# Consumption of fruits, vegetables, milk, sweet, carbonated soft drinks and fast food among primary school children in AlKarkh sector in Baghdad

Rosul Majeed Rasheed AlDulaimi[1], Ban Abdul-Ridha Al-Hashimi[2]
[1] Community medicine/ ministry of health/ Iraq
[2] Consultant in Family medicine/ ministry of health/ Iraq

**Abstract**
Background: A healthy diet is essential for children to reduce the risk of malnutrition in all its forms as well as protects them against many types of illnesses, such as obesity, diabetes, cardiovascular diseases, and some types of cancer. Over many years, the dietary behaviours have greatly changed as a result of industrialization, urbanization, and globalization. The World Health Organization has showed that poor dietary habits have emerged as a risk towards health. Objectives: The aim of this study was to assess the consumption of fruit, vegetables, milk products, sweets, carbonated drinks, fast food and their dietary correlates, among primary school children in AlKarkh sector in Baghdad. Materials and methods: A Cross sectional study conducted on 210 primary school children with different socioeconomic backgrounds using a prepared questionnaire. A convenient sample from 9 primary schools (public and private), 7-12 years old children, was taken. Results: The majority of children did not consume fruit (63.3%) and vegetables (77%) on daily basis. More than a half (56.7%) of the children did not consume dairy products daily. The daily consumption of fruit and dairy products were significantly associated with young age (P= 0.012, 0.008 respectively). Male children, those in public schools, and those who consume two snacks daily are at a higher risk of being overweight or obese (P= 0.01 and 0.007 respectively). Children who used mobile phones and/or watched T.V for more than two hours tend to have higher BMI than others (P= 0.001 and 0.024 respectively). Conclusion: The results indicated that a high proportion of children in Iraq had a poor consumption of fruits, vegetables and milk/dairy products with strong predilection towards the use of unhealthy food choices (carbonated drinks, sweets and fast food). Therefore, an intervention programs to promote healthy dietary habits are highly recommended. Improving school environments and establishing nutrition programs are extremely needed to promote healthy dietary habits among school children.
Keywords: vegetables, milk, sweet, carbonated soft; AlKarkh sector in Baghdad

## 1. Introduction

Childhood is a critical stage of human lifetime, in which there is a psychological, physical and social growth and development. For ensuring adequate growth and development, it is recommended to develop healthy dietary habits that results in better health status. A healthy diet is helpful for the children to reduce the risk of malnutrition in all its forms as well as protects them against many types of illnesses, such as obesity, diabetes, cardiovascular diseases, and some types of cancer. Over many years, the dietary behaviours have greatly changed as a result of industrialization, urbanization, and globalization. The World Health Organization has showed that poor dietary habits have emerged as a risk towards health. [(1)] The consumption of soft and carbonated drinks is popular in the developed societies. Specifically, the consumption of soft and carbonated drinks is popular among school children and adolescents. As well, 98% of the girls and 97% of the boys have also reported that they consume soft drinks on weekly basis. [(2)]
Children and adolescents with higher intakes of carbonated drinks could be at high risk of metabolic syndrome, central obesity, and hypertension.[(3)] Therefore, it has been suggested that sugar intake should be reduced throughout the life course.[(4)] Generally, overweight and obesity are linked to more deaths worldwide than undernutrition, and childhood obesity is associated with a higher risk of adulthood obesity, death that occurs prematurely due to complications, and some forms of disability in adulthood.[(5)]
Obesity, as a major public health problem, is associated with many risks and complications in pediatrics with increased morbidity and mortality throughout their life.[(6)] Many dangerous Consequences of obesity were defined including : increased risk of impaired glucose tolerance, insulin resistance, type II diabetes mellitus, breathing problems (such as asthma and sleep apnea syndrome), joint problems, musculoskeletal discomfort, fatty liver disease, gastro-esophageal reflux, and gallstones. Psychological problems such as depression, anxiety, low self-esteem, lower self-reported quality of life and social problems such as bullying and stigma were also linked to childhood obesity. [(7)] Moreover, educational achievements and quality of life were highly affected in

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obese children.[8] Nutritional assessment in children is aimed to identify unhealthy dietary habits and their negative outcomes. Limited data are present regarding the consumption of sweets and soft-carbonated beverages among school children in Iraq. Therefore, this study has aimed to address the shortage of these informations in previous literature and to assess the consumption of fruits, vegetables, milk, fast food and carbonated soft drinks among primary school children in AlKarkh sector in Baghdad.

