

Original article

Energy Drinks Consumption Among Medical Student in Omar Al-Mukhtar University

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ABSTRACT

Background and Objectives. The energy drinks (EDs) consumption has become a common problem among the students of universities which brought an attention recently, hence, the purpose of this study was to investigate the prevalence of EDs consumption among medical student of Omar Al-Mukhtar university and their usage pattern, and also aimed to assess the participant's knowledge about EDs effects. **Methods.** A cross-sectional survey of 225 students from three different medical colleges (medicine, pharmacy and nursing) in Omar Al-Mokhtar University and data collection was conducted through a self-response questionnaire between September and October 2021. **Results.** Twenty-one percent (21%) of 225 students were drinking energy drinks. About (32%) of students consumed EDs to enhance their intellectual and physical performance. About (70%) of the students reported that they consume one energy drink per day and, about (44%) of students were drinking EDs for a long time (5 years). The frequency of EDs use was irregular (40.82%) particularly prior to physical exercises and mental activity (34.70%) and, EDs selection was determined by taste among (62%) of the students. The information about EDs mainly derived from friends (30%) and the students recognized the adverse effects of EDs (76.44%), and about (70%) experienced these effects, which was most predominantly mood elevation (24.49%). **Conclusion.** The study addressed that EDs consumption among medical students in Omar Al-Mukhtar University was low and, students are consuming EDs aiming to improve their physical performance and mental activity and, the study also, indicated that EDs selection is primarily based on taste.

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INTRODUCTION

Energy drinks (EDs) are marketed as tonic and energizing drinks that give users an energy boost because of its components that mainly include (caffeine, amino acids, herbal extracts, carbohydrates and vitamins) [1]. Energy drinks are marketed for several purposes and athletes are the major target of energy drinks promoting that EDs fight fatigue. However, a new target for EDs manufacturing companies presented in young adults and teenagers [2]. Many studies have discussed the consumption of these beverage among young adults particularly medical students however, there is a limited research of the negative impacts of energy-drink consumption by college students [3,4]. Possible side effects of energy drinks consumption, which found linked to its components are an increase in the heart rate and arterial blood pressure [5]. Excessive energy drink consumption may increase the risk of obesity and type 2 diabetes presented with jaundice, gastrointestinal pain and metabolic effects [6]. Neuropsychiatric symptoms may develop due to high caffeine content which include anxiety, insomnia, gastrointestinal upset, muscle twitching, restlessness, and

periods of inexhaustibility [7,8]. The Diagnostic and Statistical Manual of Mental Disorders, 4th edition: has identified many psychological disorders induced by caffeine including caffeine-induced anxiety and caffeine induced sleep disturbance [9]. Also, a number of studies revealed that the caffeine in energy drinks can lead to severe dehydration, which may raise body temperature, activity level, and heart rate [10,11]. Also, dental erosion was reported among children and the youth consuming EDs due to its high acid content [12].

Observations have suggested that young adults can easily access and use energy drinks, however, there is limited evidence on the reasons why they consume energy drinks and whether they are mindful of the possible harmful effects. Thus, the aim of this study is to assess the energy drink consumption, rate and awareness among Omar Al-Mukhtar University medical students.

METHODS

Data collection procedure

Two hundred and twenty-five (225) medical students from 3 different medical colleges in Omar Al-Mukhtar University were enrolled in this study. The study was carried out during September and October, 2021 year.

Study design

Self-response questionnaire was distributed to the students during class time. The questionnaire includes two types of questions, first set of questions includes demographic questions (the gender and age), and the participants were asked about EDs consumption and awareness. The second set addressed the ED consumers only to determine pattern of use of energy drinks (such as amount, reasons and frequency of use) and to explore their effects after consumption of ED.

Ethical Consideration

Before the initiation of the study, approval was obtained from ethics committee of the university. Moreover, proper consent was obtained from all participants.

