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Evaluation of Knowledge and Perceptions Regarding Sugar-Sweetened Beverages Among Adults Attending City Center Nasiriyah Hospitals / Iraq

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Abstract

A high percentage of participants (92.7%) reported consuming sugar-sweetened beverages. Additionally, 62.8% believed that manufactured sugars are worse than sugar contained in SSBs, while only 28.9% demonstrated a good level of awareness. Moreover, 26.8% showed an acceptable level of knowledge, whereas 44.3% had a low level of awareness—highlighting the need to improve health awareness in this area. Furthermore, the study revealed that the overall knowledge level was insufficient to improve overall perception. The results did not show any statistically significant correlation between level of perception and specific demographic factors such as age group, gender, or place of residence.However, other demographic and social factors—such as educational level, socioeconomic status, and body mass index (BMI) categories—showed a statistically significant correlation ($p < 0.001$).

Keywords: Body mass index, adolescents, sugar-sweetened beverages.

Introduction:

Sugar-sweetened beverages (SSBs) are drinks that contain various added sugars, including brown sugar, corn sweetener, corn syrup, dextrose, fructose, glucose, high-fructose corn syrup, honey, lactose, malt syrup, maltose, molasses, raw sugar, and sucrose(1).

The risk associated with diet is sometimes called dietary risk. These dietary risks include low intake of whole grains, fruit, fiber, legumes, nuts and seeds, omega-3 fatty acids, polyunsaturated fatty acids,

vegetables, milk, and calcium, as well as high intake of sodium, trans fats, red or processed meat, and SSBs(2). Dietary risks caused 7.94 million deaths and 188 million disability-adjusted life years among adults globally, making it the third leading risk factor for deaths (3).

The World Health Organization (WHO) indicated that more than 1.9 billion adults aged 18 and above were overweight, with 650 million classified as obese, primarily due to the consumption of dietary risks high in sugar, such as SSBs (4)**.**

Among the various types of knowledge, there is nutrition knowledge. It is an awareness of nutrition and nutrients, which is crucial for understanding how to meet nutritional needs. This awareness enables individuals to make informed decisions about their food choices to meet their needs (5), Additionally, there is a strong correlation between nutrition knowledge and a healthy diet. People can use a healthy diet and enhance their dietary habits for greater health benefits as they better understand food value. Therefore, because it enables people to select informed food choices, nutrition knowledge is crucial in encouraging healthier eating habits (6).

The consumer needs to be well-informed about the quantity of substances that could lead to a rise in chronic illnesses like diabetes mellites, hypertension, cardiovascular diseases, etc. Sugar, salt, and fats are the substances whose levels most significantly impact the body's health. Small amounts of sugar should be added to foods and beverages because excessive sugar intake is linked to several illnesses. Among the most significant sources of added sugars in daily meals are SSBs (7).

There are some of the studies about knowledge of SSBs. Studies using a descriptive cross-sectional survey design showed results among high school students in Kakamega County, Kenya. Respondents showed a moderate level of nutritional knowledge of the potential negative effects of SSBs, including weight gain and teeth damage. However, nothing was known about the components of SSBs' calorie composition. Additionally, this survey found that most students had a favorable view regarding the consumption of SSBs. Furthermore, this study found a direct correlation between the use of SSBs and gender, age, attitude, and nutritional awareness(8).

Another study using a cross-sectional survey was conducted on 380 students at King Abdulaziz University in Jeddah, Saudi Arabia, between September 2022 and March 2023. Data were collected using a self-administered online survey. The results indicated that 93% of participants exhibited a strong level of knowledge regarding SSBs. Furthermore, there were statistically significant differences between genders in their knowledge, attitudes, and practices related to SSBs across various factors, including smoking, family income, BMI, physical activities, sports participation, and level of college education. Consequently, a significant proportion of college students held positive views and possessed adequate knowledge about SSBs(9).

At the same time, the findings of a cross-sectional, questionnaire-based study conducted on medical college students at the University of Mosul in Iraq revealed a lack of knowledge regarding energy drinks as SSBs. Even while 89% of the students were aware of what energy drinks were, just 42% were familiar with their components. Few students were aware of the potential positive effects of energy drinks, while nearly all (95%) were aware of their

negative impacts. With over half of those students consuming fewer than five cans each month, only 30% of the participants acknowledged consuming energy drinks. Given the rising popularity of energy drinks and the marketing campaigns targeting youth, this should be a cause for concern(10).

Material and Methods:

Study Period:

This study was performed began on August 15, 2024, and ended at the end of January 20, 2025.

Study Design:

It is a descriptive cross-sectional study designed to evaluate knowledge and perceptions regarding SSBs among adults attending Nasiriyah hospitals.

Population Source:

The study population consisted of adult participants (⩽18 years old and <60 years old) who attend public hospitals in Nasiriyah, Iraq

Inclusion Criteria:

All adults (ages 18 to under 60) among patients or visitors who attended hospitals and consented to participate. Additionally, include participants who agreed to take part and demonstrated the ability to listen and comprehend.

