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RISK FACTORS ASSOCIATED WITH OVERWEIGHT AND OBESITY AMONG PRIMARY SCHOOL CHILDREN IN DUHOK

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ABSTRACT

Background: Childhood obesity has emerged as a major public health issue. In the Kurdistan Region, there is a dearth of information on the dietary practices, lifestyle choices, and familial aspects of overweight and obese children. The purpose of this study was to compare health-related variables among children who were normal weight, overweight, and obese.

Methods: We conducted a cross-sectional study with 400 children aged between 6 to 12 years old from 25 primary schools in Duhok city based on random sampling. The data for this study included anthropometric measurements, self-reported data on health-related factors such as physical activity, sleep duration, food habits, parent education level, and recognition of children's weight and height status from self-interviews.

Results: The study revealed that older children were more likely to be obese, have a history of obesity, have a TV in their room, have parents with less education, watch more TV, sleep more, and engage in less physical activity. They were also less likely to eat breakfast and lunch regularly, eat fruit and vegetables, and were more likely to consume dairy products, artificial juice, sweet and chocolate, fast food, and biscuits.

Conclusions: This study found that children with bad diets and bad sedentary lifestyles were more likely to be obese.

KEYWORDS: Risk factors, School children, Overweight, Obesity, Physical Activity, Sedentary activity

INTRODUCTION

Obesity and overweight are two of the most prevalent problems for people of both sexes in any sort of nation—developed or developing—as they might later in life lead to a variety of disorders. Because children are seen as the most essential members of society, worrying about their health is a national mission. For parents, this is the turning point into adulthood. It signifies an unreversible transition at once, the assumption of responsibility and the loss of innocence that, tragically, we were unaware we had. Every parent should be concerned about their children's health to protect them from a variety of serious illnesses or conditions (Qadir, Rampal, Sidik, Said, & Ramzi, 2014).

One of the world's most significant public health issues is childhood obesity. In 2005, the prevalence of childhood obesity and overweight was 5.2% in low-income nations, compared to 10.6% in high-income ones (De Onis, Blössner, & Borghi, 2010). There are approximately 155 million overweight or obese children worldwide, and the prevalence of overweight and obesity in children is rising (Lasserre Aurélie, Chiolero, Paccaud, & Bovet, 2007). Obesity and overweight have become more common over the past few decades in both developed and developing nations (Jackson-Leach & Lobstein, 2006).

It has long been noted that between 75 and 80 per cent of obese teenagers will go on to become obese adults and that approximately 40 per cent of overweight youngsters will continue to gain weight during adolescence. With age, the likelihood that an overweight or obese adult will be a child with a high BMI increases. Because obesity would last longer if it starts in youth, the effects could be more severe. As a result, it might be more harmful to health and the risk of morbidity and mortality than adult-onset obesity (Freedman et al., 2005).

There are few studies on how common obesity is among Iraqi schoolchildren. According to a study, 6.3% to 12.3% of

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Baghdad, Iraq, schoolchildren are fat (Subhi, 2006). Numerous studies in the Babel governorate of central Iraq revealed that the prevalence of overweight and obesity among pupils aged 7 to 13 was, respectively, 6.0 and 1.3% (Lafta & Kadhim, 2005).

The Kurdistan region of Iraq is experiencing the emergence of significant health risk factors in its younger populations, similar to other developing nations. The prevalence of childhood obesity was found to be 1.6% and 9.3% among the study sample of primary school students in Erbil City. The investigator also looked into the prevalence of overweight/obesity and the associated factors, and the findings showed that the overall prevalence of obesity and overweight was 74.3% (Hallal et al., 2012).

Childhood obesity raises the chance of developing several chronic illnesses in adulthood, including coronary heart disease, type 2 diabetes, hypertension, respiratory illness, and liver abnormalities (Friedlander, Larkin, Rosen, Palermo, & Redline, 2003). Children who are overweight or obese may also experience psychological problems that impair their sense of self. Obesity and overweight have been elevated to a public health priority due to the aforementioned factors (Hedley et al., 2004). Children and adolescents who are overweight or obese are likely to have complicated connections between their genes, lifestyle choices, eating habits, and socioeconomic circumstances. Life-related factors can be changed, and they have been emphasized in several studies as the focus of many public health efforts. There is evidence that aspects of daily life, such as family income, eating habits, and physical activity, are linked to childhood overweight and obesity (Zheng et al., 2010).

