-5).

Historically the first energy drinks were sold in Europe in the late nineties (1987). Popular energy drinks typically include high level of caffeine as the main ingredient of energy drinks with the content of 50 – 500 mg per

can (Atefi & Homayounfar, 2013, p.633) and other ingredients like taurine, caffeine containing herbs such as guarana, vitamins.

Caffeine and energy drinks are preferably drunk by adults 71% adults, 18–29 years of age (Zuconi et al., 2013, p. 98). Energy drinks are often consumed alone, but frequently they are used as mixers for alcoholic beverages. Energy drinks have negative impact on several parts of human organism, namely they can cause cardiovascular manifestations (tachycardia, increased arterial blood pressure, arrhythmias, etc.), they can further disrupt neurological system (affect cognition, mental health, cause anxiety or muscle twitching), they can influence metabolic problems (risk of obesity) but also cause dental erosion (Alsunni, 2015, p. 468).

Mixing alcohol and energy drinks are highly popular among students but it can be also connected with higher consumption of sugar and calories in combination with caffeine what can result in experienced increased physical and psychological side effects from drinking the mixtures (Gallucci et al., 2016, p. 110). Centres for Disease Control and Prevention declares the same.

The European Food Safety Authority realized the study in 16 European countries on the sample of more than 52,000 European respondents connected with the consumption of energy drinks, where the study showed their high popularity among teenagers: 18% children (3-10 years of age), 68% teenagers, 10-18 years of age, and 30% adults, 18-65 years of age (EFSA, 2013, p. 1). But the popularity of energy drinks among young adults in Hungary depicts detrimental health effects and importance to set preventive measures and programs to address the problem (Toth et al., 2020, p. 1).

2. Methodology and data collection

The aim of the study was to analyse the knowledge and consumption of energy drinks based on gender and age on the sample of university students, both males and females, studying at three universities in Trnava, Slovakia, where were assessed the frequency and experienced feelings after the energy drinks use.

At the very beginning were stated two hypotheses where was expected that higher energy drink consumption would be influenced by gender and age of respondents and that frequency of energy drink would be also influenced by gender and age. Further was expected better knowledge on energy drinks and less consumption by female respondents.

The study data were collected through the anonymous questionnaire (consisted of 30 questions), prepared in compliance with the ethical principles of Helsinki Declaration (2013, p. 2), where the informed consent was an inseparable part of the questionnaire. The individual parts of the questionnaire were aimed at the knowledge of respondents on energy drinks, the frequency, way and volume of their consumption, possible combinations: energy drinks with alcohol, energy drinks and tobacco. The interest was also focused on the knowledge of respondents concerning the effects and side effects of energy drinks, the substances contained in energy drinks as well as the combination of energy drinks and alcohol.

The questionnaires were collected within five-month period from 2/2019 to 6/2019 (twice during the exam session), peak sessions for students-newcomers connected with preparing for exams or with students in their last year of study, during completing their theses or preparing for the final exams, what can be understood as the period of alleviated stress.

The study sample was created by 822 students, aged 18-26 years, both males and females, where males formed 27.7%. The sample was created from newcomers during the exam sessions, when they had to cope with new experience, new way of assessment as they experienced before, but the sample prevalence was of older respondents, namely 71.5% of older respondents - students of master level in the phase of completing theses and preparing for final exams at university.

For proper data processing SPSS statistical program was used.

3. Results and discussion

The collected and assessed data showed that over the half of respondents (55.5%) do not prefer consumption of energy drinks at all, and from the rest almost the same amount use energy drinks regularly (22,6%) or occasionally (21,9 %). There is found statistically important difference between men and women ($p=0,522$) users of energy drinks, but women prefer energy drinks more than men (25,3%:15,8%). Within the age groups was found statistically important difference ($p < 0,001$).

Almost half of the respondents (49.2%) consume energy drinks only occasionally (19.7% once a week), 14.8% less than 3 times a week, and 16.4% of respondents more than 3 times a week. There is a statistically significant difference between men and women ($p = 0.038$), consumption once a week, or more than 3 times a week is reported more often by women (21.7%), while occasional consumption, or less than 3 times a week are reported more often by men (53.3%). There is also a statistically significant difference between

younger and older respondents ($p = 0.003$). Younger people use energy drinks more often than older ones, up to 60.9% of older respondents consume energy drinks only occasionally. The knowledge on the side effects of energy drink was mentioned by almost two thirds of respondents (59,1%), noted were mainly harming effects connected with high amount of caffeine and sugar (46,9%) and problems with heart-beat (37%).

The collected data showed that energy drinks were preferably consumed by females (46.5% vs. 39.5%) and also older respondents (46.9% vs. 38.5%; $p < 0.05$) where our hypothesis on higher consumption of energy drinks based on age of respondents was proved.

The female sample (22.2% vs. 10.5%) and the sample of younger respondents (28.2% vs. 15.3) showed significantly higher consumption of energy drinks combined with alcohol.

In older respondents (both in male and female sample) were the most often mentioned reason for energy drinks consumption study ($p < 0.05$) and supply of energy ($p < 0.001$). Important finding was that significantly more males (73.7% vs. 53.5%) considered energy drinks dangerous (Table 1).