Exclusion Criteria:

Participants with backgrounds in dietetics or nutrition, or those following specific diets. Also, individuals suffering from chronic diseases such as diabetes, those with sugar sensitivities, and participants who are pregnant.

Sample Size and Sampling Techniques

Non-random sampling. A convenient sampling technique was used. A proposed sample was 384, given by the following formula: Daniel equation (11):

$$n = \frac{Z^2 * p(1-p)}{d^2}$$

It was applied to determine the appropriate sample size (n), considering a confidence level of 95%. Z= Standard degree =1.96, P= Rate of availability of property = 0.50, d= Error ration = 0.05.

Finally, determine the number of samples required from each of the four hospitals by dividing the total number of individuals visiting each hospital by the total number of samples needed (384).

Variables of the Study

Dependent Variables:

This study used knowledge and perceptions (true or uncertain or false) regarding SSBs as a dependent variable.

Independent Variables:

The independent variables are Age, gender, education level, residence, socio-economic status, and BMI category.

Data Collection Method:

The data was gathered utilizing a questionnaire that was created based on previous research on the same topic. This questionnaire served as a tool for data collection and was administered by

the participants who were interviewed. The duration of each interview ranged from 20 to 25 minutes.

Statistical Analyses:

The information for each item on the questionnaire was copied to code sheets, the data was input into a personal computer, and the statistical package from SPSS-27 was used to evaluate the data. Simple statistics like frequency, percentages, average, standard deviation (SD), and range displayed the data. Additionally, A Chi-square test (X2-test) was utilized to identify the significance of qualitative data percentage differences. The P-value was considered statistically significant when equal to or less than 0.05 (12).

Ethical Considerations:

Before starting the study and collecting data, we obtained official approvals from the Directorate of Health of Thi-Qar (Training and Human Development Center) to legally access hospitals. We also received approval from the Research Ethics Committee at Southern Technical University, specifically from the College of Graduate Studies in Basra. The hospitals included in the study were Al-Hussein Teaching Hospital, Al-Nasiriyah Teaching Hospital, Bint Al-Huda Teaching Hospital, and Al-Haboubi Teaching Hospital. Every participant underwent an interview. After confirming their agreement through informed consent and verbal confirmation, we worked to build a trusting relationship with each participant to encourage their cooperation.

Results and Discussion:

Table (1). Distribution of Socio-demographic characteristics of participants

Socio-demographic characteristics		**No.**	**%**
Age groups	18-27 years	192	**50.0**
	28-37 years	155	40.4
	38-47 years	16	4.2
	>47 years	21	5.5
	Mean ± SD (Range)	**28.6±8.4 (18-59)**	
Gender	Male	261	**68.0**
	Female	123	32.0
Residence	Rural	94	24.5
	Urban	290	**75.5**
Education level	Illiterate	11	2.9
	Read & write	22	5.7
	Primary School	58	15.1
	Intermediate graduate	77	20.1
	Secondary graduate	85	**22.1**
	Diploma(institute)	52	13.5
	Bachelor's degree(college) and above	79	20.6

Socio-economic status	Low	43	11.2
	Medium	292	**76.0**
	High	49	12.8
BMI categories	Underweight (<18.5)	-	-
	Normal weight (18.5-24.9)	176	**45.8**
	Overweight (25-29.9)	137	35.7
	Obesity (>=30)	71	18.5

The majority of participants are aged 18-27 (50.0%), followed by those aged 28-37 (40.4%). This is because people in this age range are typically more eager to participate in surveys, cooperative, and responsive. They also tend to be more aware of health problems related to lifestyle, which makes them a perfect target for research evaluating health-related knowledge and consumption patterns. Our findings are consistent with a study conducted among 1,162 participants in Saudi Arabia, which indicated that the largest proportion (61.34%) of participants fell within the age range of 18 to 30(13). The mean age in our study was 28.6 ± 8.4, with an age range of 18 to 59. This result closely mirrors a similar study in the United States, which reported a mean age of 28.9 (14).

Regarding gender distribution, 68.0% of participants are male, while 32.0% are female. Males tend to engage more readily than females in participation. One potential reason for this disparity could be that men are generally more comfortable answering surveys, particularly regarding their eating and drinking habits. Conversely, female participants may feel hesitant or cautious, fearing personal or sensitive questions might arise. Additionally, the predominance of male respondents can be attributed to their higher likelihood of being available during the data collection period for our study. This phenomenon may be influenced by various social or cultural factors affecting participation. Notably, our findings align with a study conducted in India, which reported that male participation reached 61.7%(15).

A large majority of participants in the study (75.5%) live in urban areas, while only (24.5%) live in rural areas. This proportion is attributed to easier access, better health awareness, better transportation, and greater trust in medical institutions among urban residents. In contrast, residents of rural areas may face challenges such as distance, time constraints due to agricultural work, limited transportation, and lower health awareness, which reduce their likelihood of participation. Our results are consistent with those of a study conducted in Poland with 312 participants. The proportion of participants residing in urban areas was 77.7%v(16).

