

# Caffeine Consumption among Dental Students in Umm Al-Qura University

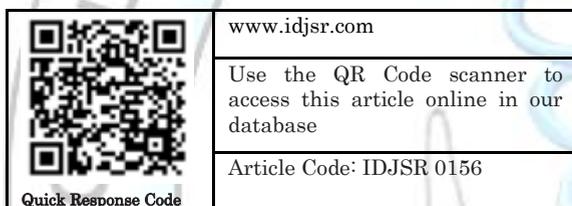
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## Abstract

**Background:** Caffeine drinks are available at markets and shops on the university campus without regulation or proper education in use caffeine. The caffeine becomes a daily routine for dental students without attention for their side effect. Purpose of our study was to evaluate the awareness of dental students regarding caffeine drinks and their pattern and reason of energy drinks consumption.

**Methods:** This was a cross sectional study conducted during the period of November - December 2014 at Umm Al-Qura University (UQU). A total number of 200 dental students in age group from 20-25 years old completed a questionnaire about caffeine consumption among dental students.

**Results:** Out of the 200 participants, Caffeine drinks users were 80% (n=161) and non-users were 19.5% (n=39). With 60% (n=97) being males. Males consume significantly more caffeine drinks than females. The students consumed caffeine drinks to get social prestige and while (96.5) during exam period. Other reasons given include, feel alert (42%), just to reduce stress (60%), or deal with depression (15%).

**Conclusion:** The prevalence of caffeine consumption among UQU dental students is high especially in exams period and social prestige. Sometimes they feel by tremor, anxiety, irritability and restlessness due to

exposure to large dose from caffeine. We recommend creation of continued public health awareness about the appropriate use of caffeinated drinks, their potential benefits, side effects and correction of wrong perceptions. Further study to assess the educational level of awareness about the dangerous of side effect.

## Introduction

Caffeine is a central nervous system (CNS) stimulant. Caffeine is rapidly and completely absorbed after oral administration and undergoes hepatic metabolism. In large doses, caffeine exerts an excitatory effect on the CNS that is manifested by tremor, anxiety, irritability and restlessness, and interference with sleep.<sup>1</sup>

The literature shows, It has been reported that energy drinks have energizing effects, with effects being strongest 30 to 60 minutes after consumption and sustained at least 90 minutes.<sup>2</sup> In Addition, Consumption of a single energy drink will not lead to excessive caffeine intake, but consumption of two or more drinks in a single day can.<sup>3,4</sup> Furthermore, caffeine can fulfill all the criteria for being an addictive substance, namely dependence, tolerance, and withdrawal<sup>5</sup>. Previous studies showed that caffeine has side effects and may reach intoxication levels; studies show that almost every organ system is affected when caffeine is taken in large quantity.<sup>6</sup> Caffeine drinks was available in market even inside university campus. The caffeine drinks becoming one of daily routine among dental student at Umm Al-Qura university. Therefore there is a great concern about caffeine drinks consumption, especially among the young adult population. Moreover, in Saudi Arabia there are a few previous studies exploring uprising this problem in general, medical and dental population.

The primary purpose of our study was to evaluate the awareness of dental students regarding caffeine drinks and their pattern and reason of energy drinks consumption. The study investigated the promoting factor for use the caffeine drink.

