

# Awareness toward Energy Drinks among Medical Students in King Faisal University

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**Abstract:** Energy drinks are widely consumed by young people, by college students, in particular, for a variety of reasons. Designed to enhance alertness or provide a short-term energy boost, these drinks have become nearly abundant on college campuses and recreational places. Energy drinks are beverages that contain large doses of caffeine and other legal stimulants such as taurine, carbohydrates, glucuronolactone, inositol, niacin, panthenol, and b-complex vitamins. They have stimulating properties that can boost heart rate and blood pressure, dehydrate the body, may aggravate the effects of other stimulants, and prevent sleep. In addition, researchers have assessed the impact of energy drinks on cognitive performance, with inconsistent results. The aim of this study is to assess the knowledge, attitudes and consuming energy drinks among medical students at King Faisal University. Method: The current study is a cross-sectional survey conducted among medical students at King Faisal University, Eastern province, Saudi Arabia, during the period from September to October 2015 through self-administered questionnaire. Data was analyzed by using SPSS version 22.0. Result: A total of 527 students (288 males and 239 females) responded, 248 students from first to third year level, and 279 students from fourth to sixth year level. And, 54 (42.5%), 45 (37.2%) males and females, respectively, of first three years and 84 (52.2%), 27 (22.9%) males and females, respectively. Of last three years. Majority were live in urban areas 412 (78.2%) while 97 (18.4%) in rural areas, and only 6 (1.1%) in hijra areas. Energy drinks users were 210 (39.8%) and non-users were 317 (60.2%). Most students did not have a fixed frequency of use. The commonest reasons for use were to keep awake for better performance in the exams. Regarding awareness Only 158 (30.0%) users and 130 (24.6%) non users know the serious side effects of Energy drinks. Most common side effects known to the first to third years students were weight gain 6 (11.1%) male and 1 (2.2%) female while 14 (16.7%) male and 0% female of fourth to sixth year students, anxiety 6 (11.1%) male and (0%) female of first to third years students and among fourth to sixth year students is 16 (19%) male and 4 (14.8%) female. and dental caries 42 (77.8%) male and 44 (97.8%) female of first to third years students and 54 (64.3%) male and 23 (85.2%) female of fourth to sixth year students. Conclusion This study showed a low prevalence of energy drinks consumption among medical students in King Faisal University. And their knowledge about ingredients and health risk of energy drinks was unsatisfactory. The current results highlight the importance of education to raise the awareness among medical students as they will be part of educational team to educate all people in the future.

**Keywords:** Energy drinks, medical students, awareness, knowledge, King Faisal University.

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## 1. INTRODUCTION

Medical students, as future physicians, will have an enormous influence on the community lifestyles and behaviors. They will play a vital role in preventing diseases and providing community health services<sup>(1)</sup>. Medical students face several emotions and stresses during their revolution from insecure students to young knowledgeable physicians<sup>(2)</sup>. That may precipitate a variety of health risk behaviors, such as smoking<sup>(3,4)</sup> and consumption of high levels of caffeinated beverages<sup>(5)</sup>. Energy drinks are fortified beverages with added nutritional supplements<sup>(6,7)</sup>. Energy drink consumption has become widespread among college students<sup>(8)</sup> and also is considered an emerging health risk behavior among students at Saudi Universities<sup>(4,9)</sup>. An energy drink is a type of beverage containing stimulant drugs, chiefly caffeine, which is

marketed as mental and physical stimulator. Coffee, tea and other naturally caffeinated beverages are usually not considered as energy drinks. Soft drinks such as cola, may contain caffeine, but did not include in energy drinks<sup>(10)</sup> Prevalence of energy drinks use among adolescent and young adults to be 30-50%<sup>(11)</sup> . Studies have also demonstrated its high consumption in young athletics<sup>(12)</sup>.

Energy drinks generally contain methylxanthines (including caffeine), taurine, glucuronolactone, B Vitamins, and herbs. Other commonly used ingredients are carbonated water, guarana, yerba mate, açai, and taurine. Probably they are responsible for the possible medical side effects of energy drinks<sup>(13)</sup> . Energy drinks are consumed by younger population for different reasons particularly for studying, partying, driving, for energy boost and wakefulness<sup>(14)</sup>. There is a positive association between energy drink consumption and improved psychomotor and mental performance because of the interaction of its various constituents<sup>(15)</sup> .The aim of this study is to assess the knowledge, attitudes and consuming energy drinks among medical students at King Faisal University. Unfortunately this study shows that medical students at king Faisal university not have enough knowledge about energy drinks.

