



# Knowledge Attitude & Practices (KAP) Regarding Carbonated Drinks among female medical students of Allama Iqbal Medical College, Lahore

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## ABSTRACT

**Introduction:** Globally carbonated drinks are the third most consumed beverage. Many academic studies have shown that there is nothing healthy about carbonated soft drinks and sodas. **Background:** The consumption of high sugar contained carbonated drinks is more prevalent among youngsters. The excess consumption of carbonated drink has been associated with many adverse health effects. **Objectives:** The objective of my study was to determine the knowledge and attitude of the female medical students regarding carbonated drinks and identify the frequency of consumption of these drinks among female medical students. **Material & Methods:** **Study design:** Cross-sectional study. **Study setting & duration:** This study was confined to female medical students of Allama Iqbal Medical College, Lahore. The total duration of this study was 3-4 months. **Inclusion criteria:** Female medical students from first year to final year irrespective of their ethnicity or religion were included. **Data collection and analysis:** 300 female medical students fulfilling the inclusion criteria were interviewed. After informed consent, students were asked to fill out the self-structured pre tested questionnaire. Data was entered and analyzed in SPSS ver:17. Frequency and percentages were calculated for knowledge, attitude and practices for fast food consumption. **Results:** Out of all 300 female students, 38.3% preferred the intake of carbonated drinks. The appeal of drink was the main influencing factor in 45% of students. Out of 300, 98.3% had knowledge of ill-effects and labeled obesity as the main adverse effect. Only 7.0% recommended carbonated drinks for prolonged use. **Conclusion:** The health education and primordial prevention would be the best way to adopt healthy life style and combat the problems associated with the consumption of carbonated drinks.

**Key words:** Carbonated Drink; Knowledge; Attitude; Practice; Students; Obesity; Bone Decay; Dental Caries

## INTRODUCTION

Globally carbonated drinks are the third most consumed beverage. Many academic studies have shown that there is nothing healthy about carbonated soft drinks and sodas<sup>1</sup>. The term "soft drink" refers to nonalcoholic water based flavored drinks that are optionally sweetened, acidulated, carbonated and which may contain fruit juice or pulp, salts and their flavor may be derived from vegetable

extracts or other aromatic substances<sup>2</sup>.

Caffeine and high fructose corn syrup are the most active ingredients in these drinks. Beverages like Coca Cola, Pepsi, Soda, Thump Up, Diet Coke and various energy drinks are most common type of carbonated drink.

Recently, the soft drink consumption has increased. The youngsters are using increased quantities of soft drinks because of effective product marketing, peer influence and a lack of knowledge of their harmful effects<sup>3-5</sup>. Sales figures from Coca

Cola's 2007 annual report show that during 2007, India and China experienced growths of 14% and 18%, respectively, in the volume of beverages sold, indicative of substantial population sales at the population level.<sup>6</sup> Per capita carbonated beverages consumption has risen dramatically and carbonated sodas are now the preferred beverage of 20-40 year old women<sup>7</sup>.

Carbonated drinks are associated with many deleterious effects on the human body and mind. These include obesity (due to decreased satiety and fullness sensation with high sugar beverages), diabetes (due to increase sugar content), tooth decay (demineralization of enamel), osteoporosis (by disrupting the normal calcium phosphorous ratio), nutritional deficiencies, heart disorders (due to metabolic and hypertensive effects) and many neurological disorders (due to high concentration of caffeine).

It is not so much that carbonated beverages are bad at least not in moderation, it is that many people drink too much of them. The soft drinks have been consumed since hundred years but many of their adverse effects are not known or studied extensively. This is the reason why majority of the people are unaware of these effects.

Carbonated drinks in the form of energy drinks contains caffeine in increased proportions. It improves cognitive performance and elevate mood. So, these drinks are consumed in excessive amounts by the students to achieve the desirable effects of increased alertness, improved memory, increased energy while studying and enhanced mood.

There has been little research regarding energy drink consumption patterns among young adults in the United States. This research revealed the use of energy drinks in the following six situations: for insufficient sleep, to increase energy, while studying, driving long periods of time, drinking with alcohol while partying and to treat a hangover.

