

Knowledge, Attitude and Practices Regarding Consumption of Carbonated Beverages in District Bannu: A Cross-Sectional Study

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Abstract

Background: The increasing consumption of carbonated beverages, particularly among young individuals, poses serious health risks due to high sugar content and chemical additives. Despite awareness campaigns, their usage remains widespread, often beginning at an early age.

Aim: The study aimed to assess the awareness, consumption patterns, and perceptions regarding carbonated beverages among individuals in a selected population.

Methods: A descriptive cross-sectional study was carried out among general population of district Bannu to assess the Knowledge, Attitude, Practices (KAP) of people of Bannu. A self-structured, pretested questionnaire was used for data collection. Total 53 people participated in the study. 35 were female and 18 were male. The study was completed in 2-3 months. Non-probability convenient sampling technique was used for data collection.

Results: The majority of participants (66.0%) were female, with 49.1% aged between 20–30 years. A large proportion (83.0%) were aware of carbonated beverages, but only 45.3% knew the ingredients. While 73.6% were aware of harmful effects, 45.3% still consumed them despite knowing the risks. Digestion (35.8%) and energy (28.3%) were the main reasons for use. Most participants (54.7%) began consumption before the age of 10, with Sting being the most consumed brand (49.1%). Additionally, 64.2% consumed all brands randomly, and 92.5% reported easy availability in the market.

Conclusion: The study highlights a concerning gap between awareness and behavior regarding carbonated beverage consumption. Early initiation, brand influence, and market accessibility contribute to continued usage, indicating a need for targeted educational and policy interventions.

Keywords

Carbonated Beverages , Knowledge, attitude, Practice, Obesity, Bone problems, Dental caries.

Introduction

Carbonated beverages are drinks that include carbon dioxide dissolved in water. They are being tremendously used in the world and are now considered to be the third most often used beverages. In history, the first carbonated drink was developed in 1767 by Dr. Joseph Priestley [1]. Among famous personalities in the world, Elton John, Victoria Beckham and even former famous American president Bill Clinton were found to be addicted to carbonated drinks [2]. These beverages are now especially used by youngsters who are having Limited awareness of their health hazards. Carbonated drinks are called “Soft drinks” because they do not contain alcohol in contrast to „Hard drinks” containing

alcohol [3]. Soft drinks contain many ingredients like water, carbon dioxide, color, preservatives and additives [4]

Beverages like Coca-cola, Sting, Sprite, and other non-alcoholic energy drinks are the commonly practiced carbonated beverages. People are addicted towards the consumption of carbonated beverages because of the presence of their delicious taste and other features like the presence of caffeine. They are unaware or have very little knowledge about their harmful effects to their health. According to a study conducted in US, it was revealed that carbonated beverages were used in the following six situations, For insufficient sleep, to boost their energy, to increase focus during study, to drive for long period of time, to relieve anxiety or low mood and to treat hangover [5]. But prolonged use of soft drinks is itself associated with various health hazards like their effects on the body and mind, Obesity, Diabetes mellitus type 2 (DM-2) Tooth decay, Osteoporosis, Cardiovascular problems, nutritional deficiencies, sleep problems and neurological disorders [6]

According to American Heart Society (AHS) "Soft drinks and other sweetened beverages are the primary source of added sugars in American diets [7] Pakistan is a developing country. Despite being an economic source for the country as well as their harmful effects to the health of the people, there is a lack of awareness regarding the using trend and other socioeconomic aspects of carbonated drinks. Diabetes and Obesity are the emerging risks that Pakistan is facing in the current time.

Concern regarding health effects of carbonated beverages have existed for decades, particularly after they were linked to weight gain in 1994 and later to type 2 diabetes in 2004 [8]. Different countries have their laws to regulate the use of carbonated beverages. In this regard, FDA has established current good manufacturing practices (CGMPs) for them [9]. In Pakistan, Pakistan standard and quality control authority (PSQCA), an attached department of Ministry of science and technology, has made it mandatory to monitor the quality of carbonated beverages under SRO 705(1)\2001.[10]

Methodology

This cross-sectional study was conducted to assess the knowledge, attitude, and practices (KAP) related to the consumption of carbonated beverages among the general population of District Bannu. The study was completed over a period of 2 to 3 months.

Data Collection

The study population included all adult individuals residing in District Bannu. A total of 53 participants were included using a non-probability convenience sampling. Participants were informed about the purpose of the study, and informed consent was obtained before enrollment.

Data were collected through a structured and pre-tested questionnaire that addressed relevant aspects of the participants' knowledge, attitudes, and practices concerning the consumption of carbonated beverages. The questionnaire was administered directly to respondents, ensuring clarity of questions. Data collection aimed to be comprehensive and inclusive.

