Research Article

Use of energy drinks by male students of Qassim University, Saudi Arabia

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ABSTRACT

Background: Estimate the rate of consuming energy drinks among male students of Qassim University and to evaluate the pattern, knowledge and behavior of energy drinks among them.

Methods: This cross sectional study was conducted among students of Qassim University during December 2014 and January 2015. Data were collected using a self-administered questionnaire.

Results: This study showed that 37.8% of participants reported consuming energy drinks. With regard to the colleges, the students of collage of sciences had significantly the highest range of consuming energy drinks. Only a small proportion have knowledge about energy drinks regarding their effects, advantages, ingredients and adverse effects. The most common reasons to consume these drinks were habitation followed by being to imitate friends.

Conclusion: Consumption of energy drinks among male students at Qassim University are found to be approximately 37.8% which almost near to what have been seen in some studies. Educational programs should be designed and implemented at all levels of schools and at the community level to raise the level of awareness of health effects of theses drinks.

Keywords: Energy drinks, Qassim University, Consumers

INTRODUCTION

Energy drinks are soft drinks promoted as boosting energy. These drinks have become popular all over the world since 1997. Energy drinks are fortified beverages with added some dietary supplements. Like most of the soft drinks in the market, these drinks are aggressively marketed but are not always transparent in providing ingredient information and quantities on their labels.¹ Energy drinks are frequently consumed by athletes prior to competitions with a view to improve the performance when practicing sport.² Energy drinks are being sold for people who have 18-30 years as the name motivate them to drink them. The belief in energy drinks is held by most athletes, particularly because the term energy drink

conveys a message that these products have a connection with physical activity. Consequently, an uninformed consumer may assume that some benefits would be derived after consuming these beverages.³

The market and degree of consumption of energy drinks is still increasing every year^{4,5} and while only few have detailed knowledge of their potential harmful physiological and psychological effects, the number of publications that have documented the potential adverse risks associated with the use of these beverages still remains small.⁶ At this time, some of teenagers think that these kinds of beverages have delicious taste making them experience these drinks. The commercial advertising encourages the idea of the energy drinks, as

the boost energy. These advertisements usually do not emphasize energy that is derived from the sugar and caffeine but claims the increasing in energy due to a variety of stimulants and vitamins.⁶

One of the most popular energy drinks contains nearly 80 mg of caffeine per can. That is about the same amount of caffeine in a cup of coffee and twice the caffeine in a cup of tea.^{1,6} People who used to drink this beverage claims that it is very effective. But they should be aware about the effects and consequences of this product. This is true because once you make a drink in a wrong way; you may face some health problems. There are short and long-term effects of energy drinks. Some of which increase in heart rate, increase in blood pressure, osteoporosis, and insomnia.^{1,6}

In the Kingdom of Saudi Arabia (KSA), the rate of energy drink consumers was found to be 46% while 54% have never consumed these drinks.⁷ In another region of KSA, 54.60% males and 26.15% female students at Dammam University were energy drink users.⁸

According to the available literatures, no studies have been published concerning the prevalence, pattern and behavior of energy drink consumption in Qassim University. Therefore, the current study aimed at finding the rate of consuming energy drinks among male students of Qassim University and to evaluate the pattern, knowledge and behavior of energy drinks among them.

METHOD

Participants

This cross sectional study was conducted among male students of Qassim University, in which five colleges were randomly selected. These colleges included engineering college, college of medicine, college of sciences, college of islamic studies and college of computer sciences. This survey was carried out during December 2014 and January 2015.

Sample size was calculated considering that the lowest prevalence of knowledge and practice regarding energy drinks among Qassim student is 25% with a confidence interval 95% and apercins of⁵ around the estimated prevalence the sample size turns to be (288). $n = Z^2 \cdot 1 - x / z \cdot P(1 - P) / d^2$.

Data collection technique

The data were collected using a questionnaire. The questionnaire was developed based on study variables with the help of experts. The questionnaire included data about;

- Personal and socioeconomic data.
- Data related to energy drinks, side effects.

• Questions assess the attitudes of the students towards energy drinks.

• Questions assess the knowledge of the students about bad effects to energy drinks.

The questionnaires were distributed to the participants, using a self-administered method, during the entire period of the study. A systematic probability random sample was used in which every 3rd student was asked to participate. The participants were asked to carefully read the consent form, before they verbally agreed to participate in the study. Confidentiality of the participants was ensured. A pilot study was carried out on a limited number of patients²⁵ to modify the questionnaire. The questionnaire was tested for the sequence, wording of questions and space for answer and time needed. The participants were asked to carefully read the consent form, before they verbally agreed to participate in the study. Confidentiality of the participants was ensured.