After asking indirect questions to determine socio-economic status, most participants have an average socio-economic status (76.0%), as most of the community avoids answering direct questions regarding monthly income and socio-economic status. The results match what was reported in most studies, such as the study conducted in Armenia, and with eight indirect questions, it was found that the level of economic and social status is average from indirect questions of our

study, income and owning a house had an effective rate on socioeconomic status (17).

Regarding BMI categories, 45.8% of participants fall within the normal weight range (18.5–24.9 kg/ m2), while 35.7% are classified as overweight (25–29.9 kg/ m2), and 18.5% are categorized as obese (≥30 kg/ m2). Notably, no participants were classified as underweight (BMI < 18.5 kg/ m2), accounting for 0%. The results of our study are consistent with the study conducted in Saudi Arabia, where there were 1163 participants. This study found that 44.33% of participants were of normal weight(13).

Specifically, 92.7% knew SSBs contain high sugar levels. This is because most of the local sugar-sweetened drinks are popular drinks in markets and shops or are made at home, and the high amount of sugar is evident from their taste, or the amount of sugar may be clear in some drinks such as tea. The results of our study do not agree with the study conducted on male and female students from non-medical colleges in Mosul, Iraq. This study found that most participants do not believe SSBs have plenty of sugar (54.6%) (18). The results of our study are consistent with a study conducted on 249 participants in Kakamega County, Kenya, which found that most participants believed that SSBs contain high sugar levels(89.9%)(8).

Among the results found 62.8% of participants believed that artificial sugars are more harmful than natural sugars (19).

Our study discovered that 79.7% of participants perceive sports and energy drinks as high in calories. As revealed through interviews, most participants believe these drinks are intended for individuals seeking energy, such as athletes and those engaged in strenuous work. This finding aligns with research conducted with 991 participants across various locations, demonstrating a consistent belief among people from different regions that sports and energy drinks are calorie-dense. This perception is particularly significant given the association of high-calorie beverages with several chronic diseases(20).

The results of our study indicate that a percentage (38.8%) of participants were uncertain that the number of calories in one gram of sugar is not equal to one gram of fat. This is because the methods of calculating calories are different and require some health and nutritional information; most participants do not have this. The results of our study are consistent with a study conducted on 249 participants in Kakamega County, Kenya, where it was found that most participants (46.2%) were not sure that the number of calories in one gram of sugar is not equal to one gram of fat(8).

Our study outcomes reveal that 41.9% of respondents believe that the number of calories in one gram of sugar is equivalent to that in one gram of protein. Responses to this question were closely aligned, showing only a slight variance, which posed a challenge for the reviewers. Nonetheless, assessing the participants' understanding of the calorie content in sugars, classified as carbohydrates, was crucial compared to proteins. Our findings align with research conducted in Riyadh, Saudi Arabia, which involved 435 adult consumers who completed an electronic questionnaire assessing their knowledge, attitudes, and practices regarding calorie labels. The study revealed that while 93.3% of participants understood the concept of calories, only 49.4% could accurately calculate food calories (21)(22).

Most participants (86.5%) recognized the detrimental effects of soda. The high awareness of the side effects of carbonated drinks is attributed to increased media coverage, educational curricula emphasizing healthy nutrition, and scientific studies highlighting their adverse effects, such as obesity, diabetes, and tooth decay. The results of our study are consistent with the study conducted in the Kingdom of Saudi Arabia. This study proved that 86.8% of the participants recognized the detrimental effects of soda (23).

In our study, 78.1% of participants were confident that drinking SSBs increases feelings of satiety. This question was easy for them to answer, as most had experienced drinking these beverages on an empty stomach and had noticed a difference in their appetite and satiety. Our findings align with a study conducted at Mount Saint Vincent University in Halifax, Nova Scotia, Canada, which involved 28 female participants. That study also found that most participants recognized a difference in satiety between SSBs and water(22). However, the results of our study contrast with findings from another study conducted at Chulalongkorn University in Bangkok, Thailand, which included 402 undergraduate students. This earlier study revealed that most participants were unaware of the connection between SSBs and feelings of satiety(24).

Most participants of the participants, 90.6%, recognized that high levels of SSBs increase the risk of becoming overweight and obese. The widespread recognition of the connection between sugary beverages and obesity can be attributed to public health campaigns and the growing awareness of obesity as a significant health concern. As obesity rates continue to rise, individuals are increasingly likely to associate SSBs with weight gain, particularly when they observe the effects on themselves or society as a whole. This understanding is further reinforced by ongoing media exposure(8).

Additionally, 69.3% acknowledged their negative effect on sleep. The negative impact of sugary beverages on sleep is primarily due to their high caffeine content, which stimulates the central nervous system, delays sleep onset, and reduces sleep quality. Additionally, the sugar content in these drinks can cause energy spikes and crashes, further disrupting normal sleep patterns. The results of our study agree with the study conducted in Mosul, Iraq, where there were 1,298 medical students. It was found that 57.9% of participants responded that there is an association with a negative effect on sleep(10).