## 2. Materials and Methods

This is a cross-sectional study conducted on Primary school children (7-12 years). It includes 210 children (114 males and 96 females) with different socio-economic backgrounds in a period of 2 months (from 14th April to 15th June, 2022) in nine primary schools in Alkarkh directorate in Baghdad (public and private schools) . A convenient sample of children was taken from each school and data were gathered using a special questionnaire. The questions were answered directly during the interview with children, and measurements of their height, weight, and BMI percentile for age and gender were done.

Inclusion Criteria

- primary school children (7 -12 years old)
- Both genders

Exclusion criteria:

- Children above 12 years
- Children who refused to be included in the study

Regarding ethical consideration, verbal permission was obtained from all children to be included in the study. The height and weight of children were measured in schools while standing shoeless with feet and back against the wall. Weight measurement was done by a digital weight scale and before each measurement, the digital scale was set to zero and weighed to the nearest 0.1 kg. Body mass index has been calculated as BMI = weight (kg) divided by height (meter)2 and used as the criteria for diagnosis of overweight and obesity, respectively. We used age and gender specific BMI percentiles according to growth charts of Centers for Disease Control (CDC) and Prevention. Children were classified as normal (BMI of 5-85th percentile), overweight (BMI of 85-95th percentile), obese (BMI of >95th percentile) and underweight (BMI < 5th percentile) for their age and gender.[9]

### Statistical Analysis

After data collection, all the questions and findings of the study were coded. The data entry was performed using an excelsheet program. Then, the statistical analysis was done using SPSS program version 21.0. The data were presented in figures and tables showing the frequency and the relative frequency of distribution of different variables among the different groups of children. Chi-square tests were used to compare the categorical data between the different groups. P values of less than 0.05 were considered statistically significant.

## 3. Results

A total of 210 school age children (7-12 years) were included in this study. Mean age of children was 9.01±1.645 years. Children within age group 7-8 years were 78 (37.1%) of the total, 114 (54.3%) males and 96 (45.7%) females. First and sixth grades formed about 46 (21.9%) of the total for each grade, 92 (43.8%) children were from public school while 118 (56.2%) children were from private school. There were 77 (36.7%) overweight children, 181 (86.2%) children consume 2-3 meals a day, 108 (51.4%) consume 2 snacks/day, and 108 (51.4%) didn't have breakfast every day. Table 1

Table 1: Sociodemographic data of children (n=210)

| Sociodemographic features of children | | No. | % |
|---|---|---|---|
| Age | 7-8 years | 78 | 37.1 |
| | 9-10 years | 65 | 31.0 |
| | 11-12 years | 67 | 31.9 |
| Gender | Male | 114 | 54.3 |
| | Female | 96 | 45.7 |
| Grade | First | 46 | 21.9 |
| | Second | 33 | 15.7 |
| | Third | 30 | 14.3 |
| | Fourth | 27 | 12.9 |
| | Fifth | 28 | 13.3 |
| | Sixth | 46 | 21.9 |
| School type | Public | 92 | 43.8 |
| | Private | 118 | 56.2 |
| BMI category | Normal | 95 | 45.2 |
| | Overweight | 77 | 36.7 |
| | Obese | 38 | 18.1 |
| No. Of Child's daily meals (main meals) | 1 meal a day | 15 | 7.1 |
| | 2-3 meals a day | 181 | 86.2 |
| | 4 or more | 14 | 6.7 |
| No. of Childs daily snacks | 1 snack | 100 | 47.6 |
| | 2 snacks | 108 | 51.4 |
| | 3 or more | 2 | 1 |
| Does your child have breakfast each day? | Yes, everyday | 96 | 45.7 |
| | Not everyday | 108 | 51.4 |
| | Never | 6 | 2.9 |
| Total | | 210 | 100 |

According to the daily consumption of foods among schoolchildren; fresh fruits were consumed every day

by 77 (36.70%) children, fresh and cooked vegetables were consumed every day by 48 (22.90%), milk were consumed every day by 92 (43.80%), dairy products (cheese, yogurt) were consumed every day by 91 (43.30%), sugary and sweet products were consumed every day by 117 (55.70%), carbonated beverages were consumed every day by 89 (42.40%), canned sweet juices (soft drinks) were consumed every day by 84 (40 %), and fast food were consumed every day by 53 (25.30%) children. Figure 1.