## 2. METHOD

The current study is a cross-sectional survey conducted among medical students at King Faisal University, Eastern province, Saudi Arabia, during the period from September to October 2015 through self-administered questionnaire. King Faisal university is a public university and the students are enrolled from different areas (urban, rural and hijra) in Al Ahsa region .the total number of college of medicine at the time of study was 744, Approximately 700 students were contacted to participate in the study but questionnaires were submitted by 527students. participants were students of different years of M.B.B.S . Data was collected and analyzed by using SPSS version 22.0.

## 3. RESULT

According to our study, 527 students were participated in the study. They belonged to different years of MBBS 108 (20.5%) from 2nd year, 140 (26.6%) from 3rd year, 124 (23.5%) from 4th year , 66 (12.5%) from 5th year and 89 (61.9%) from 6th year. Students were lived in three different areas the majority were live in urban areas 412 (78.2%) while 97 (18.4%) in rural areas, and only 6(1.1) in hijra areas. (Table 1).

		N	%
Valid	Urban	412	80.0
	Rural	97	18.8
	Hijra	6	1.2
	Total	515	100.0
Missing	System	12	
Total		527	

Regarding awareness of Energy drinks consumption's patterns, mostly male users from all levels (year one to year six students ) thought that it was taken for its significance in promoting wakefulness 30 (0.6%) from first three years students and , 39 (0.5%) (p=0.0001 <0.05) from last three years students . for good taste male users 5 (0.1%),from first three years students and , 9 (0.1%) from last three years students .and for exercise purpose male users 19 (0.4%),from first three years students and , 36 (0.4%) (p=0.0001 <0.05) from last three years students. (Table 2)

		Good Taste		Awareness		Exercise		p value
		N	%	N	%	N	%	
Male	1-3 year	5	0.1	30	0.6	19	0.4	0.565
Female		16	0.4	24	0.5	5	0.1	
Male	4-6 year	9	0.1	39	0.5	36	0.4	0.0001
Female		13	0.5	11	0.4	3	0.1	

Regarding knowledge and attitude toward energy drinks' ingredients was present in almost half of our participants. Although majority did not knew that caffeine was the main ingredient, we found that 44 (34.6%) male and 41 (33.9%)

female of first to third year students ,while 70(43.5%) male and 25 (21.2o%) female of fourth to sixth year students said that the energy drinks contains stimulants, and 56 (44.1%) male and 60 (49.6%) female of first to third year students while 61(36.9%) male and 80 (67.8%) female of fourth to sixth year students said that the energy drinks contains vitamins with (  $p=0.0001 < 0.05$  ) and 27 (21.3%) male and 20 (16.5%) female of first to third year students, while 30(18.6%) male and 13 (11%) female of fourth to sixth year students said that they do not know what kind of ingredients that energy drink contains. (Table 3).

		Stimulants		Vitamins		I don't know		p value
		N	%	N	%	N	%	
Male	1-3 year	44	34.6	56	44.1	27	21.3	0.565
Female		41	33.9	60	49.6	20	16.5	
Male	4-6 year	70	43.5	61	37.9	30	18.6	0.0001
Female		25	21.2	80	67.8	13	11	

Regarding Knowledge about side effects of energy drinks Only 158 (30.0%), users and 130 (24.6%) non-users know the serious side effects of Energy drinks. Most common side effects known to the first to third years students were gaining weight 6 (11.1%) male and 1 (2.2%) female while 14 (16.7%) male and 0% female of fourth to sixth year students , anxiety 6 (11.1%) male and (0%) female of first to third years students and among fourth to sixth year students is 16 (19%) male and 4 (14.8%) female. And development of dental caries 42 (77.8%) male and 44(97.8%) female(  $p=0.012 < 0.05$  ) of first to third years students .and 54 (64.3%) male and 23 (85.2%) female (  $p=0.045 < 0.05$  ) of fourth to sixth year students . (Table 4).