Additionally, 80.2% of participants linked high consumption of SSBs to diabetes. This is attributable to the well-established fact that sugar, a key component in these drinks, is a significant risk factor for diabetes. The results of our study are consistent with a study conducted on 249 participants in the US. It was found that the majority of participants believed in this association (79.5%)(8). The results of our study are consistent with those of a study conducted on 50 participants in Valaya Alongkorn Rajabhat University under royal patronage, Pathumthani province, Thailand. It was found that the majority of participants believed in this association (96%) (25).

Furthermore, 63.3% of participants recognized the link between SSBs and cardiovascular disease. This awareness of the relationship between these drinks and

heart-related health issues may stem from the necessity for individuals to maintain an optimal nutritional status to safeguard their well-being, which aligns with the recommendations given by many healthcare professionals. Our study's results align with research conducted in Mosul, Iraq, but show an even higher percentage. In that study, 89.7% of participants indicated that they believe there is a link between cardiovascular disease and heart rate (10).

52.6% of participants believed SSBs are associated with high blood pressure. While the sugar in these beverages is not a direct cause of high blood pressure, it is rather associated with other causes that indirectly affect it. However, the results of our study do not agree with the study conducted in Mosul, Iraq, which found that 70.1% of participants responded that there is an association with high blood pressure(18).

The reason 47.4% of participants in our study are aware of the association between SSBs and asthma could be linked to the general understanding that asthma is closely related to respiratory health. Awareness campaigns and education about the role of environmental and dietary factors, such as air quality and nutritional choices, may have contributed to this level of knowledge. The results of our study align with the findings of the study conducted in the United States, which demonstrated a significant association between SSBs and asthma. (26).

In our study, 64.6% of participants recognized the link between SSBs and certain types of cancer. This awareness can be attributed to the growing prevalence of cancer cases in Iraq and the subsequent rise in related infections(27). As a result, individuals directly or indirectly affected by cancer have become more informed about risk factors, including the consumption of harmful substances such as SSBs (28).

In our study, 76% of participants believe there is a connection between SSBs and high cholesterol. This belief may stem from the fact that individuals with high cholesterol tend to be very mindful of their nutrition, often choosing healthy foods. Additionally, high cholesterol is sometimes associated with diabetes and other chronic conditions. In contrast, a study conducted among 831 participants in the United States found that only a small percentage (25%) of that group is aware of the connection between SSBs and high cholesterol(28).

Furthermore, 90.9% of respondents acknowledged the negative impact of SSBs on bone health. This high level of awareness is likely due to the widespread belief that soft drinks contribute to osteoporosis. Our findings agree with a study conducted at Chulalongkorn University in Bangkok, Thailand, which surveyed 402 undergraduate students (24).

The result we reached is not consistent with the study conducted in 21 European countries, which showed a lack of knowledge among consumers about diet drinks and their low consumption as well(29). As shown in Table (2).

Table (2). The distribution of the participant's responses according to their knowledge about SSBs.

Knowledge information	False		Uncertain		True	
	No.	%	No.	%	No.	%
1. SSBs have plenty of sugar	19	4.9	9	2.3	356	**92.7**
2. Artificial sugars are more harmful than natural sugars found in fruits.	49	12.8	94	24.5	241	**62.8**
3. Sports or energy drinks have plenty of calories.	20	5.2	58	15.1	306	**79.7**
4. Before drinking a beverage, it's important to check the contents list to know what's in it.	52	13.5	26	6.8	306	**79.7**
5. The number of calories in one gram of sugar does not equal one gram of fat.	99	25.8	149	**38.8**	136	35.4
6. The number of calories in one gram of sugar is equal to that of one gram of protein	108	28.1	115	29.9	161	**41.9**
7. There are the harmful effects of soda consumption on health.	22	5.7	30	7.8	332	**86.5**
8. Consuming SSBs increases satiety	70	18.2	14	3.6	300	**78.1**
9. Consuming SSBs at high levels increases the risk of becoming overweight and obesity	29	7.6	7	1.8	348	**90.6**
10. Consuming SSBs leads to less sleep duration.	52	13.5	66	17.2	266	**69.3**
11. Excessive SSB consumption causes dental erosion.	7	1.8	26	6.8	351	**91.4**
12. Diabetes is the result of consuming SSBs at high levels.	29	7.6	47	12.2	308	**80.2**
13. Cardiovascular disease is associated with frequent sugar intake.	51	13.3	90	23.4	243	**63.3**
14. High blood pressure is linked to high SSB consumption levels.	101	26.3	81	21.1	202	**52.6**
15. Asthma is linked to high SSB consumption levels.	95	24.7	107	27.9	182	**47.4**
16. Consuming SSBs in high amounts is linked to some cancers	52	13.5	84	21.9	248	**64.6**
17. Consuming SSBs in large amounts is linked to high cholesterol	41	10.7	51	13.3	292	**76.0**
18. Consuming SSBs affects bone health	13	3.4	22	5.7	349	**90.9**
19. Drinking SSBs leads to addiction to these beverages.	32	8.3	26	6.8	326	**84.9**
20. High Consumption of diet soft drinks affects health.	25	6.5	35	9.1	324	**84.4**