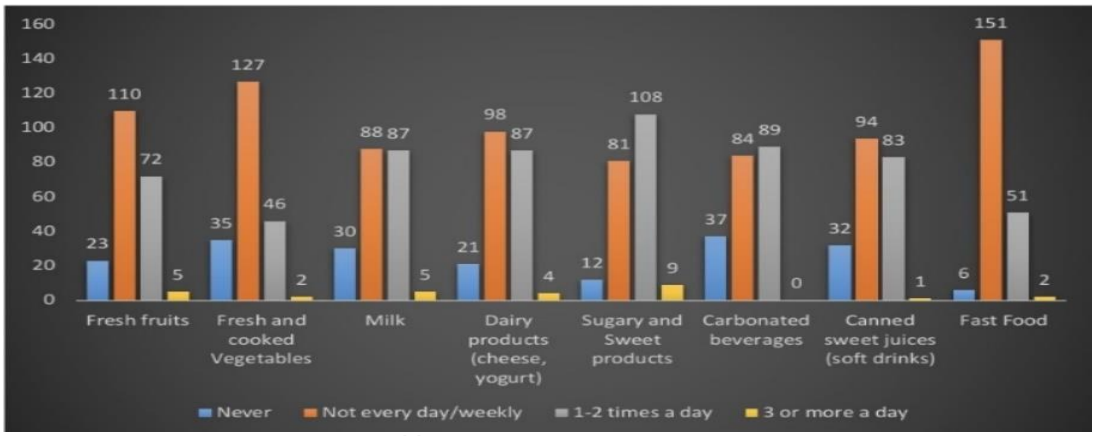


*Figure 1: Distributions of foods consumption among schoolchildren (n=210)*

According to the electronic use by children, 190 (90.5%) were using mobile phone, but only 109 (57.4%) were using mobile phone ≥ 2 hours every day. While 179 (85.2%) children watching T.V, and only 63 (35.2%) watching T.V ≥ 2 hours every day. Figure 2.

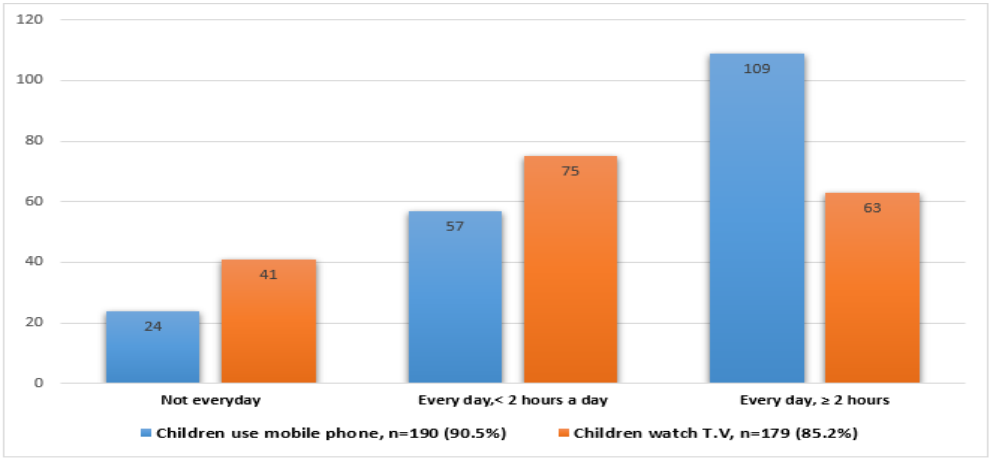


*Figure 2: Distribution of children according to electronic use, n=210Children within age group 7-8 years were associated significantly without, or not every day consuming carbonated beverages and fast food, (P<0.001 and =0.006) respectively. Children within age group 9-10 years were associated significantly without, or not every day consuming milk and canned sweet juices (soft drinks), (P=0.008 and P=0.013) respectively. Children within age group 11-12 years were associated significantly without, or not every day consuming fresh fruits, P=0.012. Table 2*