Table 1. Knowledge and consumption of energy drinks
based on gender and age (n=274)

Source: Authors' own conception

Variables	Females n (%)	Males n (%)	≤18y. n (%)	>18y. n (%)
I consume energy drinks	92 (46.5)	30 (39.5)	30 (38.5)	98 (46.9) ²
I consume energy drinks with alcohol	44 (22.2) ¹	8 (10.5)	22 (28.2) ²	30 (15.3)
I consume energy drinks occasionally	44 (22.2)	16 (21.1)	4 (5.1)	56 (28.6) ²
I consume energy drinks while studying	48 (24.2)	22 (28.9)	14 (17.9)	58 (28.6) ²
I consume energy drinks to energy supply	48 (24.2)	20 (26.3)	12 (15.4)	60 (28.6) ³
The taste is decisive in the selection of the energy drink	34 (17.2) ¹	8 (10.5)	22 (28.2) ²	20 (10.2)
Energy drinks have impact on my mood	34 (17.2) ¹	6 (7.9)	8 (10.3)	32 (16.3)
Energy drinks are dangers	106 (53.5)	56 (73.7) ³	48 (61.5)	114 (58.2)

¹ $p < 0.05$; significance between females and males

² $p < 0.05$; significance between ≤18y. and >18y.

³ $p < 0.001$; significance between ≤18y. and >18y.

The reason for the energy drink use was in the whole sample mentioned arousal (55.7%), reported was also better physical performance (19.7%), the same number of respondents consume energy drinks because of the good taste. Gender does not affect the reasons for consuming energy drinks, there is no statistically significant difference between men and women ($p = 0.322$), but age does ($p = 0.039$). Respondents over the age of 18 stated the reason for "arousal" and "better physical performance" more often than 18-year-old respondents (60.9%: 40%, 21.7%: 13.3%), while younger people more often stated the energy drink taste (46.7%: 10.9%). The reasons statistically significantly also depend on whether the respondents consume energy drinks regularly or only occasionally ($p < 0.001$). Occasional consumers are more likely to give reasons for arousal and better physical performance (63.3%: 48.4%, 26.7%: 12.9%), none of them was giving importance to a "good taste", while of regular consumers this reason indicated up to 38.7%.

After the experienced consumption of energy drinks in the sample of regular energy drink consumers showed importance of better concentration after the energy drinks consumption (37,7%), increased physical activity (31,1%), experienced hyperactivity (20%) of respondents after the energy drinks consumption, sleep suppression (65%), but the most of them emphasized better mood (95%).

Respondents had the possibility to choose 4 options important for them when choosing the energy drink: brand, taste, price, content. 11.5% respondents did not answer this question but the most common response was taste (34.4%), then price (24.6%), and in the same amount the brand and content (14.8%). The choice was not affected by gender ($p = 0.101$), although men depict the price (46.7%: 17.4%), while women depict the drink taste (37%: 26.7%). Younger respondents choose according to taste (73.3%: 21.7%) while older also emphasized price (32.6%: 0%). Age statistically significantly affects the choice of energy drink ($p = 0.003$).

Interesting for us to find information and comparisons connected with drinking alcohol and drinking energy drinks, but finally in the answers of our respondents was not found statistically significant difference between drinking alcohol and drinking energy drinks ($p=0,128$). The sample showed that usually younger ones are opened to combine alcohol with energy drinks. In the answers of respondents was not found statistically significant interconnection of drinking energy drinks and smoking.

4. Discussion

Energy drinks consumption has been permanently rising round the world, the age of energy drink users decreases (Miyake & Marmosrstein 2015, p. 60). Children starts tasting mainly because of good taste, easy access to the products, without awareness of harms on young organism.

Energy drinks consumption and closeness of possible addictions is becoming an up-to-date issue and require further studies (Schindler et al., 2005, pp. 210-215). Reported were the problems caused by combined consumption of energy drinks and drugs that required urgent medical help (Stanciak et al., 2017, p. 4). Problems of substance combinations for better performance was proved among musicians from specific subcultures (Ruckova & Sedalik, 2018, p. 79) Connection of alcohol combined with energy drinks were proved by the studies performed among addicted young adults, voluntarily undergoing the psycho-therapeutic process in a resocialization centre (Ruckova, 2018, p. 190).

The study tried to analyse the knowledge and consumption of energy drinks based on gender and age on the selected sample, interest was paid to experienced feelings after the energy drinks use. The stated two hypotheses expected that higher energy drink consumption and frequency of energy drink consumption would be influenced by gender and age what was proved by our research. The respondents had knowledge on energy drinks but surprising was that female respondents were consuming more energy drinks compared with male. Limitation of the study was the disproportional sample connected based on age and sex.

5. Conclusions

Consumption of energy drinks can have some positive effects like combatting the fatigue and suppression of sleepiness, increasing endurance and fitness what cannot be denied, but the negative effects are not mentioned very much. Important is to educate young people (also adults) on adverse effects of energy drinks and their combined consumption. Many health hazards are associated with excessive consumption of several substances, drugs but also energy drinks and sweetened beverages (Stanciak, 2018, p. 16).

Children and adolescents should not consume energy drinks containing caffeine because of sleep disruption and brain growth cessation. The energy drinks may further affect other body organs like pancreas, stomach, kidney, breast and teeth thus the healthcare providers should

inform adolescents and their families about the risks bound with excessive consumption of caffeinated drinks supported by the regulatory sales restrictions to minimize health problems in the group of young adults (Heshmat, 2015, p. 50).

The paper presents a study bound with energy drinks, knowledge on them and their use in combination with alcohol or other substances among young respondents. It is important to widen and gather more facts about harm effects of energy drinks, collect the negative information on energy and sweetened drinks and their impact on health. The study is the base for the prepared longitudinal study led by the team doctors, psychologists, social workers and other specialists working in the area.

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