## Method

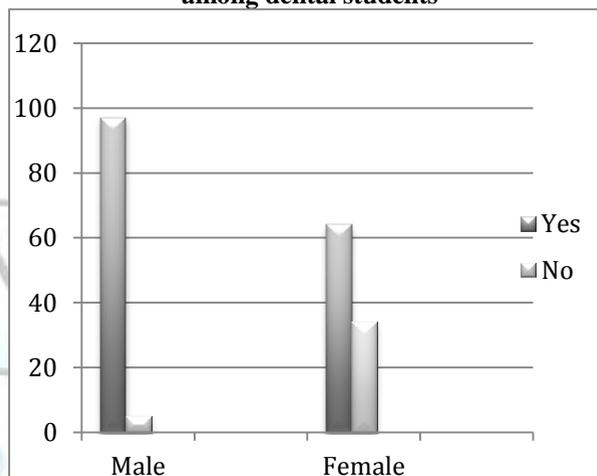
In this study, 200 Umm Al-Qura University (Makkah, Saudi Arabia) dental student in different stages of year (2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup>) participants in this cross sectional survey. The dentistry college at Umm Al-Qura University is government public sector, and the student enrolled from all over the country. Collecting of data was through questioner from November to December 2014. Which cover all stages of dental students. Invitation request reached all dental students. Only 200 out of 300 dental student at Umm Al-Qura University completed the survey for a response rate 66.6%. The questionnaire can be found in the Appendix. Students were asked their gender, study year, and if they are consuming energy drinks. If they answered affirmatively, they would be prompted with the rest of the questionnaire. The questionnaire evaluated when they started consuming energy drinks, consumption pattern (frequency, quantity and type of energy drinks), reasons for consuming such drinks, if they feel more alert when having these beverages.

Permission from the Ethics committee at the University was granted prior to the initiation of this study.

## Result

Among 200 dental participant (98 female, 102 Male) age from 20 – 25 year old answered the questioner (*figure 1*). The total percentages of caffeine drinks users were 80% (n=161) and non-users were 19.5% (n=39) of all participants. Regarding the gender of consumers, a higher proportion of male students (60% from all male participant n=97) consumed caffeine drinks when compared to females (39% from all female participant n=64). The pattern of consumption among dental students is presented in *Table 1*. In dental student, the percentage of students that consumed energy drinks was 14.9% among 2nd year students (n=24), 19.2% among 3rd year students (n=31) and 19.8% among 4th year students (n=32), 22.3% among 5th year student (n=36), 23.6 among 6th year student (n=38). Among consumers of caffeine drinks, 60% used them once daily (n=97), 23.6% used them twice daily (n=38), and 16.1% drank more than three daily (n=26). In exam period significantly highly consumed among dental student (*figure 2*). Regarding for reasons to consumed caffeine, 58% during studying, 42% to feel alert, 60% to reduce stress, 15% to deal with depression, 13.6 as a reward for completing task. Moreover, significantly highly consumed among dental student as a social prestige (*figure 3*).

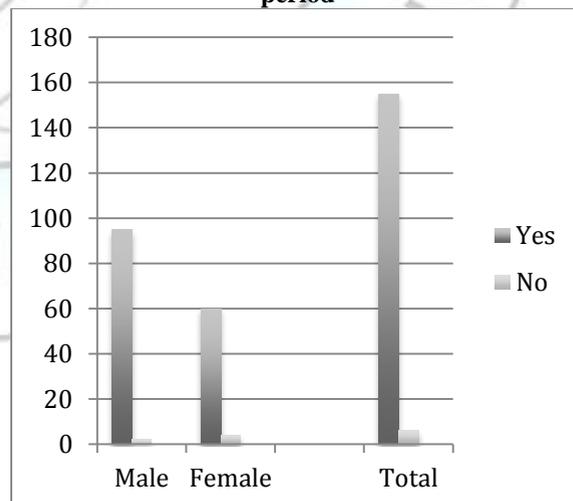
**Fig. 1: The prevalence of caffeine consumption among dental students**



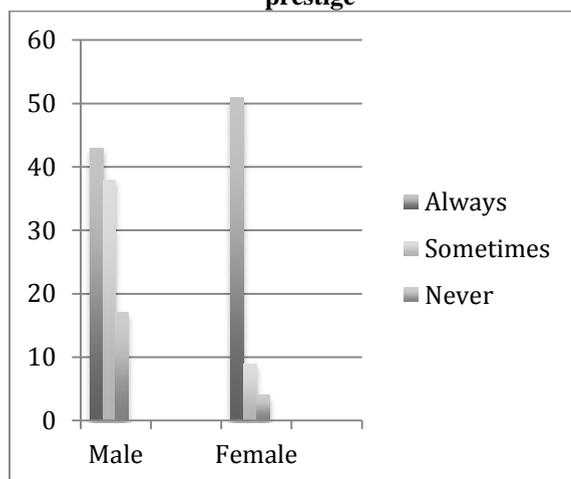
**Table 1: The pattern of consumption among dental students**