Table 2: Distributions and associations of foods consumptions with respect to children age, n=210

| Food Groups | | Student's Age | | | | | | P* |
|---|---|---|---|---|---|---|---|---|
| | | 7-8 years N=78 | | 9-10 years N=65 | | 11-12 years N=67 | | |
| | | No. | % | No. | % | No. | % | |
| Fresh fruits | None/Not every day | 43 | 55.1 | 38 | 58.5 | 52 | 77.6 | 0.012 |
| | Every day | 35 | 44.9 | 27 | 41.5 | 15 | 22.4 | |
| Fresh and cooked Vegetables | None/Not every day | 59 | 75.6 | 45 | 69.2 | 58 | 86.6 | 0.056 |
| | Every day | 19 | 24.4 | 20 | 30.8 | 9 | 13.4 | |
| Milk | None/Not every day | 33 | 42.3 | 42 | 64.6 | 43 | 64.2 | 0.008 |
| | Every day | 45 | 57.7 | 23 | 35.4 | 24 | 35.8 | |
| Dairy products (cheese, yogurt) | None/Not every day | 50 | 64.1 | 31 | 47.7 | 38 | 56.7 | 0.14 |
| | Every day | 28 | 35.9 | 34 | 52.3 | 29 | 43.3 | |
| Sugary and Sweet products | None/Not every day | 38 | 48.7 | 30 | 46.2 | 25 | 37.3 | 0.36 |
| | Every day | 40 | 51.3 | 35 | 53.8 | 42 | 62.7 | |
| Carbonated beverages | None/Not every day | 54 | 69.2 | 42 | 64.6 | 25 | 37.3 | 0.001 |
| | Every day | 24 | 30.8 | 23 | 35.4 | 42 | 62.7 | |
| Canned sweet juices (soft drinks) | None/Not every day | 49 | 62.8 | 46 | 70.8 | 31 | 46.3 | 0.013 |
| | Every day | 29 | 37.2 | 19 | 29.2 | 36 | 53.7 | |
| Fast Food | None/Not every day | 67 | 85.9 | 48 | 73.8 | 42 | 62.7 | 0.006 |
| | Every day | 11 | 14.1 | 17 | 26.2 | 25 | 37.3 | |

*$Chi^2$ test

Obesity was significantly higher among male children, in public school, and consumed 2 snacks daily, (P=0.01, P=0.007, and P=0.013) respectively. Table 3.

| Table 3: Distribution of sociodemographic data of children according to their BMI, (n=210) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sociodemographic features | | BMI | | | | | | P* value |
| | | Normal, n=95 | | Overweight, n=77 | | Obese, n=38 | | |
| | | No. | % | No. | % | No. | % | |
| Age | 7-8 years | 37 | 38.9 | 26 | 33.8 | 15 | 39.5 | 0.73 |
| | 9-10 years | 32 | 33.7 | 23 | 29.9 | 10 | 26.3 | |
| | 11-12 years | 26 | 27.4 | 28 | 36.4 | 13 | 34.2 | |
| Gender | Male | 48 | 50.5 | 37 | 48.1 | 29 | 76.3 | 0.01 |
| | Female | 47 | 49.5 | 40 | 51.9 | 9 | 23.7 | |
| School type | Public | 40 | 42.1 | 27 | 35.1 | 25 | 65.8 | 0.007 |
| | Private | 55 | 57.9 | 50 | 64.9 | 13 | 34.2 | |
| No. Of Child's daily meals (main meals ) | 1 meal a day | 12 | 12.6 | 2 | 2.6 | 1 | 2.6 | 0.058 |
| | 2-3 meals a day | 79 | 83.2 | 68 | 88.3 | 34 | 89.5 | |
| | 4 or more | 4 | 4.2 | 7 | 9.1 | 3 | 7.9 | |
| No. of Childs daily snacks | 1 snack | 53 | 55.8 | 37 | 48.1 | 10 | 26.3 | 0.013 |
| | 2 snacks | 40 | 42.1 | 40 | 51.9 | 28 | 73.7 | |
| | 3 or more | 2 | 2.1 | 0 | 0 | 0 | 0 | |
| Does your child have breakfast each day? | Yes, everyday | 54 | 56.8 | 27 | 35.1 | 15 | 39.5 | 0.053 |
| | Not everyday | 38 | 40 | 48 | 62.3 | 22 | 57.9 | |
| | Never | 3 | 3.2 | 2 | 2.6 | 1 | 2.6 | |
| *$Chi^2$ test | | | | | | | | |