According to the American Heart Association: "Soft drinks and other sugar sweetened beverages are the primary sources of added sugars in Americans' diets."<sup>8</sup> Numerous studies of sugary and drink consumption its effects provide evidence that they contribute to the obesity crisis more than any other type of food or beverage. "There is no reason to give a child a soda or sugar sweetened drink. Teens drink these beverages because they taste good, give an energy boost and they feel cool drinking them. The powerful influence of marketing and the targeting of

young people cannot be ignored here."<sup>9</sup>

Hence the present study has been undertaken to find out what the medical students know about carbonated drinks, how often they drink these sodas and soft drinks and their attitude and feelings regarding the harmful effects of these drinks on their health and body

## **Objectives**

The objective of study was to determine the knowledge and attitude of the female medical students regarding carbonated drinks and identify the frequency of consumption of these drinks among female medical students.

## **MATERIALS AND METHODS**

### **Study design**

It was a cross-sectional study.

### **Study setting**

The research was confined to the female medical students of Allama Iqbal Medical College, Lahore.

### **Duration of study**

3-4 months.

### **Sample size**

300 female medical students were selected, 60 students from each class.

### **Sampling technique:**

Convenient sampling technique .

### **Inclusion criteria:**

1. Female medical students from first year to final year were included.
2. Students were included irrespective of their ethnicity or religion.
3. Only those given consent were included.
4. Only medical students were included.

### **Exclusion criteria:**

1. Reluctant students were not included.
2. Non-medical students were not included.

### **Data collection procedure**

300 female medical students fulfilling the inclusion criteria were interviewed. After informed consent, students were asked to fill out the

questionnaire comprising of demographic details of the interviewee, knowledge about the carbonated drinks and their ill effects, frequency of consumption as well as influencing factors responsible for excessive intake.

### Variables

The variables of interest included the behavior, perceived behavior control, attitude, feelings, subjective norms and knowledge of the students regarding carbonated drinks.

### Data analysis

Data was entered and analyzed in SPSS ver:17. Frequency and percentage was calculated for knowledge and practices of carbonated drinks among female medical students.

## RESULTS

Table no.1 shows the preference of female medical students regarding drinks. Out of 300 female medical students, 127 (42.3%) preferred fruit juices, 115(38.3%) preferred Coca cola/Pepsi, 57 (19.0 %) preferred tea and 1 (3.0%) preferred other drinks.

Soft drink	Frequency	Percent
Coca Cola/ Pepsi	115	38.3
Fruit juices	127	42.3
Tea/coffee	57	19.0
Other	1	.3
Total	300	100.0

**Table 1:** Preferences soft drink usage.

Table no.2 shows the influencing factor responsible for consumption of carbonated drinks. Out of 300 female medical students, appeal of drink was the influencing factor in 135(45%) students followed by family and friends in 80(26.7%) and easy access in 79(26.3%) students respectively.

Soft drink	Frequency	Percent
Easy access	79	26.3
Appeal of drink	135	45.0
Family and Friends	80	26.7
Other	6	2.0
Total	300	100.0

**Table 2:** Factors Influencing initiation of soft drink usage.

Risk factors	Responses N	Percent	Percent of Cases
Affect of Advertisement	100	5.9%	33.3%
Tried to stop / quit habit of consumption	163	9.6%	54.3%
Confident that you can stop drinking	110	6.5%	36.7%
Knowledge of ill effects	295	17.3%	98.3%
Cause obesity	274	16.1%	91.3%
Cause tooth decay	272	16.0%	90.7%
Cause osteoporosis	233	13.7%	77.7%
Cause diabetes	235	13.8%	78.3%
Like to recommend for prolonged use	21	1.2%	7.0%
Total	1703	100.0%	567.7%

**Table 3:** Risk factors Knowledge Frequencies Multiple response Yes frequencies

Table no .3 shows the knowledge about ill effects of carbonated drinks and attitude of the students regarding carbonated drinks. 100 (33.3%) students were influenced by media advertisement. 163 (54.3%) had tried to quit habit of consumption and no (36.7%) were confident that they could stop drinking. Out of 300, 295(98.3%) had knowledge of ill-effects of carbonated drinks. 274 (91.3%) responded obesity as the main ill-effects followed by tooth decay 272 (90.7%), diabetes 235 (78.3%) and osteoporosis 233 (77.7%) respectively. Only 21 (7.0%) recommended carbonated drinks for prolonged use.