Data Analysis

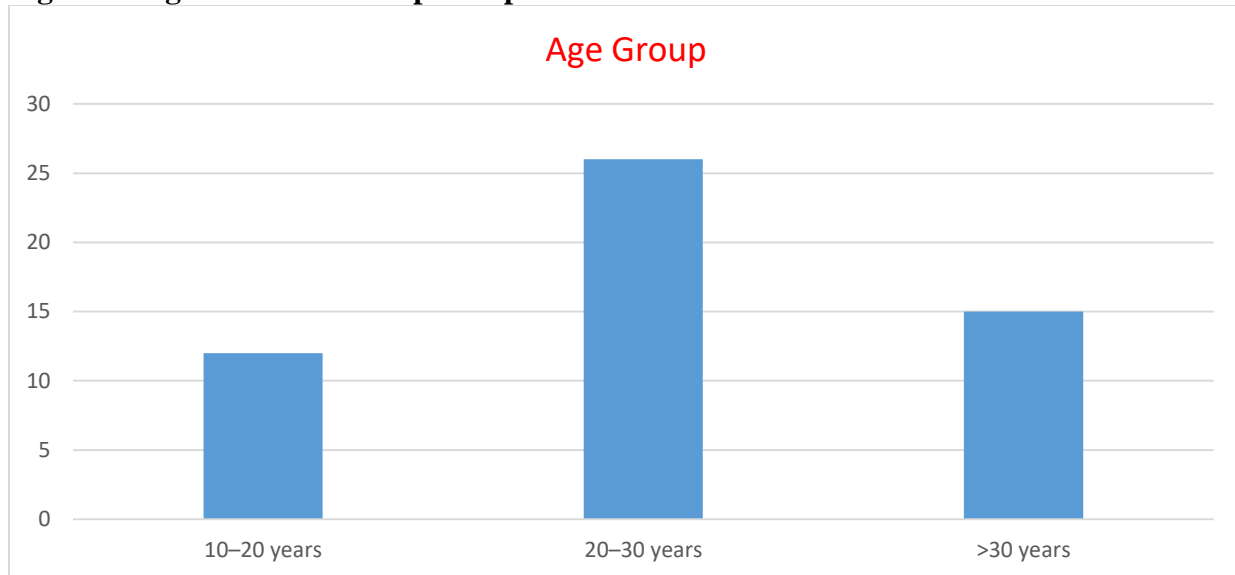
The collected data were analyzed using Microsoft Excel, Microsoft PowerPoint, and SPSS version 26.0. Descriptive statistics, including frequencies and percentages, were computed to summarize the responses. The findings were presented in the form of tables and pie charts for clarity and visual representation.

Results and Analysis

Out of 53 participants, 66.0% (n=35) were female, while 34.0% (n=18) were male. The majority of participants, 49.1% (n=26), belonged to the 20–30 years age group. Additionally, 22.6% (n=12) were aged between 10–20 years, and 28.3% (n=15) were above 30 years. This indicates a higher representation of young adults in the sample [Table 1].

Table 1: Participant Demographics (n=53)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	18	34.0
	Female	35	66.0
Age Group	10-20 years	12	22.6
	20-30 years	26	49.1
	>30 years	15	28.3

Figure 1: Age Distribution of participants.

The majority of participants (49.1%) were aged between 20–30 years, followed by 28.3% above 30 years. The least represented age group was 10–20 years, comprising 22.6% of the sample.

A majority of participants (83.0%) were aware of carbonated beverages, though only 45.3% knew about their ingredients. About 73.6% were aware of the harmful effects, while 52.8% acknowledged potential benefits. Notably, 92.5% reported that carbonated drinks were easily available in the market. Overall, awareness of risks was higher than ingredient knowledge or perceived benefits [Table 2].

Table 2: Knowledge About Carbonated Beverages (n=53)

Question	Response	Frequency (n)	Percentage (%)
Awareness of carbonated beverages	Yes	44	83.0
	No	9	17.0
Knowledge of ingredients	Yes	24	45.3
	No	29	54.7
Awareness of harmful effects	Yes	39	73.6
	No	14	26.4
Awareness of benefits	Yes	28	52.8
	No	25	47.2
Easy availability in market	Yes	49	92.5
	No	4	7.5

The main reason for consuming carbonated beverages was digestion (35.8%), followed by energy (28.3%) and pleasure (26.4%). Despite awareness of harm, 45.3% still used them, and 32.1%

recommended them to others. Over half (54.7%) had tried to quit. Most participants (64.2%) consumed all brands randomly rather than sticking to a single brand [Table 3].