Overweight was significantly higher among children that not consumed or not every day consumed fresh fruits, and fresh and cooked vegetables, and every day consuming sugary and sweet products, (P=0.002, P=0.001, and P<0.001) respectively. Normal weight was significantly higher among children that not consumed or not every day consumed carbonated beverages, canned sweet juices (soft drinks), and fast food, respectively (P<0.001). Table 4.

| Table 4: Distribution of Foods according to BMI of children, (n=210) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Food groups | | BMI category | | | | | | P* value |
| | | Normal, n=95 | | Overweight, n=77 | | Obese, n=38 | | |
| | | No. | % | No. | % | No. | % | |
| Fresh fruits | None/Not every day | 48 | 50.5 | 58 | 75.3 | 27 | 71.1 | 0.002 |
| | Every day | 47 | 49.5 | 19 | 24.7 | 11 | 28.9 | |
| Fresh and cooked Vegetables | None/Not every day | 63 | 66.3 | 69 | 89.6 | 30 | 78.9 | 0.001 |
| | Every day | 32 | 33.7 | 8 | 10.4 | 8 | 21.1 | |
| Milk | None/Not every day | 56 | 58.9 | 41 | 53.2 | 21 | 55.3 | 0.75 |
| | Every day | 39 | 41.1 | 36 | 46.8 | 17 | 44.7 | |
| Dairy products (cheese, yogurt) | None/Not every day | 54 | 56.8 | 42 | 54.5 | 23 | 60.5 | 0.83 |
| | Every day | 41 | 43.2 | 35 | 45.5 | 15 | 39.5 | |
| Sugary and Sweet products | None/Not every day | 56 | 58.9 | 20 | 26 | 17 | 44.7 | 0.001 |
| | Every day | 39 | 41.1 | 57 | 74 | 21 | 55.3 | |
| Carbonated beverages | None/Not every day | 76 | 80 | 25 | 32.5 | 20 | 52.6 | 0.001 |
| | Every day | 19 | 20 | 52 | 67.5 | 18 | 47.4 | |
| Canned sweet juices (soft drinks) | None/Not every day | 77 | 81.1 | 25 | 32.5 | 24 | 63.2 | 0.001 |
| | Every day | 18 | 18.9 | 52 | 67.5 | 14 | 36.8 | |
| Fast Food | None/Not every day | 86 | 90.5 | 42 | 54.5 | 29 | 76.3 | 0.001 |
| | Every day | 9 | 9.5 | 35 | 45.5 | 9 | 23.7 | |
| *$Chi^2$ test | | | | | | | | |

According to mobile phone; children that using mobile for less than 2 hours per day were associated significantly with normal weight and with not consumed or not every day consumed carbonated beverages, canned sweet juices (soft drinks), and fast food (P<0.001, P=0.002, P=0.007, and P=0.001) respectively.

While students that using mobile for ≥ 2 hours per day were associated significantly with not taking breakfast every day, not consumed or not every day consumed fresh fruits, and consuming sugary and sweet products every day; P<0.001. Table 5

| Table 5: Distribution of sociodemographic data and foods consumption among children according to the mobile use, (n=190) | | | | | | |
|---|---|---|---|---|---|---|
| Sociodemographic | | Mobile use, n=190 | | | | P value |
| | | <2 hours N=81 | | ≥2 hours N=109 | | |
| | | No. | % | No. | % | |
| Age | 7-8 years | 34 | 42 | 39 | 35.8 | 0.68* |
| | 9-10 years | 23 | 28.4 | 35 | 32.1 | |
| | 11-12 years | 24 | 29.6 | 35 | 32.1 | |
| Gender | Male | 45 | 55.6 | 61 | 56 | 1** |
| | Female | 36 | 44.4 | 48 | 44 | |
| Does your child have breakfast each day? | Yes, everyday | 55 | 67.9 | 31 | 28.4 | 0.001* |
| | Not everyday | 26 | 32.1 | 74 | 67.9 | |
| | Never | 0 | 0 | 4 | 3.7 | |
| BMI | Obese | 13 | 16 | 21 | 19.3 | 0.001* |
| | Overweight | 19 | 23.5 | 51 | 46.8 | |
| | Normal | 49 | 60.5 | 37 | 33.9 | |
| Fresh fruits | None/Not every day | 39 | 48.1 | 83 | 76.1 | 0.001 |
| | Every day | 42 | 51.9 | 26 | 23.9 | |
| Fresh and cooked Vegetables | None/Not every day | 57 | 70.4 | 90 | 82.6 | 0.055** |
| | Every day | 24 | 29.6 | 19 | 17.4 | |
| Sugary and Sweet products | None/Not every day | 48 | 59.3 | 32 | 29.4 | 0.001** |
| | Every day | 33 | 40.7 | 77 | 70.6 | |
| Carbonated beverages | None/Not every day | 57 | 70.4 | 53 | 48.6 | 0.002** |
| | Every day | 24 | 29.6 | 56 | 51.4 | |
| Canned sweet juices (soft drinks) | None/Not every day | 58 | 71.6 | 56 | 51.4 | 0.007** |
| | Every day | 23 | 28.4 | 53 | 48.6 | |
| Fast Food | None/Not every day | 70 | 86.4 | 72 | 66.1 | 0.001** |
| | Every day | 11 | 13.6 | 37 | 33.9 | |
| *$Chi^2$ test **Fishers' Exact test | | | | | | |