The results of this study indicate that 44.3% of participants have a fair (moderate or accepted) knowledge score, followed by 28.9% of the participants having a poor knowledge score, and only 26.8% of participants have a good awareness score. Since the majority of participants know very little about nutrition and health, the knowledge score is fair; however, this knowledge is insufficient to improve the score to good, indicating the urgent need to increase health awareness in this area. The result of our study is in line with a study done on 202 participants in Nairobi, Kenya; the majority had an average knowledge score (49.5%)(6). In contrast, our study's results are inconsistent with the study

conducted on 380 students of King Abdulaziz University in Jeddah, Saudi Arabia. It found that many university students have sufficient and high knowledge (9).

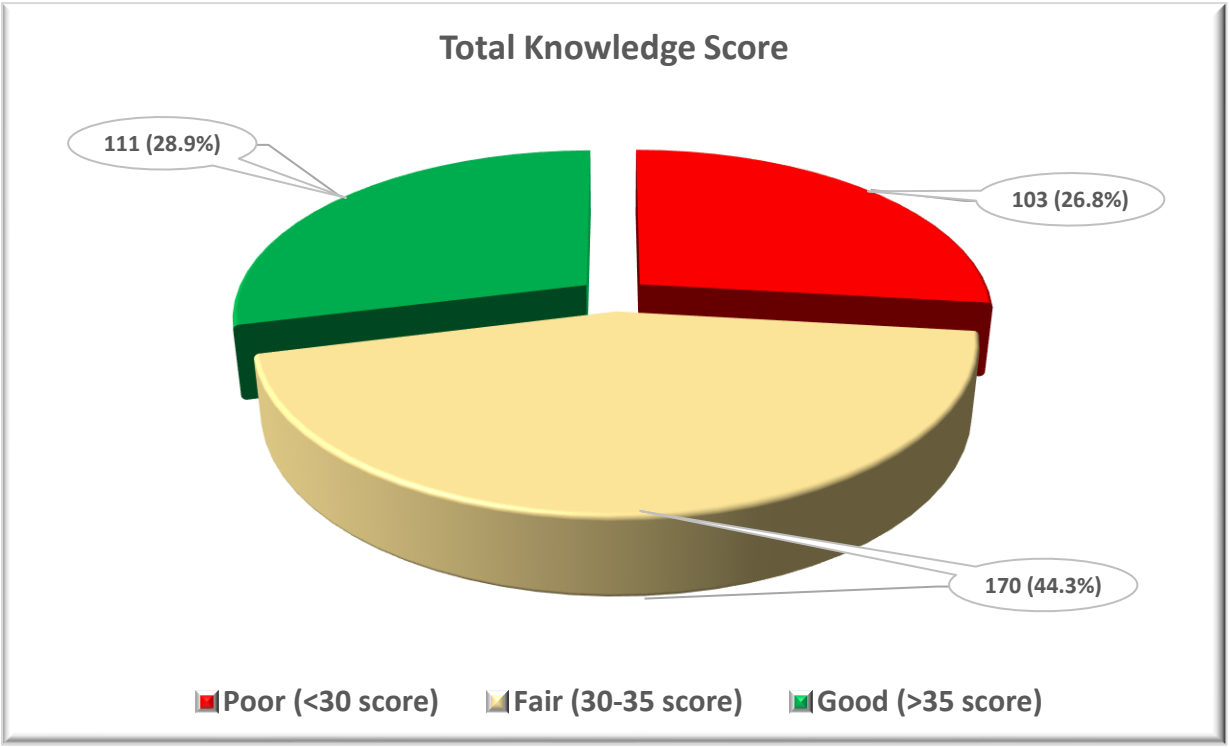

Figure (1). Presents the overall knowledge score of participants in SSB

The study results indicate no statistically significant relationship between some socio-demographic characteristics (age groups, gender, and residence) and the overall cognitive score. At the same time, statistically significant differences were observed between socio-demographic characteristics (such as educational level, socio-economic status, and BMI categories), and the overall cognitive score was p-value (<0.001) for all these characteristics. The results show that participants with academic qualifications and those in high-level jobs scored good in knowledge assessments about SSBs. Individuals with high socioeconomic status and normal weight also demonstrated good knowledge of these drinks.