		over weight		Anxiety		Dental Caries		p value
		N	%	N	%	N	%	
Male	1-3 year	6	11.1	6	11.1	42	77.8	0.012
Female		1	2.2	0	0	44	97.8	
Male	4-6 year	14	16.7	16	19	54	64.3	0.045
Female		0	0	4	14.8	23	85.2	

#### 4. DISCUSSION

Energy drinks are caffeinated beverages first appeared in Europe and Asia in the 1960s but did not become popular until the most widely known brand, Red Bull, was released in Austria in 1987; hitting the US market in 1997. By 2006, there were over 500 brands of energy drinks around the world<sup>(16)</sup>. Energy drink consumption has grown very rapidly since they were first introduced in Saudi Arabia at the beginning of 2000; and with a society consisting of more than 50% children and young adults; it is more than likely that this growth will continue. It has been estimated that the energy drinks market will double its income Saudi Arabia between 2012 and 2016 ( Business Monitor International,2012).<sup>(17)</sup> .In this study the frequency in energy drinks consumption by medical student is relatively low comparing with the previous studies in Riyadh , Jeddah and Dammam may be because the availability of energy drinks is limited related to cultural matter .

Medical students are assumed to have more knowledge regarding nutrition and health. Awareness regarding energy drinks' ingredients was present in almost half of our participants. Although majority did not knew that caffeine was the main ingredient, but few knew its contain some kind of vitamins and stimulants . A similar study done on one of Turkish university students showed that less than one-third of the study participants knew the ingredients of energy drinks.<sup>(18)</sup>Some of the publications about energy drinks are focused on their beneficial effects. Several studies show that they improve response time in multiple choice question (MCQ) examinations, car driving performance or awareness. In studies it was said that the presence of caffeine and glucose together seems to have a synergistic effect<sup>(19,20)</sup>

This study is observational rather than experimental, real effects of energy drinks could not be assessed. In this study only knowledge, attitude and behaviour of Medical students in king Faisal university were assessed and no students reported to have any side effects after consuming energy drinks. Maybe because they were not regular consumers. It is difficult to be sure if these effects were reported from previous studies really related to energy drink consumption. There are not

enough studies about energy drinks, and most of them focus on different aspects of the subject. The cause of discrepancy between the current and the Puerto Rican study may be attributed to differences in the educational grades of participants. While, the inconsistency between our study and Umm Al-Qura may be due to differences in sample size,. On the other hand, Alsunni and Bader reported a higher prevalence (45.6%) among 410 students in Dammam, KSA (a prevalence of 54.60% and 26.15% among males and females, respectively)<sup>(9)</sup>This difference may be because the Dammam's study was conducted among students from all faculties not only among medical students, or may be because the number of males in their study was much higher than females (their male: female ratio was about 2.1:1) with a higher prevalence among males, or may attributed to differences in both sample sizes. Similarly another study conducted at four medical colleges in Karachi, Pakistan reported a higher rate (42.9%) of energy drinks consumption among medical students than that reported from our study<sup>(20)</sup>

The present results revealed that energy drink consumption was significantly higher among males compared to females .Maybe because the number of male participants is higher than female participants , 138 (0.65%), 72 (0.3%) respectively. This finding agrees with results of many other studies<sup>(9,21,23,24,25)</sup> A reason that can be given for the higher intake of energy drinks among males may be because Saudi females are less practicing physical activity than males and energy drinks are mostly marketed for increasing physical performance<sup>(20)</sup> Miller<sup>(12,22)</sup>also asserted that advertisements of energy drinks usually target primarily young adult males or because energy drink may enable males appear more masculine.

And in our study the awareness level of the side effect and the active ingredients of the energy drinks is higher among forth to sixth years than the first three years of MBBS students a reason that the students' knowledge improved during their education level in the college.

## 5. CONCLUSION

This study showed a low prevalence of energy drinks consumption among medical students in king Faisal university. And their knowledge about ingredients and health risk of energy drinks was unsatisfactory .The current results highlight the importance of education to raise the awareness among medical students as they will be part of educational team to educate all people in the future .

## 6. RECOMMENDATIONS

- 1- Medical students should be educated by Initiation of awareness courses or health education programmes from the start of medical education to educate students and to teach them about the health aspects of energy drinks.
- 2- Enhancing academic advising services, since the start of medical education, is also required.
- 3- Conduction of similar study for males and females is recommended.

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