According to watching T.V; children that watch TV for less than 2 hours per day were associated significantly with normal weight and with not consumed or not every day consumed carbonated beverages, canned sweet

juices (soft drinks), and fast food (P=0.024, P<0.001, P=0.001, and P=0.003) respectively. While children that watch TV for ≥ 2 hours per day were associated significantly with not consumed or not every day consumed fresh fruits, and consuming sugary and sweet products every day; ( P=0.006 and P<0.001) respectively. Table 6

Table 6: Distribution of sociodemographic data and foods consumption among children according to watching T.V, (n=179)

| Sociodemographic | | TV watch, n=179 | | | | P value |
|---|---|---|---|---|---|---|
| | | <2 hours N=116 | | ≥2 hours N=63 | | |
| | | No. | % | No. | % | |
| Age | 7-8 years | 46 | 39.7 | 20 | 31.7 | 0.43* |
| | 9-10 years | 34 | 29.3 | 24 | 38.1 | |
| | 11-12 years | 36 | 31 | 19 | 30.2 | |
| Gender | Male | 63 | 54.3 | 33 | 52.4 | 0.88** |
| | Female | 53 | 45.7 | 30 | 47.6 | |
| Does your child have breakfast each day? | Yes, everyday | 64 | 55.2 | 24 | 38.1 | 0.087* |
| | Not everyday | 50 | 43.1 | 38 | 60.3 | |
| | Never | 2 | 1.7 | 1 | 1.6 | |
| BMI | Obese | 14 | 12.1 | 13 | 20.6 | 0.024* |
| | Overweight | 41 | 35.3 | 30 | 47.6 | |
| | Normal | 61 | 52.6 | 20 | 31.7 | |
| Fresh fruits | None/Not every day | 63 | 54.3 | 48 | 76.2 | 0.006** |
| | Every day | 53 | 45.7 | 15 | 23.8 | |
| Fresh and cooked Vegetables | None/Not every day | 86 | 74.1 | 54 | 85.7 | 0.089** |
| | Every day | 30 | 25.9 | 9 | 14.3 | |
| Sugary and Sweet products | None/Not every day | 64 | 55.2 | 17 | 27 | 0.001** |
| | Every day | 52 | 44.8 | 46 | 73 | |
| Carbonated beverages | None/Not every day | 80 | 69 | 25 | 39.7 | 0.001** |
| | Every day | 36 | 31 | 38 | 60.3 | |
| Canned sweet juices (soft drinks) | None/Not every day | 79 | 68.1 | 26 | 41.3 | 0.001** |
| | Every day | 37 | 31.9 | 37 | 58.7 | |
| Fast Food | None/Not every day | 96 | 82.8 | 39 | 61.9 | 0.003** |
| | Every day | 20 | 17.2 | 24 | 38.1 | |

*$Chi^2$ test **Fishers' Exact test

## 4. Discussion

The results of this study indicated that the consumption of fruits, vegetables and milk/dairy products among school children was very low. As shown in figure 1, this study indicated that a high proportion of schoolchildren (56.2%) did not consume milk and dairy products on a daily basis; whereas 43.8% consume milk and dairy products on daily basis. This result is very consistent with a study done in Saudi Arabia where daily consumption of milk and diary products was 57.7% among primary school children. [10] Furthermore, in this study, a large proportion of children did not eat fruits (63.6%) and vegetables (77%) on a daily basis, respectively. Also, only 2.4%, and 1% of the schoolchildren consumed the recommended amount of fruits and vegetables (three or more portions a day), respectively. Similarly, a study conducted among Saudi students found that 78% of them consume fruits and vegetables below the recommended guidelines. [10]