For several reasons, participants with academic qualifications demonstrated a better understanding of sugar-sweetened drinks. First, higher education improves access to and understanding of scientific literature, allowing individuals to critically evaluate the health risks associated with sugar-sweetened soft drinks, such as obesity, diabetes, and other diseases. Second, college students' academic programs often include health and nutrition topics, which expose students to dietary guidelines (e.g., recommendations from the Iraqi Ministry of Health and WHO) and the metabolic effects of added sugars. Third, college environments encourage participation in public health campaigns, evidence-based information, and analysis of the causes of

associated chronic diseases, which enhances awareness of the risks associated with sugar-sweetened soft drink consumption. Furthermore, educated individuals are more likely to be skeptical of misleading marketing claims, prioritize reliable sources of information, and encourage healthier alternatives. However, our results contrast with a study of 216 participants at Minnesota State University in Mankato, USA, which found that sociodemographic factors, including education level, did not affect participants' knowledge scores, suggesting similar levels of knowledge across different variables(30). This study showed a statistically significant positive association between higher educational attainment and beverage knowledge scores ($p < 0.0015$). Both findings show that higher health knowledge is associated with later academic years, likely due to cumulative coursework and clinical experience(10). Additionally, our study's findings align with those of another study that involved 414 participants and was conducted at King Faisal University in Al-Ahssa, Saudi Arabia. This suggests that academic advancement may have a good impact on university students' nutritional awareness since higher educational standing (being in the fourth year) is linked to improved knowledge about the calorie content of SSBs(31).

Individuals in high-level professional and managerial positions (such as doctors, engineers, academics, corporate leaders, and entrepreneurs) often have a deeper understanding of the health effects of SSBs. This understanding arises from a combination of their education and professional experiences. For instance, advanced degrees in medicine or engineering equip them with analytical skills for interpreting food-related events and public health data. In their workplaces, whether in hospitals, universities, or corporations, these professionals frequently discuss chronic disease prevention, including strategies for managing diabetes, hypertension, and heart disease. Additionally, their roles often involve engagement in health policy initiatives, such as global campaigns to combat COVID-19, which have increased health and nutrition awareness (8).

Table (3). The relationship between the overall knowledge score and Socio-demographic characteristics of participants.

Socio-demographic characteristics		Total Knowledge score						P-value
		Poor (<30 score)		Fair (30-35 score)		Good (>35 score)		
		No.	%	No.	%	No.	%	
Age groups	18-27 years	62	32.3	81	42.2	49	25.5	0.081
	28-37 years	37	23.9	70	45.2	48	31.0	
	38-47 years	2	12.5	10	62.5	4	25.0	
	>47 years	2	9.5	9	42.9	10	47.6	
Gender	Male	69	26.4	118	45.2	74	28.4	0.863
	Female	34	27.6	52	42.3	37	30.1	

Residence	Rural	30	31.9	44	46.8	20	21.3	0.143
	Urban	73	25.2	126	43.4	91	31.4	
Education level	Illiterate	9	81.8	1	9.1	1	9.1	**<0.001**
	Read & write	12	54.5	8	36.4	2	9.1	
	Primary School	34	58.6	21	36.2	3	5.2	
	Intermediate graduate	19	24.7	43	55.8	15	19.5	
	Secondary graduate	17	20.0	45	52.9	23	27.1	
	Diploma(institute)	5	9.6	20	38.5	27	**51.9**	
	Bachelor's degree(college) and above	7	8.9	32	40.5	40	**50.6**	
	Lower professionals, skilled and semiskilled workers	53	20.8	118	46.3	84	32.9	
	Unskilled workers	47	48.5	34	35.1	16	16.5	
Socio-economic status	Low	33	76.7	7	16.3	3	7.0	**<0.001**
	Medium	66	22.6	142	48.6	84	28.8	
	High	4	8.2	21	42.9	24	**49.0**	
BMI categories	Normal weight	43	24.4	74	42.0	59	**33.5**	**<0.001**
	Overweight	27	19.7	72	52.6	38	27.7	
	Obesity	33	46.5	24	33.8	14	19.7	

The results show that participants with high socio-economic status have a good knowledge of SSBs. These findings demonstrate that participants with higher socioeconomic classes know much about beverages with added sugar. These people's access to educational resources (such as specialist books and nutritional materials) and social or academic networks that foster attention are responsible for their optimal level of knowledge. Additionally, they can find a nutritious substitute for beverages with added sugar. Also, individuals with this status are frequently the ones who are concerned about their nutritional status and create optimal diet plans based on the recommendations of nutrition specialists. Our results are consistent with those of another study conducted at the University of Mosul in Iraq, which included 1,298 medical students. This study showed a statistically significant positive association between high socioeconomic status (income level) and beverage knowledge scores ($p < 0.0015$)(10).

Conclusions:

Based on the results, it can be concluded that approximately half of the participants demonstrate a moderate level of understanding concerning SSBs. Participants' educational level, socioeconomic status, and BMI categories are critical factors that significantly influence their knowledge.

Recommendations:

We advise that studies be conducted to assess the knowledge of SSBs in every category of society. This is important because statistics show that adolescents under the age of 18 drink most of these drinks. The study's findings may help determine how to reduce and minimize the use of SSBs and create an evidence-based

program to promote a decrease in their intake. By creating nutritious, sugar-free alternatives that can be made at home, we can reduce the health risks and diseases linked to sugar-sweetened soft drinks. We also advise taxing the purchase of beverages with added sugar, as other Arab nations, such as Saudi Arabia, have done.