Statistical analysis

Descriptive statistics, frequencies and standard deviation (Std. D.) were calculated for all the responses using both Excel 2010 and SPSS program version 20 P-value was sat at $p < 0.05$

RESULTS

Characteristics of Respondents

The majority of the students in the sample were female (79.83%) (Fig.1) and of age (21-23) (54.622%) (Fig.2) and most were third-year medical students (51.68%) with percentage of respondent (44.54%) (Figs.3 and 4).

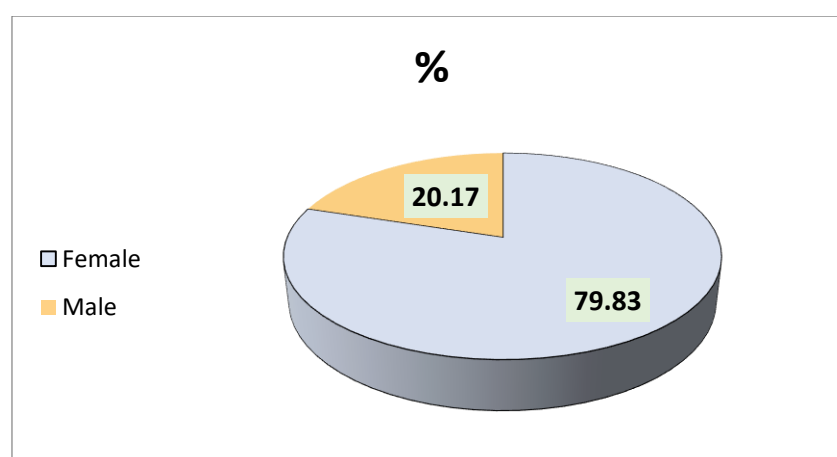


Figure 1. Distribution of respondents according to sex