However, in recent years, many factors, including quick urbanization, a steady decline in playgrounds, rising purchasing power, and easy access to new technological devices like hand-held computer toys, have likely resulted in less physical activity and more sedentary behaviour. As a result, an overweight and obesity problem has emerged among young children in urban settings, particularly in affluent families (Ahmed, Islam, Razzaque, & Ahmed, 2007).

Obesity has many detrimental long-term effects on health. Childhood obesity can cause serious ailments including diabetes, high blood pressure, heart disease, and cancer, as well as psychological and emotional issues. It can also cause other conditions like liver disease, early menarche or puberty, sleep issues, skin infections, and asthma (Butte, Cai, Cole, & Comuzzie, 2006).

Aim and objectives

This study's primary goal was to offer a current assessment of the risk factors of childhood overweight and obesity in Duhok, Kurdistan Region, Iraq.

The objectives of the study are

1. To examine the relationship between overweight and obesity in primary school children and socio-demographic factors and socioeconomic level.
2. To assess the connection between sedentary habits and overweight and obesity in primary school students.
3. To examine the link between obesity and overweight in primary school children and the use of sugar-sweetened beverages.
4. To assess the relationship between primary school students' sleep duration and overweight and obesity.
5. To examine the relationship between fast food consumption and obesity and overweight in elementary school children.
6.

SUBJECTS AND METHODS

Study design

A random sample was drawn from the primary schools in Duhok city in 2021 for this cross-sectional study. Personal, face-to-face data collection was used to gather information about 25 primary schools.

Population, sampling, and setting

Children enrolled in elementary schools in the Duhok Governorate between the ages of 6 and 12 made up the study's population. Both boys and girls were included in this study's population. With a population of roughly a million, Duhok is one of the three governorates that make up the Iraqi Kurdistan Region.

Sample Technique

For this study, we used multi-stage random sampling on the students from 25 different schools in Duhok city. The Directorate of Education was contacted in the first step to collect a list of the elementary schools in Duhok City. Later, the names were sequentially coded. Using SPSS version 25, a random sample of the 6 schools was taken. One of the projected six stages in each school was randomly chosen in the second step, much like the first. 65 students

from that stage were randomly chosen in the final phase from various classrooms in that stage.

Sample Size

Based on the number of schools (n=48), classes (n=15), and students (n=40) in each class, the projected population of primary school students is between 25000 and 28800. The Cochrane's Formula for the high sample size was used to get the estimated sample.

400 students were the predicted population based on Cochrane's Formula.

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where:

. e is the required level of precision (also known as the margin of error),

. p is the population's (estimated) percentage that possesses the desired feature,

. q is 1 – p.

Inclusion Criteria

- students who attended primary schools and ranged in age from 6 to 12 years. between the months of December 2021 and March 2022.

Exclusion Criteria

- Students with known obesity-causing illnesses.
- Students whose families refuse to take part.
- We were unable to obtain permission to add students from Duhok City's private schools since we could not do so.

Data collection techniques and measures

Face-to-face interaction was used to collect the necessary data for this investigation. The pupils were asked to respond to the precise questions by the researcher. A pre-made questionnaire was used to capture the kids' responses. The following data were gathered for this research. The questionnaire was broken down into the following three components. The first component of the questionnaire asked for general information about each participant, such as name, age, gender, place of residence, parent educational level, and the number of siblings. The second set of data included lifestyle-related information, such as how much time was spent watching TV and using screens like smartphones, tablets, computers, and video games, as well as how much time was spent exercising and sleeping each night. The final portion contained information about nutrition and eating habits, such as how frequently people eat fast food, how often they consume fruits and vegetables, and how often they consume sweets. All participants' personal information, including age, gender, height, and weight, were collected. Data on how many hours a day were spent watching television, using smartphones, playing video games, using computers, sleeping, eating three meals every day, drinking milk and other dairy products, drinking artificial juice and carbonated beverages, and eating fast food. These statistics apply to children of different socioeconomic and sociodemographic backgrounds. Additionally, the level of physical activity was assessed.