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References:

1. Abu Bakar SNAA, Ali A, Rahman ARA, Jalil AMM, Zakaria NS. Unraveling the Sugar Rush: A Cross-sectional Study of Knowledge, Attitudes, and Practices Related to Sugar- Sweetened Beverages Consumption among Malaysian Young Adults. Malaysian J Med Heal Sci. 2024;20(1):152–60.
2. Dėdelė A, Bartkutė Ž, Chebotarova Y, Miškinytė A. The Relationship Between the Healthy Diet Index, Chronic Diseases, Obesity and Lifestyle Risk Factors Among Adults in Kaunas City, Lithuania. Front Nutr. 2021;8(March):1–10.
3. Vollset SE, Ababneh HS, Abate YH, Abbafati C, Abbasgholizadeh R, Abbasian M, et al. Burden of disease scenarios for 204 countries and territories, 2022–2050: a forecasting analysis for the Global Burden of Disease Study 2021. Lancet. 2024;403(10440):2204–56.
4. WHO. Healthy diet [Internet]. Aliementacion Sana. World Health Organization; 2018. Available from: http://www.who.int/en/news-room/fact-sheets/detail/healthy-diet
5. Worsley A. Nutrition and food consumption: can nutrition knowledge change food behaviour? Asia Pac J Clin Nutr. 2002;11 Suppl 3:S579–85.
6. Kigaru DMD, Loechl C, Moleah T, Macharia-Mutie CW, Ndungu ZW. Nutrition knowledge, attitude and practices among urban primary school children in Nairobi City,

Kenya: A KAP study. BMC Nutr [Internet]. 2015;1(1):1–8. Available from: http://dx.doi.org/10.1186/s40795-015-0040-8

7. Mourouti N, Mavrogianni C, Mouratidou T, Liatis S, Valve P, Rurik I, et al. The Association of Lifestyle Patterns with Prediabetes in Adults from Families at High Risk for Type 2 Diabetes in Europe: The Feel4Diabetes Study. Nutrients. 2023;15(14).
8. Mmbaya FK. Nutrition knowledge, attitudes and consumption of sugar-sweetened beverages among high school students in Kakamega County, Kenya. Vol. 4. KENYATTA UNIVERSITY; 2021.
9. Alothmani NM, Almoraie NM. Understanding the Knowledge, Attitudes, and Practices Concerning Sugar-Sweetened Beverages and Beverage Taxation among Saudi University Students. Nutrients. 2023;15(19).
10. Shanshal SA, Youssef AA, Ahmed ZJ, Abd Alrahman SA, Saadoun MK, Al-Sabbagh HM. Knowledge and Consumption Practice of Energy Drinks among Medical University Students in Mosul, Iraq. Jordan J Pharm Sci. 2024;17(1):174–86.
11. Daniel WW. Biostatistics: A Foundation for Analysis in the Health Sciences. 7th Editio. 1999.
12. Benjamin DJ, Berger JO, Johannesson M, Nosek BA, Wagenmakers EJ, Berk R, et al. Redefine statistical significance. Nat Hum Behav. 2018;2(1):6–10.
13. Alhusseini N, Ramadan M, Aljarayhi S, Arnous W, Abdelaal M, Dababo H, et al. Added sugar intake among the saudi population. PLoS One [Internet]. 2023;18(9 September):1–13. Available from: http://dx.doi.org/10.1371/journal.pone.0291136
14. Chen L, Xie YM, Pei JH, Kuang J,

Chen HM, Chen Z, et al. Sugar-sweetened beverage intake and serum testosterone levels in adult males 20-39 years old in the United States. Reprod Biol Endocrinol. 2018;16(1):1–7.

15. Subramanian E, Muniyapillai T, S M, Kulothungan K, R S MK. Determinants of Sugar-Sweetened Beverage Consumption Among Adults in Perambalur District of India. Cureus. 2023;15(3):1–15.
16. Błaszczyk-Bębenek E, Jagielski P, Bolesławska I, Jagielska A, Nitsch-Osuch A, Kawalec P. Nutrition behaviors in polish adults before and during COVID-19 lockdown. Nutrients. 2020;12(10):1–16.
17. Ghazarian S. Assessment of Sugar-Sweetened Beverage (SSB) Consumption and its Determinants among Armenian Adolescents in Yerevan. 2017.
18. Shanshal SA, Al-sabbagh HM, Saadoun MK, Abd SA, Ahmed ZJ, Youssef AA, et al. Energy drinks: knowledge and practice among non-medical university students. Iraqi J Pharm. 2023;20(1):53–9.
19. Farhat G, Dewison F, Stevenson L. Knowledge and perceptions of non-nutritive sweeteners within the uk adult population. Nutrients. 2021;13(2):1–14.
20. Muñoz-Urtubia N, Vega-Muñoz A, Estrada-Muñoz C, Salazar-Sepúlveda G, Contreras-Barraza N, Castillo D. Healthy Behavior and Sports Drinks: A Systematic Review. Nutrients. 2023;15(13):1–14.
21. Miller LMS, Cassady DL. Food Label Knowledge.A systematic review. Sustain [Internet]. 2015;9(1):1–17. Available from: http://ageconsearch.umn.edu/handle/7865%0Ahttp://www.wrseta.org.za/downloads/ILDP/Imitha Final.pdf%0Ahttp://doi.org/10.1080/23311932.2018.1429698%0Ahttp:/