Statistical analysis

Statistical analysis was carried out using statistical package for social sciences (SPSS version 17). Data were described using mean with standard deviation (SD) for continuous variables and proportion for categorical variables. Chi-square test was used to assess statistical significance of proportion of energy drinks according to collages. A P value <0.05 was considered statistically significant.

RESULTS

A total of 262 of male students participated in this study, while 34 disagreed, giving non-response rate of 11%. The average age of participant was 22 years (SD±1.778) ranging from 18 to 27 years. 7.3% of the students are married while 92.7 are singles. This study showed that 37.8% of participants reported consuming energy drinks. With regard to the college, the students of collage of sciences have the highest range of consuming energy drinks, Table 1 and Figure 1.

Table1: The proportion of using energy drinks among the participants according to the college *×.

Collages	Use of energy drinks
Collage of Sciences	56.7%
Collage of Engineering	42%
Collage of Islamic studies	33.3%
Collage of Computer science	30%
Collage of Medicine	27%
Total	37.8%

* Chi-square test was used to assess statistical significance of the difference in the percentages of energy drinks according to the college; × P value (< 0.05) was statistically significant.

Among those who reported consuming energy drinks, only a small proportion have knowledge about energy drinks regarding their effects, advantages, ingredients and adverse effects, as shown in Table 2. One third of them knew the age in which these drinks should not be used. Although the students of the college of sciences were significantly the highest rate of consumers, they had significantly the lowest rate of knowledge about the advantages of these drinks. On the other hand, the college of medicine had the lowest proportion of consumers but had better knowledge about the ingredients of these drinks when compared with other colleges. No significant differences in the knowledge of adverse effects of these

drinks or the knowledge at which age these drinks are prohibited between the colleges was found as seen in Table 2. Approximately 21.4 % of the students consume energy drinks every day, Table 3. Among those who consume energy drinks daily, about half of them drink one can daily, while 21.7 % use three cans daily. Also during this study, we discovered that 46.5% use one type of energy drinks while 23.2% use three types of total 69 who use energy drinks. About 53% of consumers continue to keep on these drinks because of habitation, while 23.1% justify their continue just to imitate their friends.

Table 2: How much far the student who is consuming energy drinks know about these drinks and its comparison according to the colleges.

			College					Total
			College of medicine	College of sciences	College of computer science	College of engineering	College of Islamic studies	
Do you know the effects of energy drinks?	Yes	Count	10	12	4	5	4	35
		% within college	62.5%	35.3%	22.2%	33.3%	26.7%	35.7%
	No	Count	6	22	14	10	11	63
		% within college	37.5%	64.7%	77.8%	66.7%	73.3%	64.3%
Do you know the advantages of energy drinks?*	Yes	Count	12	1	5	2	6	26
		% within college	75.0%	2.9%	27.8%	13.3%	40.0%	26.5%
	No	Count	4	33	13	13	9	72
		% within college	25.0%	97.1%	72.2%	86.7%	60.0%	73.5%
Do you know someone who had a serious effect because of it?	Yes	Count	2	2	3	3	4	14
		% within college	12.5%	5.9%	16.7%	20.0%	26.7%	14.3%
	No	Count	14	32	15	12	11	84
		% within college	87.5%	94.1%	83.3%	80.0%	73.3%	85.7%
Do you know the ingredients of energy drinks? *	Yes	Count	9	12	3	3	1	28
		% within college	56.3%	35.3%	16.7%	20.0%	6.7%	28.6%
	No	Count	7	22	15	12	14	70
		% within college	43.8%	64.7%	83.3%	80.0%	93.3%	71.4%
Do you know the age in which these drinks are prohibited?	Yes	Count	5	8	8	3	8	32
		% within college	31.3%	23.5%	44.4%	20.0%	53.3%	32.7%
	No	Count	11	26	10	12	7	66
		% within college	68.8%	76.5%	55.6%	80.0%	46.7%	67.3%

* It is statistically significant by chi square (P value less than 5%).

Among those who consume energy drinks, only 14.3% felt benefits from taking these drinks and about 20% could encourage others to take these products. More than half of these participants had a desire to quit these drinks. 25% reported taking the energy drinks with their family and about 44.4% had someone in their family consuming energy drinks, Table 4. Regarding use of these drinks in relation to activity, 56.1% took them before activity while 17.3 after activity.

Fortunately, the proportions of those who didn't consume energy drinks were 62% of the participants but about 54.9% of them reported consuming these drinks in the past, Table 5. About 49.4% discontinued consuming these products because they thought that there is no benefits of using energy drinks and 27% because of adverse effects while 13.5% because the energy drinks are costly. About 28% of all participants (number 262) had never ever consumed any of these drinks.

Table 3: The frequency of use these drinks.

Frequency	Percent
Those who daily use energy drinks	21.4%
more than once per week but not daily	16.3
Once per week	18.4
Once per month	20.4
specific season or occasion	23.5

Table 4: The practice of consuming energy drinks.