According Size	
8 oz	74
10 oz	23
14 oz	31
20 oz	13
24 oz	19
According frequency	
Once daily	97
Twice daily	38
Three daily	26

**Fig. 2: Prevalence of consumed caffeine during exam period**



**Fig. 3: Prevalence of consumed caffeine as a social prestige**



### Discussion

In this study, we found that majority of the participants are quite familiar with different types of caffeine drinks. Our finding agrees with general reports in different countries.<sup>7,8</sup> Participation was 66.6% for the entire target population of second- to sixth-year dental students. Based on the high response rate from each academic year group, it can be stated that the results obtained in this investigation are representative of the target population. The results indicated that 80% of the 200 participants used caffeine. In dental stages, we showed gradual elevation in consumed caffeine among dental students stages. Second-year, third-year and fourth year dental students had the lowest percentage of caffeine consumed 17.9% and lowest frequency of consumed indicating that these students were lightest consumers of caffeine. Fifth-year and sixth year dental student had the higher percentage 23%. Indicating that student in clinical year heavier consumers of caffeine. Regarding the gender of consumers, we observed that males consume much more frequently than females. In the Middle Eastern culture, females generally are not interested in products, modern lifestyle according to the general prevailing opinion, which could explain the higher proportion of male consumers in this particular study. In addition, differences in total sample numbers of males and females in this study (98 females vs 102 males) could have introduced some bias. These findings are similar to those reported for college students in a southern plains university in 2011, where there was a higher mean consumption in males compared to females.<sup>9</sup> However, another study performed on students from an university in the central atlantic region of the United States reported a significantly higher proportion of female consuming energy drinks compared to males (53% vs. 42%).<sup>10</sup> These apparently contradictory results may reflect cultural differences or be the product of other confounders that need to be evaluated in further studies. This will allow further

insight into the interesting relationship of gender and caffeine drinks consumption.<sup>11</sup>

In addition, we observed that students consumed caffeine as a social prestige. In middle Eastern culture, Arabic cafe considered is one of most entertained of their life style, which could explain the higher proportion of caffeine consumed as social prestige.

There are several limitations in this study. First, participant's population size was low (n=200) and this may have introduced some nonresponse or voluntary response bias. The participants population size could have been improved by alternate scheduling to conduct the survey with suggestions from generalized dental student in Saudi Arabia, allowing more number to respond to the invitation, or offering benefits from participating, among others. Authors limited the number of questions to facilitate that survey would be completed. This study offers important exploratory findings for dental student consumption of caffeine drinks in Saudi Arabia. Future studies could attempt a different study design to gain more insight into factors contributing to caffeine drink consumption.

### Conclusion

Caffeine drinks consumption is common practice among dental students. Out of the 200 medical students who participated in this research, caffeine drinks users were 80% (n=161) and non-users were 19.5% (n=39) of all participants. Students consumed caffeine drinks for different reasons, mainly the need for focus in general activities, especially in exams period and social prestige. We recommend creation of continued public health awareness about the appropriate use of caffeinated drinks, their potential benefits, side effects and correction of wrong perceptions. Further study to assess the educational level of awareness about the dangerous of side effect.

### Acknowledgments

The authors are grateful to participants from Umm Al-Qura University and Dr.Abdulaziz A Bakksh for their assistance and from

### Conflict of Interest Statement & Funding

The Authors have no funding, financial relationships or conflicts of interest to disclose.

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