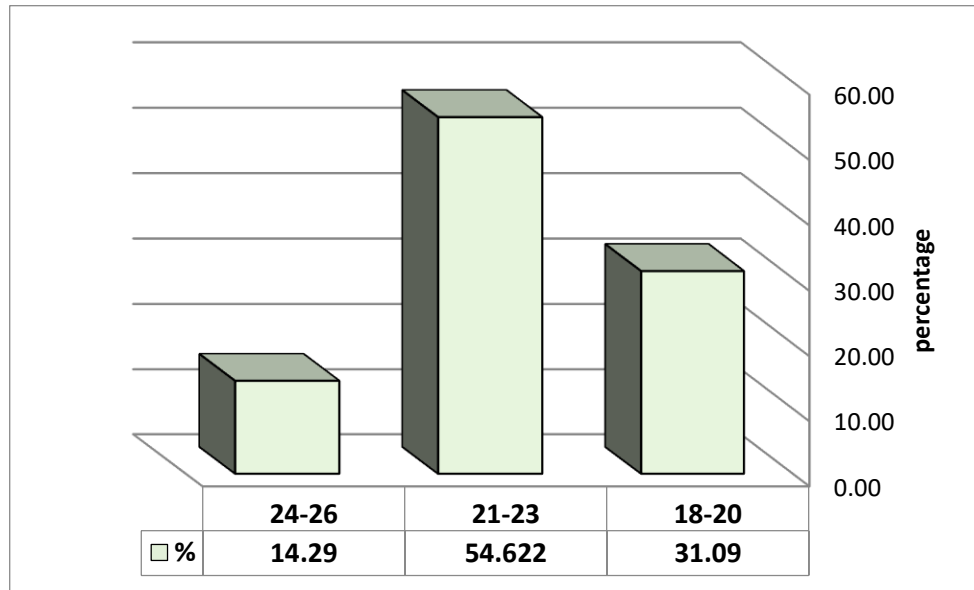


Figure 2. Distribution of respondents according to their age

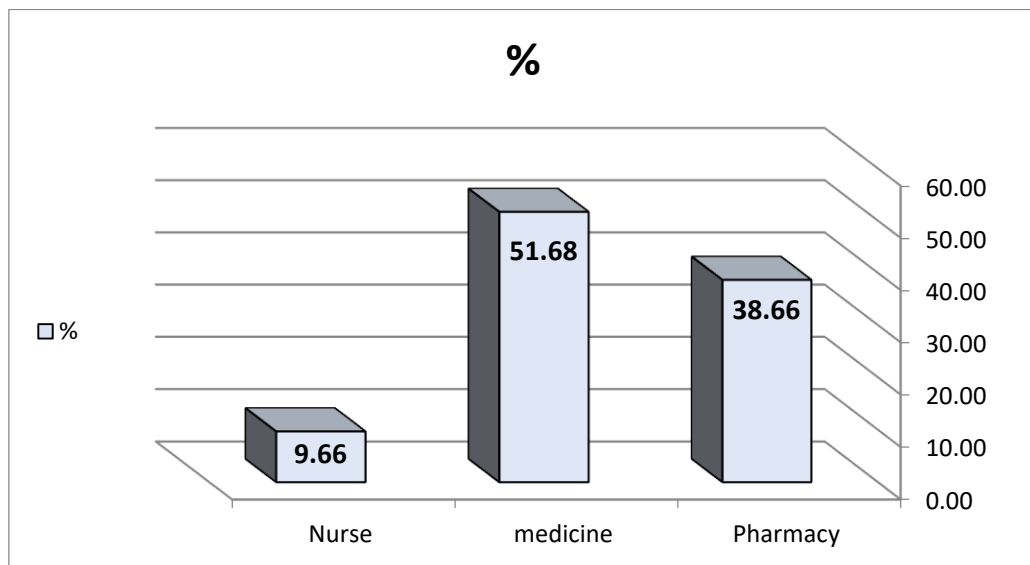


Figure 3. Distribution of respondents according to their college

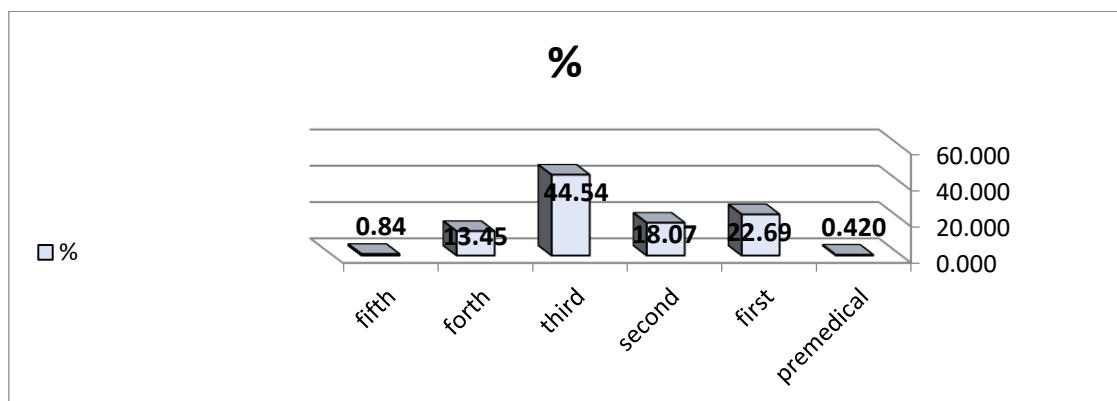


Figure 4. Level of study of respondents

Energy drink consumption

About twenty-one percent of students (21.01%) were drinking energy drinks (Fig. 5). The male to female difference was statistically significant ($p < 0.05$) where most of the users were male students.