Measurements /Outcomes/variables:

We measured the child's height and weight. Using a digital scale that was calibrated by UNICEF and the person wearing light clothing and no shoes, the weight was calculated to the nearest 0.1 kilograms (the UNICEF electronic scale, seca 890). With the subject standing and wearing shoes, the height was measured to the nearest centimeter using a portable stadiometer (seca 208 body meter, seca Vogel and GmbH and Co, Hamburg/Germany. The body mass index (BMI; kg/m2) was then computed using a weighing scale by dividing the weight in kilograms by the square of the height in meters. Height (m) / [weight (kg)] = BMI 2 To determine the percentile and classify the body weight into the following categories, the BMI for each kid was then plotted on the widely used gender-specific BMI-for-age growth charts for ages 2 to 20 years. 15: Overweight is defined as having a BMI between the 85th and 95th percentiles of age, whereas obesity is defined as having a BMI between the 5th and the 85th percentile.

Ethical views

The Duhok General Health Directorate was approached for official ethical approval and registered as (24102021-10-15) Duhok General Education Directorate, registered as of 9/11/2021, also provided an official letter of authorization for conducting the research (16761). The study was open to all of the pupils. However, this study did not receive any rejections. Additionally, we maintained the privacy of the pupils' personal information.

Statistical analyses

Numbers and percentages representing the prevalence of eating patterns, lifestyles, and physical activity were calculated. ANOVA one-way and/or Pearson chi-squared was used to compare the sociodemographic traits of primary school students who were normal weight, overweight, and obese. The Tukey test was used to examine age comparisons between study

groups in pairs. The Pearson chi-squared test was used to compare the sedentary behaviours eating patterns, and diets of primary school students who were normal weight, overweight, and obese. A p-value of less than 0.05 was used to establish the significance of the difference. In JMP Pro-14.3.0, statistical calculations were carried out.

RESULTS

There were 400 children in total, including 189 girls and 211 boys, in this study. The ratio of male to female was 1.12:1. According to the study, overweight and normal-weight children were younger (9.3 years) than obese children (9.5 years) (8.9). Children who were obese (49.15%) were more likely to have a TV in their rooms than those who were overweight (41.43%) or normal weight (30.72%). In addition, compared to overweight and normal-weight kids, obese kids were more likely to have a family history of obesity (64.41% vs. 40% and 8.5%, P>0.0001, respectively). According to the study, the prevalence of obesity was higher among parents with medium levels of education than it was among those with lower and higher levels of education (Table 1).

According to the study, obese kids were more likely than overweight and normal-weight kids to watch TV, use computers, and play video games. However, as obesity rates rose, kids were less likely to play video games or use computers. Children who had greater rates of obesity were more likely to sleep more frequently, play fewer sports, and use cars for transportation (Table 2).

In comparison to children who were overweight or normal weight, obese children were less likely to routinely eat breakfast (P=0.0003), lunch (P=0.0466), and snacks (P0.0001). Regarding eating dinner, there was no statistically significant difference between them (Table 3).

Obese youngsters consumed more dairy products, artificial juice, sweets and chocolate, fast food, and biscuits while eating fewer fruits and vegetables (Table 4).

DISCUSSION

According to our research, factors that are significantly linked to overweight and obesity in primary school students in the Duhok governorate include age, sleep duration, having a TV in the bedroom, watching TV, using a smartphone, eating habits, regularity of meals, type of diet, consumption of fast food and fruit and sweetened beverages, daily lifestyle, lack of daily physical activity, and parents' educational level.

Not only is obesity on the rise globally, but no national success stories in obesity prevention and control have been documented over the past few decades. Complex forces that drive the obesity epidemic require system thinking to conceptualize the causes and to organize the evidence needed for action (Ng et al., 2014).

Because of the disparity in lifestyles, data sets of risk factors for childhood obesity are not well established to some extent. The focus of childhood obesity prevention research must now shift to figuring out how to integrate effective intervention components into health, education, and care systems and produce long-lasting, sustainable effects (Zong, Li, & Zhang, 2015).

Our study found that being overweight and obese are highly associated with sleep duration, watching TV, and using a smartphone, similar to our study another study conducted in the USA found that excessive TV viewing and the use of smartphones, tablets, computers, and/or video games were independently associated with a higher likelihood of behaviors that promote obesity. Numerous theories have been put out associating inadequate sleep with obesity (Cappuccio et al., 2008). Intriguingly, TV viewing was linked to a decreased risk of physical inactivity among boys and may even be linked to a lower chance of getting insufficient sleep. TV viewing was linked to daily consumption of sugar-sweetened beverages, obesity, and physical inactivity among both girls and boys. On the other hand, all obesity risk variables were strongly associated with higher usage of other screen devices, such as computers, videogames, smartphones, and tablets (Kenney & Gortmaker, 2017). The study showed that viewing television reduced the amount of time spent engaging in outdoor activities that could contribute to weight gain. Uncertainty exists regarding the fundamental mechanisms.