/dx.doi.org/10.1016/j.ypmed.2016.04.012%0Ahttp://dx.doi.org/10.1016/j.sbspro.2012.09.110%0Ahttp://dig

22. Bennett LJ, Totosy De Zepetnek JO, Brett NR, Poirier K, Guo Q, Rousseau D, et al. Effect of commercially available sugar-sweetened beverages on subjective appetite and short-term food intake in girls. Nutrients. 2018;10(4).
23. Metta KK, Afif MA Bin, Althagfi NMA, Ezzaddin ROM, Alam BEM, Bandela V. Knowledge, Attitude and Practices Regarding Consumption of Carbonated Soft Drinks Among the Dental Students: A Cross-Sectional Study. Pesqui Bras Odontopediatria Clin Integr. 2022;22:1–6.
24. Kulsuwiponchai W, Iamsupasit S, Taneepanichskul S, Suttiwan P. Development and Validation of the Sugar-sweetened Beverages Knowledge Questionnaire (SSBKQ) for Undergraduate Students. World J Nutr Heal [Internet]. 2019;7(1):6–10. Available from: http://pubs.sciepub.com/jnh/7/1/2
25. Nuanchankong J, Jaroennon P, Manakla S, Sangwanna S, Taweeporn P. The Study of Knowledge and Behaviour on Sugar-Sweetened Beverage Consumption in University Students. EAU Herit J [Internet]. 2021;15(3):139–48. Available from: https://he01.tci-thaijo.org/index.php/EAUHJSci/article/view/249100/171129
26. Xie L, Atem F, Gelfand A, Delclos G, Messiah SE. Association between asthma and sugar-sweetened beverage consumption in the United States pediatric population. J Asthma [Internet]. 2022;59(5):926–33. Available from: https://doi.org/10.1080/02770903.2021.1895210
27. Mohammed HA, Shakoor JA, Mahmood NA, Kumait AS, Kareem AM. Prevalence of cancer cases among population of Kirkuk, Iraq

from 2016-2020. Rawal Med J. 2023;48(1):3–6.

28. Park S, Lee SH, Merlo C, Blanck HM. Associations between Knowledge of Health Risks and Sugar-Sweetened Beverage Intake among US Adolescents. Nutrients. 2023;15(10):1–10.
29. Chatelan A, Lebacq T, Rouche M, Kelly C, Fismen AS, Kalman M, et al. Long-term trends in the consumption of sugary and diet soft drinks among adolescents: a cross-national survey in 21 European countries. Eur J Nutr. 2022 Aug;61(5):2799–813.
30. Schafer J. Sugar-Sweetened Beverages: A Survey to Assess Adults Knowledge, Attitudes, and Consumption Patterns of Sugar-Sweetened Beverages. Cornerstone. 2019;
31. Al Otaibi HH. Sugar Sweetened Beverages Consumption Behavior and Knowledge among University Students in Saudi Arabia. J Econ Bus Manag. 2017;5(4):173–6.

تقييم المعرفة والتصورات حول المشروبات المحلّاة بالسكر بين البالغين المراجعين لمستشفيات مركز مدينة الناصرية / العراق

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الخلاصة: أقرّ معظم المشاركين (92.7%) بارتفاع نسبة السكر في المشروبات المحلاة بالسكر. علاوة على ذلك، رأى 62.8% من المشاركين أن السكريات المصنعة أسوأ من السكريات الطبيعية. بالإضافة إلى ذلك، حصل 26.8% فقط من المشاركين على درجة وعي جيدة، وحصل 28.9% على درجة معرفة ضعيفة، وحصل 44.3% على درجة معرفة مقبولة. وتبرز الحاجة الملحة لتحسين الوعي الصحي في هذا المجال من خلال حقيقة أن هذا المستوى من المعرفة غير كافٍ لتحسين الدرجة الإجمالية إلى جيدة. علاوة على ذلك، لا تُظهر نتائج الدراسة أي ارتباط ذي دلالة إحصائية بين الدرجة المعرفية الإجمالية والسمات الاجتماعية والديموغرافية المحددة (مثل الفئات العمرية والجنس ومكان الإقامة). من ناحية أخرى، أظهرت العوامل الاجتماعية والديموغرافية الأخرى (مثل المستوى التعليمي والوضع الاجتماعي والاقتصادي وفئات مؤشر كتلة الجسم) ارتباطًا ذي دلالة إحصائية، بقيمة p أقل من 0.001 لكل من هذه المعلمات.

الكلمات المفتاحية: التقييم، المعرفة، التصورات، المشروبات المحلاة بالسكر ، مؤشر كتلة الجسم.