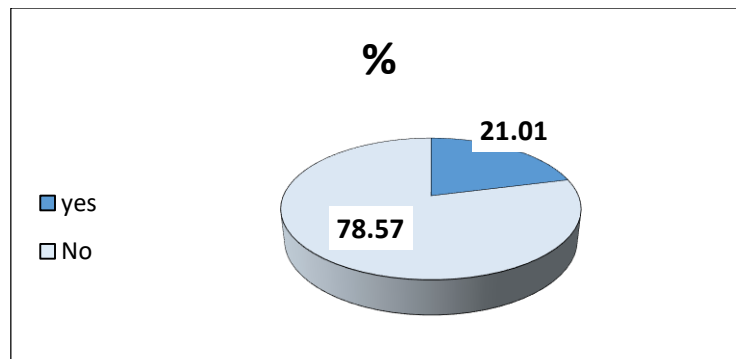


Figure 5. ED consumption among the students

Pattern of EDs consumption

The table (1) below summarizes the pattern of EDs consumption among the students. The students were taking ED to enhance their mental activity (32%) with one can (70%) for long time (more than 5 years, 44%); however, the frequency of irregular use was (40.82%) especially before exercises and any mental activity (34.70%) and the type of EDs selection was determined by taste of ED (62%).

Table 1. Pattern of ED consumption

Variables	No	%	Mean	Std. D.
Reasons for consuming ED				
To increase concentration while studying	15	30	1.96	1.612
To boost performance during exercise	3	6		
As Mental enhancer	16	32		
To stay awake	4	8		
For enjoy	9	18		
Others	3	6		
Duration of ED consumption				
Less year	8	16	2.02	1.086
more Year	5	10		
more 2years	15	30		
more 5years	22	44		
No. of cans used each time				
One	35	70	0.42	0.695
more than one	9	18		
less than one	6	12		
Frequency of ED consumption				
daily	12	24.49	1.76	1.22
Weekly	8	16.33		
Monthly	9	18.37		
Irregular	20	40.82		
Time of ED consumption				
During day	13	26.53	2.14	1.67

before exercise	17	34.70		
At night	2	4.08		
before mental activity	17	34.69		
Selection of ED depends on				
Price	2	4	1.94	0.97
Contents	11	22		
Taste	31	62		
Friends	2	4		
Volume can	2	4		
Common use	2	4		

The student was known the information about EDs from different sources such as friends (30%) and most of them know the adverse effects of EDs (76.44%).

Table 2. Knowledge of consumers about EDs

Variables	No.	%	Mean	Std. D.
Knowledge about ED				
From Markets	14	28	1.66	1.19
From advertisements	5	10		
From Friends	15	30		
Others	16	32		
Knowledge about adverse effects of EDs				
No	53	23.56	0.76	0.42
Yes	172	76.44		

Effects of energy drinks

After EDs consumption most of the students felt adverse effects (70%) and the most common effects was elevation in their mood, 24.49%)

Table 3: the effects of ED consumption

Variables	No	%	Mean	Std D
Effect after ED consumption				
No	15	30	0.7	0.46
Yes	35	70		
Common Adverse effects				
Insomnia	8	16.33	2.49	2.32
mood elevation	21	24.49		
increase Heart Rate	2	4.082		
Headache	1	2.041		
Tension	3	6.122		
Diuresis	2	4.082		
Others	12	24.490		

DISCUSSION

This study is the first student survey of energy drink consumption conducted among Omar Al-moukhtar University students which demonstrated the popularity, pattern and knowledge of energy drinks consumption among them. Only twenty one percent (21%) take energy drinks, this percentage is comparable to a number of studies conducted in the Saudi Arabian, Turkish and Zambian universities students, where

(19.5%), (22.5%) and (27.4%) of students have been shown to consume EDs respectively [2][4][13]. This is markedly less than the prevalence among medical students in University of Benghazi and universities students in Poland were (65%) and (67%) reported to consume ED respectively [5][14]. There is a similarity in the reasons of consuming EDs in this study (30%), with Elderbi et al 2021 study, as usually students take EDs to improve their concentration and mindfulness.