	Yes
Do you feel any benefit from taking these drinks?	14.3 %
Do you feel any disadvantages from taking these drinks?	56.1 %
Do you encourage others to take these products?	20.4 %
Do you take energy drinks with meals?	29.6 %
Do you take energy drinks on empty stomach?	26.9 %
Do you want to quit energy drinks	55.1 %
Do you take energy drinks with your family?	25.5 %
Do you have someone from your family take these drinks?	44.9 %

Figure 1: The proportion of using energy drinks among the participants according to the college.

Table 5: Knowledge among those who don't currently drinks.

Those who don't currently drinks	Yes
Have you ever used energy drinks in the past?	54.9%
Do you know the dangers of energy drinks?	72%
Do you know advantages of energy drinks?	18.3%
Do you know someone who had a serious effect due these product?	19.5%

DISCUSSION

In the current study, about 37.8% of the study participants were energy drink consumers. This value is lower than what have been reported in Hail (46%).⁷ In addition, the current prevalence among students of Qassim university was less than those reported among students of Dammam university in 2010.⁸ When comparing with other results from Saudi Arabia, the current result were less than that reported in Western districts (52.2%)⁹ but higher than that reported in the Middle (34%).¹⁰ Unfortunately, the rate of consumers among male students of Qassim University was higher than what have been seen in Umm Al-Qura (27.2%).¹¹ With regard to those result published outside KSA, the rate of energy drink consumer among American college students came to be 46%,¹² which is similar to those reported in Hail⁷ and Dammam⁸ but higher than the rate in Qassim. Our study result was less than that of another report published on Turkish college students (48.3%) (13), and much less than that for college students in the United States (51%),¹⁴ and in Ghana (62.2%).¹⁵

Although the students of the college of sciences were significantly the highest rate of consumers, they had significantly the lowest rate of knowledge about the advantages of these drinks. On the other hand, the college of medicine had the lowest proportion of consumers but had better knowledge about the ingredients of these drinks when compared with other colleges. This can be attributable to the best knowledge of medical students. The students of Dammam University had a better knowledge about ingredient of energy drinks (37.14%) than Qassim students 28.6 %.⁸

One of the most important achievements of the current study was to understand the reasons that make the students at Qassim University use energy drinks. Not surprisingly, the commonest reason was habitation. The next common reason was to imitate friends. On the other hand, most of student at Dammam University use energy drinks to give company to friends (24.15%) and the second reason was to keep awake (21.25%). Nice taste (9.17%) was the least reported reason (8). According to Hail students, they use energy drinks to be more active and energized (33.95%), due to its taste (32.97%) and to improve physical and mental activities (13.16%).⁷

Justifications for consumption appear to differ based on other factors like race, culture and social norms. In the

study of Argentine, 54% of students used energy drinks to improve the taste of alcoholic drinks, while 13.9% to improve sports performance, 9.5% for stimulation, 8.8% to enjoy the taste.¹⁶ A study done on university students in United States reported that the majority of users consumed energy drinks for insufficient sleep (67%), to increase energy (65%) or to drink with alcohol while partying (54%).¹⁴ A study on Turkish students reported that reasons for using energy drinks included getting energy, staying awake, boosting performance in sports, or mixing with alcoholic beverages.¹³ The reason to help the students to awake longer and to study or write a paper was reported to be 20% of the consumers in another study.¹

Regarding the relationship between timing of energy drink consumption and regular meals among Qassim students, 17% reported that they consume the drinks after meals, 56.1% consume them before of the regular meals time, and 26.5% consume them with meals. In contrast, 43% of hail students reported that they consume the drinks after meals, 35% consume them before the regular meals time, and 14% consume these drinks with meal.⁷

Behaviors related to consumption of energy drinks, about 21.4% consume them on a daily basis; with varying number of energy drink cans were consumed each day. 47.8% of the daily consumers drink one can every day, 26.1% consumes two cans every day, 21% three cans every day while in Hail students 36% of the daily consumers drink more than two cans every day, representing about 11% of the total study participants, while about one third of them consume two cans every day.⁷ Accordingly, those who drink two or more energy drink cans every day represent more than two-thirds of the daily consumers, and about one-fifth of the total study participants. Lastly, one third of the daily consumers drink one or less of energy drink cans every day.

CONCLUSION

From the previous results, it can be concluded that energy drinks among male students at Qassim University are found to be approximately 37.8% which almost near to what have been seen in some studies. It is also found relatively high rates of energy drinks amongst students in the Collage of Sciences with a partial lack of the scientific sound knowledge concerned with the composition and health implications of consuming these drinks. Physicians need to be aware of the possible effects of energy drinks and screen for consumption to educate people. Educational programs should be designed and implemented at all levels of schools and at the community level to raise the level of awareness of health effects of theses drinks.

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