Moreover, a large study conducted in Saudi Arabia among a total of 10,735 participants found that only 2.6% of them met the Centers for Disease Control (CDC) guidelines for the daily consumption of fruit and vegetables. [11] Further, consumption of more than one fruit a day, varied from 15% to 30% in European countries. [12] However, it has been reported that at least one portion of fruit and vegetables is the minimum level in children. [12]

The low consumption of fruits and vegetables among Iraqi schoolchildren could be due to many reasons including the lack of their availability in school cantines/restaurants, low awareness, family dietary behaviors and culture. Furthermore, the availability of fruits and vegetables at home was found to be correlated with their consumption among children, which has been shown.

in a study done by Kratt P.[13] This study showed that consuming milk products and fruits on daily basis decrease with increasing age significantly. A significant negative association between age and consumption of healthy foods such as milk and dairy products, fruits and vegetables was previously reported in many studies. [14,15,16,17] This result could be due to more freedom in choices with increasing age, peers and family influences, advertising and less parental supervision. Also, in this study, it was revealed that eating fruits on daily basis was associated with younger age and consuming vegetables daily. Moreover, this study stated that the use of carbonated and soft drinks, at early age, is far worrying. The consumption of soft drinks may increase the possibility of having caffeine overdose or toxicity among young children and teenagers. [18]

In this study, consuming carbonated drinks at weekly and daily basis was reported to be 82.4% of total children. This finding is consistent with similar studies done in Saudi Arabia,Iran and China.[19,20,21] Also, In a review study which was held in Europe, the consumption of energy drinks was reported to be 30% to 50% by adolescents and young adults.[22] . The most common reasons for consuming carbonated drinks were friends influences, advertisement and the pleasant taste of those drinks. Furthermore, this study found that consuming sweets on daily basis was associated positively with daily consumption of soft drinks, energy drinks, and high fat food. Similarly, it has also been found that the consumption of sweets products was correlated significantly with consuming sweetened-soft drinks, energy drinks, and fast food among Saudi school children. [19]

The current study indicates that a large proportion of schoolchildren are engaging in high levels of electronic device use, particularly mobile phones and television. children who use their mobile phones for less than 2 hours per day were more likely to have normal weight and consume healthier foods, such as fresh fruits and vegetables, while avoiding carbonated beverages, canned sweet juices, and fast food. On the other hand, students who used their mobile phones for ≥ 2 hours per day were more likely to have poor dietary habits, such as not consuming fresh fruits, not having breakfast every day, and consuming sugary and sweet products on a daily basis. Similarly, a study which was conducted in Saudi Arabia, reported that the use of mobile phones was associated with unhealthy eating habits and obesity among schoolchildren [23]. Another study conducted in Saudi Arabia found that excessive mobile phone use was associated with poor dietary habits and overweight/obesity among adolescents [19]. Current results indicate that there are significant associations between dietary habits, electronic use, and weight status among schoolchildren. Our results also indicate that male children were significantly more likely to be obese compared to females (P=001). The study also found that students in public schools were more likely to be obese than those in private schools (P=0.007). These findings are consistent with two studies in USA and China. [24,25] This may be due to a variety of factors, such as differences in socioeconomic status, availability of healthy food options, and access to physical activity facilities. In addition, the study found that children who consumed 2 snacks daily were more likely to be obese (P=0.013). This finding is consistent with research, which has shown that snacking habits can contribute to excess calorie intake and subsequent weight gain [26]. Therefore, it is important for parents and educators to encourage healthy snacking habits among children, such as choosing fruits and vegetables over sugary and fatty snacks.

## 5. Conclusion

The findings showed that there is high proportion of children had low consumption of fruits, vegetables and milk products with predilection towards the use of unhealthy food choices ( carbonated drinks, sweet and fast food). Thus, an intervention programs to increase awareness among population and promote healthy dietary patterns is highly recommended. Establishing school-based nutrition programs is highly needed to promote healthy dietary habits among children.

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