In this study, obese children were less likely to routinely consume breakfast, lunch, and snacks than overweight and normal-weight children. Lifestyle choices and the regularity of eating each meal also have a significant impact on the development of childhood obesity. Numerous research has shown a negative correlation between the frequency of meals and

adult obesity prevalence(Kuźbicka & Rachoń, 2013). The results of this study, however, are consistent with those of a different meta-analysis study that was carried out in October 2011. That showed an inverse relationship between eating frequency (i.e., the total number of meals/eating episodes consumed daily) and overweight/obesity status in children and adolescents(Tandon et al., 2011). The meta-analysis included 21 sub-studies, with a combined population of 18 849 individuals. Particularly, compared to those who had fewer episodes, children and adolescents who had more eating episodes per day had a 22% lower likelihood of being overweight or obese (Nicklas, Baranowski, Cullen, & Berenson, 2001). Another study with 4370 children was carried out in Germany, and the results showed that the frequency of meals was inversely connected to the prevalence of childhood overweight and obesity, indicating that frequent meals might be protective. Future research is required to corroborate this finding (Toschke, Küchenhoff, Koletzko, & Von Kries, 2005).

Our study found that the prevalence of obesity was higher among parents with medium levels of education but significantly lower among parents with lower and higher levels of education. Some parents thought that obesity was beneficial for their children. Another study carried out in Erbil by (Sulaiman & AlAni, 2020) demonstrated that the education level of the parents was a determinant in how obese the children were; children whose parents had only a primary level of education or were illiterate had a greater risk of obesity. He found that there was a statistically significant correlation between being overweight or obese and the parents' poor educational status, which was in line with Sherzad's findings on the prevalence of overweight/obesity and related factors in Erbil, Iraq (Shabu, 2019). Our findings diverged from those of a different study carried out at Duhok by (Mohammed & Al-Dabbagh, 2009). They demonstrated that neither the obesity/overweight status nor the educational attainment of the mothers or the fathers was found to be significantly correlated.

The work of mothers, however, appears to be a key predictor of childhood obesity in Kuwait, according to a study conducted in Kuwait in 2019. According to our research, children whose moms were employed full-time had BMIs that were higher and were more likely to be obese than children whose mothers were jobless (Elkum, Alarouj, Bennakhi, & Shaltout, 2019).

Although the little study has specifically looked at how parental education levels relate to children's weight issues, earlier research on other determinants may provide light on this matter. Numerous studies have discovered a strong association between parental education level and child weight issues (Anderson, Butcher, & Levine, 2003),

Our study revealed that obese youngsters were more likely to consume dairy products, artificial juice, sweet chocolate, fast food, and biscuits than they were to consume fruit and vegetables. Even though Rouhani et al. demonstrated that fast food users in their study in Iran had greater BMI and higher waist circumference (Rouhani, Mirseifinezhad, Omrani, Esmaillzadeh, & Azadbakht, 2012). Being overweight or obese and the consumption of fast food are positively correlated (Fraser & Edwards, 2010). Niemeyer et al. also discovered that eating fast food frequently may be a risk factor for children's obesity and/or overweight (Niemeier, Raynor, Lloyd-Richardson, Rogers, & Wing, 2006).

In line with a study conducted by Bhuiyan et al. in Bangladesh, who found that children who engaged in more physical activities, such as playing common outdoor games, were less likely to be overweight or obese, even though the association was not significant, our study found a significant link between physical activity and overweight and obesity. (Bhuiyan, Zaman, & Ahmed, 2013). We were unable to obtain statistically significant results, which may have been caused by the diverse ways in which the variables were defined and the small sample size.

Limitations

It is important to be aware of this study's limitations. One significant drawback was the very brief (3 months) time frame for data collection, which led to a lower-than-anticipated responder enrollment and potentially affect study power.

Our data were gathered from a cross-sectional study in the Duhok governorate and are not representative of children across the entire nation, which is another drawback of the current study.