## DISCUSSION

Soft drinks are today's trend or much better we can call them 'fashion' especially among the youth. The ingredients of soft drink are water, sugar or high fructose corn syrup, carbon dioxide, caffeine, acid viz. phosphoric acid, citric acid, and malic acid, colouring agent like caramel or betakerotin, preservatives like natrium benzoate, and potassium sorbate, antioxidant like ascorbic acid and some emulsifying and stabilizing agent like pectin, alginate, carraghen.<sup>10</sup> It is a universally known fact that soft drinks, even though they contain a large number of calories, has little nutritional benefit and

are known as "empty calories" and calories are the main risk factor for obesity. In this present study majority of students consider obesity as an important side effect of soft drink consumption.

A very serious effect of soft drinks on people's health is the correlation between soft drink consumption and the increased risk of bone fractures and osteoporosis. The large amounts of sugar, bubbles caused by carbon dioxide, and phosphoric acid that are found in soft drinks remove nutritious minerals from bones allowing the bones to become weak and increasing the risk for them to break. This is done by the phosphoric acid disrupting the calcium-phosphorous ratio, which dissolves calcium from the bones. Many people consume soft drinks instead of necessary beverages like milk, so their bodies are not receiving enough nutrients, especially calcium (ii). A study concluded, "the high consumption of carbonated beverages and the declining consumption of milk are of great public health significance for girls and women, because of their proneness to osteoporosis in later life"<sup>12,13</sup>.

Soft drinks remove calcium from the body, causing an excess amount of calcium that tend to be deposited in kidney, resulting in nephrolithiasis (kidney stones). In most of carbonated beverages, caffeine is deliberately added to make it addictive. Caffeine can cause excitability, insomnia, nervousness, stomach upset, tremors and extra heartbeats.

Dr. Charles Best, the discoverer of insulin, claims that teenagers who consume too many soft drinks have cirrhosis of the liver similar to what chronic alcoholics have.<sup>14</sup>

Dental cavities are often associated with carbonated beverage. Caries are caused by the bacteria *Mutans streptococci*, which is a part of dental plaque. The bacteria attach to teeth and produce high amounts of acid from sugars and other types of acid<sup>11</sup>. This fact has also been favoured by the students in the present study. The acids that are not buffered dissolve the apatite crystals of a tooth's surface; this process is called demineralization. Demineralization is characterized by a thick layer of plaque blanketing teeth, dropping to a low pH for several hours removing the calcium nutrients of the tooth. Caries are formed when the process of demineralization occurs more often than the process of remineralization. Enamel, which is composed of cementum and dentin, naturally protects teeth. Dentin is a highly substituted calcium phosphate salt,

which is also called apatite. Carbonate makes the apatite very soluble but fluoride helps to strengthen the apatite. Cycles of demineralization and remineralization of teeth allows for the teeth to contain more fluoride, which makes the teeth stronger<sup>15</sup>.

The important thing to remember is that over consumption of soft drinks should be avoided because of their numerous harmful effects. One can a day of cola beverage shouldn't cause any problems for most teens, as long as you stop at that<sup>16</sup>. The liquid fruits can be used as a natural alternative to synthetic beverages. They can be suitably diluted, blended with other juices and carbonated as soft drink<sup>17</sup>. The sugar content is more harmful from the long term aspects than the pesticide residues in these carbonated drinks.

## CONCLUSION

The knowledge of the students regarding the ill-effects of the consumption of carbonated drinks is not convincing one. The attitudes of the students are relatively better but their practices are neither preventive nor health promoting. Thus, it is recommended that a holistic approach should be incorporated to combat the problems associated with the consumption of carbonated drinks. There is a need of Behavioral Change for youngsters. The increasing focus on the ill-effects of carbonated drinks and the need for research will help in the development of preventive, promotional and curative health programme in the community.

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