The majority of the students (44%) in this study have used EDs for a long time up to 5 years, taking one can (70%), before mental activity like studying or exams and before exercising (34.7%). Nevertheless, this is understandable given that the advertising are highly tempting and specifically aimed at young people who have fast-paced lives and need an energy boost, such as university students who need to study for lengthy periods of time and extreme sports participants. Also, these results are similar to previous study by Hussain et al (2021) and are coherent with studies conducted by Bulut et al. (2014) and Nowak and Jasionowski (2015) [9,4,14]. While choosing EDs, students have a variety of factors to take into account, including cost, volume, and flavor. Although the price and volume of the EDs were comparable and friends were the primary source of information, our study found that the taste of the EDs was the most compelling reason in choosing an ED. These findings align with earlier research by Hussain, (2021) and Hasan et al (2019) [9,8]. It is conventional that university students recognize the adverse effects of ED compared to ordinary people, as participants were medical students. Also, the percentage of knowledge among students is comparable to prior study by Elderbi et al 2021 as the students were aware of ED components and side effects; however, its consumption remains high.

Conclusion

Compared to other studies, ED consumption among Omar Almuktar University medical students was lower than that of Benghazi University medical students, despite their understanding and awareness of the potential harmful effects of ED. This study showed that the factors influencing ED selection were taste, and the factors influencing ED use were attending college and participating in physical activity for mood enhancement. Therefore, it is important to develop policies and intervention strategies that focus on predictors of ED use to raise awareness of the health consequences of ED consumption especially among young and teenagers. Also, further research is recommended to assess the side effects of energy drink consumption and the factors that increase consumption in young adults.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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استهلاك مشروبات الطاقة بين طلاب الطب بجامعة عمر المختار

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المستخلص

الخلفية والأهداف. أصبح استهلاك مشروبات الطاقة مشكلة شائعة بين طلاب الجامعات التي لفتت الانتباه مؤخرًا ، ومن هنا كان الغرض من هذه الدراسة هو التحقق من مدى انتشار استهلاك المشروبات الكحولية بين طلاب الطب بجامعة عمر المختار ونمط استخدامها ، ويهدف أيضًا إلى تقييم معرفة المشاركين حول تأثيرات EDs. **طرق الدراسة.** تم إجراء مسح مقطعي لـ 225 طالبًا من ثلاث كليات طبية مختلفة (الطب والصيدلة والتمريض) في جامعة عمر المختار وجمع البيانات من خلال استبيان الرد الذاتي بين سبتمبر وأكتوبر 2021. **النتائج.** كان واحد وعشرون بالمائة (21٪) من 225 طالبًا يشربون مشروبات الطاقة. حوالي (32٪) من الطلاب استهلكوا EDs لتحسين أدائهم الفكري والجسدي. أفاد حوالي (70٪) من الطلاب أنهم يستهلكون مشروبًا واحدًا للطاقة يوميًا ، وحوالي (44٪) من الطلاب كانوا يشربون EDs لفترة طويلة (5 سنوات). كان تكرار استخدام EDs غير منظم (40.82٪) خاصة قبل التمارين البدنية والنشاط العقلي (34.70٪) ، وتم تحديد اختيار ED حسب الذوق لدى (62٪) من الطلاب. تم الحصول على المعلومات حول EDs بشكل أساسي من الأصدقاء (30٪) وتعرف الطلاب على الآثار السلبية للضعف الجنسي (76.44٪) ، وحوالي (70٪) عانوا من هذه الآثار ، والتي كانت في الغالب ارتفاعًا للمزاج (24.49٪). **الخلاصة.** تناولت الدراسة أن استهلاك EDs بين طلاب الطب في جامعة عمر المختار كان منخفضًا وأن الطلاب يستهلكون EDs بهدف تحسين أدائهم البدني ونشاطهم العقلي ، كما أشارت الدراسة أيضًا إلى أن اختيار EDs يعتمد بشكل أساسي على الذوق. الكلمات الدالة: مشروبات الطاقة ، طلاب الطب ، الانتشار ، النمط ، المعرفة والآثار.