One such restriction is the tiny sample size. However, a well-conducted random sampling process was used to choose the sample, and

statistically significant connections were found in the study results. Data from research with a big sample size, however, are more reliable. Although the accuracy of these analyses may be hampered by the use of child self-reports. The cases were chosen based on a visual evaluation by the teacher and researcher. Therefore, the class's fattest students might have been chosen. Nevertheless, given that the BMI of the cases was found to be normally distributed (data not shown), we speculate that the visual selection of the cases may have had a minor influence on the study's conclusion.

In the city of Duhok, we conducted this investigation in 25 schools. Therefore, not all of the urban cities in the Kurdistan Region may have the risk indicators that we found.

CONCLUSIONS

Parental education served as a proxy for our findings that obesity and socioeconomic position are positively correlated. The intake of fast food, obesity, and diet quality indices among Duhok children are all related. Nutritional education surrounding fast food is still necessary. In Duhok, Kurdistan Region, our study showed that some risk factors, including having an overweight parent, getting a little exercise at home, and engaging in a lot of sedentary activities, are linked to overweight and obesity among schoolchildren. Our study showed that a sedentary lifestyle has effect on being overweight and obese in children, also the mood of transportation to school has an effect on healthy weight in children.

Recommendations

Establishing suitable prevention and treatment programs should receive a lot of attention. Additional research is required to explore the dietary preferences and nutritional practices of families from various socioeconomic tiers. Children should be made more aware of these risk factors through public health initiatives to lessen the future burden of chronic diseases linked to obesity. Schools should be the top focus location for kids among other places since they provide enormous opportunities for prevention.

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Table (1): Comparisons of socio-demographic characteristics among normal weight, overweight, and obese primary school children

Socio-demographic characteristics (n=400)	Study groups no. (%)			P-value
	Normal weight (n=153) No. (%)	Overweight (n=70) No.(%)	Obese (n=177) No.(%)	
Age mean (SD)	8.9 (2.0)	9.3 (1.8)	9.5 (1.9)	**0.0103**[a]
Gender				0.1546[b]
Female	80 (52.28)	27 (38.57)	82 (46.33)	
Male	73 (47.72)	43 (61.43)	95 (53.67)	
TV in bedroom	47 (30.72)	29 (41.43)	87 (49.15)	
Yes	106 (69.28)	41 (58.57)	90 (50.85)	
No				**0.0031**[b]
History of Obesity				
Yes	13 (8.50)	28 (40)	114 (64.41)	
No	140 (91.50)	42 (60)	63 (35.59)	**<0.0001**[b]
Mother's education				
Illiterate	13 (8.50)	7 (10.0)	21 (11.86)	**0.0087**[b]
Read and write	30 (19.60)	13 (18.57)	23 (12.99)	
Primary school	22 (14.38)	21 (30.0)	32 (18.08)	
Secondary school	40 (26.14)	9 (12.86)	49 (27.68)	
Institution	26 (16.99)	4 (5.71)	31 (17.51)	
University	22 (14.38)	16 (22.86)	21 (11.86)	
Father's education				**0.0021**[b]
Illiterate	9 (5.88)	3 (4.29)	15 (8.47)	
Read and write	38 (24.84)	14 (20.0)	28 (15.82)	
Primary school	36 (23.53)	15 (21.43)	16 (9.04)	
Secondary school	29 (18.95)	17 (24.29)	56 (31.64)	
Institution	12 (7.84)	9 (12.86)	31 (17.51)	
University	29 (18.95)	12 (17.14)	31 (17.51)	

Significant pairwise comparisons:
Obese vs. Normal weight (p=0.0028)
[an] ANOVA one-way and [b] Pearson chi-squared tests were performed for statistical analyses.

Table (2): Comparisons of sedentary lifestyles among normal weight, overweight, and obese primary school children

Lifestyles (n=400)	Study groups no (%)			p-value
	Normal weight (n=153) No. (%)	Overweight (n=70) No.(%)	Obese (n=177) No.(%)	
TV watching				
<1 hr./day	55 (35.95)	5 (7.14)	15 (8.47)	**<0.0001**
1-2 hrs./day	86 (56.21)	51 (72.86)	68 (38.42)	
3-4 hrs./day	11 (7.19)	13 (18.57)	72 (40.68)	
>4 hrs./day	1 (0.65)	1 (1.43)	22 (12.43)	
Computer/Tablet				**<0.0001**
<1 hr./day	133 (86.93)	40 (57.14)	128 (72.32)	
1-2 hrs./day	18 (11.76)	27 (38.57)	36 (20.34)	
3-4 hrs./day	2 (1.31)	3 (4.20)	10 (5.65)	
>4 hrs./day	0 (0.0)	0 (0.00)	3 (1.69)	
Video game				**0.0183**
<1 hr./day	139 (90.85)	53 (75.71)	138 (77.97)	
1-2 hrs./day	12 (7.84)	13 (18.57)	28 (15.82)	
3-4 hrs./day	2 (1.31)	4 (5.71)	8 (4.52)	
>4 hrs./day	0 (0.0)	0 (0.00)	3 (1.69)	
Daily sleep				**0.0115**
<8 hrs./day	22 (14.38)	7 (10.00)	41 (23.16)	
8-10 hrs./day	80 (52.29)	33 (47.14)	64 (36.16)	
> 10 hrs./day	51 (33.33)	30 (42.86)	72 (40.68)	