Table 3: Attitude Toward Carbonated Beverages

Question	Response	Frequency (n)	Percentage (%)
Purpose of consumption	Digestion	19	35.8
	Energy	15	28.3
	Pleasure	14	26.4
	Other	5	9.4
Use despite known harm	Yes	24	45.3
	No	29	54.7
Recommend to others	Yes	17	32.1
	No	36	67.9
Tried to quit	Yes	29	54.7
	No	18	34.0
Brand preference	Single brand	14	26.4
	All brands randomly	34	64.2
	None	5	9.4

More than half of the participants (54.7%) began consuming carbonated beverages before the age of 10. Sting was the most consumed brand (49.1%), followed by Pepsi (20.8%) and Sprite (13.2%). A large majority (81.1%) consumed about 0.5 liters daily. Most participants drank directly from the bottle or can (58.5%), while fewer used a glass (30.2%) or straw (11.3%) [Table 4].

Table 4: Consumption Practices

Question	Response	Frequency (n)	Percentage (%)
Age started drinking	<10 years	29	54.7
	10-20 years	17	32.1
	>20 years	7	13.2
Most consumed brand	Sting	26	49.1
	Pepsi	11	20.8
	Sprite	7	13.2
	Other	9	17.0
Daily quantity	0.5 L	43	81.1
	1.5 L	5	9.4
	2.0 L	1	1.9
Consumption method	Bottle/can	31	58.5
	Glass	16	30.2
	Straw	6	11.3

Discussion

In our study, the knowledge of people about harmful effects of soft drinks was less as compared to countrywide figure. The difference might be due to the difference in sample size, study setting, delivery site etc as this study was conducted only among general population of district bannu while the study at national level include multiple region and multicentre. In this study, 83% of the people were having knowledge about carbonated beverages while in previous research this was also shown that this was true among a large number of participants (100%) in a research conducted among medical students in a tertiary care level hospital.[11]

This is a positive feature because knowledge is very necessary in order to persuade people towards adopting healthy lifestyles and increasing their standard of living. In our study, about 54.7% people have started drinking before the age of 10 years and 32.1% have started at the age of 10-20 years while in a research study conducted At C.U. medical college and hospital of Surendranagar district, it was 79.66% for the people of age group less than 15 years of age. This clearly reveals that the people of younger age have a greater tendency towards uncontrolled consumption of soft drinks. This also shows that we should take serious steps in order to protect our youngsters by guiding them about the harmful effects of carbonated beverages.[12] In our study, about 73.6% people are found to be having knowledge about the harmful effects of carbonated beverages while in a study conducted at Allama Iqbal medical college, it was shown that 98.3% of the students were aware of the ill effects of soft drinks. [13] This shows that there is a significant knowledge about the side effects of carbonated beverages but still there is very little decrease in the practice of soft drinks. They should be motivated and provided with healthy replacements.[14] In our study, it was found that about 54.7% of the people had tried to quit the habit of drinking carbonated beverages while in a study conducted at Aljuf province, it was found that the percentage of the people who had tried to stop drinking soft drinks was 14.4%. ¹⁵This means that the people have very good attitude towards carbonated beverages as is evident by the percentage of people. In our study, about 81.1% of people were consuming about 0.5l drinks daily while in this study, it was found that about 41.52% of the people were found to be consuming carbonated beverages in a quantity of 200-350ml. ²⁵ In our study, we found that about 49.1% of the people were using sting as their favorite drink while in another previous study, about 49.5% of the participants were found to be having Pepsi as their favorite drink. This shows that the choice of soft drinks varies among different places.[16]

Conclusion

The study revealed a high level of awareness regarding carbonated beverages among participants, with a significant proportion starting consumption at an early age. Despite knowing the harmful effects, many continued their use, primarily for digestion, energy, or pleasure. Easy market availability and lack of ingredient knowledge further contributed to sustained consumption. The findings highlight the influence of personal habits and brand preference, especially among young adults.

Recommendations

1. **Health Education Programs:** Launch community-based awareness campaigns to educate the public about the harmful ingredients and long-term health effects of carbonated drinks.
2. **School and College Interventions:** Introduce educational sessions in schools and colleges to discourage early initiation of carbonated beverage consumption.
3. **Label Transparency:** Authorities should enforce clearer labeling of ingredients and warnings on beverage packaging to improve consumer knowledge.
4. **Policy Measures:** Implement regulatory policies to limit the availability of high-sugar beverages near educational institutions and public health centers.
5. **Promotion of Healthy Alternatives:** Encourage the consumption of healthier alternatives like fresh juices, water, and traditional drinks through subsidized pricing and public campaigns.

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