Practicing sport				**<0.0001**
Yes	99 (64.71)	10 (14.29)	20 (11.30)	
No	53 (34.64)	60 (85.71)	157 (88.70)	
Transport to school				**<0.0001**
Motor vehicle	13 (8.50)	24 (34.29)	123 (69.49)	
walking	140 (91.50)	46 (65.71)	54 (30.51)	

Pearson chi-squared tests were performed for statistical analyses.

Table (3): Comparisons of eating habits among normal weight, overweight, and obese primary school children

Eating habits (n=400)	**Study groups no (%)**			**p-value**
	Normal weight (n=153) No.(%)	**Overweight (n=70) No.(%)**	**Obese (n=177) No.(%)**	
Breakfast regularly				
Yes	115 (75.16)	38 (54.29)	98 (55.37)	**0.0003**
No	38 (24.84)	32 (45.71)	79 (44.63)	
Lunch regularly				**0.0466**
Yes	145 (94.77)	68 (97.14)	158 (89.27)	
No	8 (5.23)	2 (2.86)	19 (10.73)	
Dinner regularly				
Yes	144 (94.12)	68 (97.14)	167 (94.35)	0.6109
No	9 (5.88)	2 (2.86)	10 (5.65)	
Between meals regularly				
Yes	73 (47.71)	12 (17.14)	40 (22.60)	**<0.0001**
No	80 (52.29)	58 (82.86)	137 (77.40)	

Pearson chi-squared tests were performed for statistical analyses.

Table (4): Comparisons of food type among normal weight, overweight, and obese primary school children

Diet (n=400)	**Study groups no (%)**			**p-value**
	Normal weight (n=153) No.(%)	**Overweight (n=70) No.(%)**	**Obese (n=177) No.(%)**	
Fruit				
<3/week	28 (18.30)	41 (58.57)	146 (82.49)	
>=3/week	125 (81.70)	29 (41.43)	31 (17.51)	**<0.0001**
Vegetable				
<3/week	26 (16.99)	58 (82.86)	169 (95.48)	
>=3/week	127 (83.01)	12 (17.14)	8 (4.52)	**<0.0001**
Milk and dairy products				
<3/week	114 (74.51)	15 (21.43)	29 (16.38)	
>=3/week	39 (25.49)	55 (78.57)	148 (83.62)	**<0.0001**
Artificial juice				
<3/week	142 (92.81)	12 (17.14)	10 (5.65)	
>=3/week	11 (7.19)	58 (82.86)	167 (94.35)	**<0.0001**
Sweet and chocolate				
<3/week	148 (96.73)	21 (30.00)	16 (9.04)	
>=3/week	4 (2.61)	49 (70.00)	161 (90.96)	**<0.0001**
Biscuit and cake				
<3/week	135 (88.24)	24 (34.29)	14 (7.91)	
>=3/week	18 (11.76)	46 (65.71)	163 (92.09)	**<0.0001**
Fast Food				
Yes	110 (71.90)	63 (90.00)	171 (96.61)	
No	43 (28.10)	7 (10.00)	6 (3.39)	**<0.0001**
Mother Fast Food				
Yes	91 (59.48)	17 (24.29)	32 (18.08)	
No	62 (40.52)	53 (75.71)	145 (81.92)	**<0.0001**
Fast Food Freq/wk.				
None	38 (24.84)	5 (7.14)	6 (3.39)	
1-3 times/week	112 (73.20)	59 (84.29)	84 (47.46)	**<0.0001**
=>4 times/week	3 (1.96)	6 (8.57)	87 (49.15)	

Pearson chi-squared tests were performed for statistical analyses.