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Research Article

Dietary Habits in Elementary School-Aged Children from Istanbul, Turkey

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Abstract

Objective: The present study was conducted to assess differences in nutritional status, lifestyle, and eating habits in the schooling period in both genders.

Methods: This descriptive and observational study included 1279 children, aged 7 to 11 years, from four primary schools in Istanbul, Turkey in the year 2019-2020. A questionnaire was employed to objectively assess the dietary habits along with their relationship with lifestyle patterns.

Results: The waist circumference of boys (75.23 ± 12.11) was substantially higher than girls (67.46 ± 9.91) (p = 0.001). Also, boys had a statistically significant rate of obesity than girls (11% vs. 4%; p = 0.04). In terms of eating patterns and maintaining a consistent rhythm in main meals, boys substantially skipped breakfast than girls (60% vs. 43.1%), and most boys (83%) consumed ready-to-eat packaged items from the school canteen compared to girls who preferred fruits (77%). It was found that at least two fast-food meals were consumed by 77% of boys and 60% of girls on a weekly basis.

Conclusions: Public or school health initiatives focused at promoting participation in physical activity and minimizing sedentary habits need to be promoted to enhance the knowledge pertaining to nutrition.

Keywords: Diet; Eating Habits; Lifestyle; Nutritional Status; Obesity; Overweight

Abbreviations

CDC: Center for Disease Control and Prevention; BMI: Body Mass Index

Introduction

Obese and overweight children and adolescents have increased dramatically in both developed and developing countries in the last few years. Consequently, this transformation poses a serious threat to public health [1]. Obesity in children is a severe public health issue because it is usually linked to an array of disease conditions such as metabolic syndrome, type II diabetes mellitus, hypertension, dyslipidemias, more prevalent sleep apnea, and musculoskeletal diseases [2]. It is a recurrent phenomenon that has a severe impact on the health of children. Contrary to popular belief, obesity is not caused by lethargy or a lack of self-care. Substantial indicators have been established that indicate a child's risk of becoming obese. Many researchers have discovered such elements that mostly cause juvenile obesity. For example, some research discovered that Black children were more likely than White children to be overweight [3]. Another research indicated that obesity was strongly linked to socioeconomic background, and others identified a link between child obesity and a slew of social-behavioral characteristics [4-6].

As a result of urbanization, increasing calorie consumption, and decreased physical exercise, childhood obesity is largely extrinsic. Obesity grows from preschool to school age, as per Centers for Disease Control and Prevention (CDC) [7]. This modest rise with age can be explained in part by ultra-processed food consumption and dietary habits [8,9]. Obesity epidemiology research is vital, as well as the influence of elements that may be addressed, such as the obesogenic environment.

In Europe, the rate of obesity among adults aged 20 and up spans from 40% to 59.9%. Inadequate physical activity is common among European 12-year-olds, with the hiked daily calories per capita ranging from 2700 to over 3500 contingents on the country [10,11].

Increased hours wasted in front of electronic gadgets such as computer, TV, or video games are a major contributor to the worldwide obesity epidemic. According to a report conducted by the Milken Institute in the year 2012, every 10% expenditure in information technology results in a 1% rise in the obesity rate, while a 0.4% spike in the obesity rate attributable to hours expended in front of the screen results in an overall increase of 1.4%. According to these figures, it is estimated that there will be 4.2 million additional instances of obesity in a country with a populace of 300 million people. The study also found that a 1% increase in the proportion of physically active persons can avert a% increase in obesity in nations with a high investment in informatics [12].

Because of the rising frequency of overweight and obesity in Turkey, it has become a severe epidemiologic and population health issue. Overweight or obese children are recognized in 20% and 11% in groups of children aged 6-12 years and 13-17 years, respectively. Obesity was shown to be prevalent in both cities and suburbs of Turkey in the year 2014. A protracted positive energy balance maintained by an urban culture, extra caloric intake beginning in junk-food, an inactive lifestyle, and a lack of sufficient nutritional knowledge are all contributing to this increased prevalence [13,14].

Turkey is now ranked third in Europe for overweight people, up from 23rd in 2003, as according recent research. According to experts, the emergence of the first "fast-food" generation among adults following the 1990s is to blame for such a concerning trend. Recognizing food quality issues is a good place to start when trying to solve a problem like this. Appropriate eating patterns are formed in the first years of life, but the initial years of school might contribute to the emergence of unhealthy eating habits, such as purchasing snacks from the school's many vending machines [13,15,16].

Children begin watching television around the age of two and compensate an estimated of 2-4 hours per day doing so, which is adverse to physical activity. Fast food, which is high in carbohydrates, fats, salt, and sugar, is consumed by more than 7% of children and adolescents. This is a common way of life for the entire family, especially in chaotic or single-parent households [17].

Obesity is known to be a clinical abnormality that impacts all organs and systems and not just the mere appearance. It is a risk factor for numerous diseases as well as a contributing factor that raises morbidity and mortality rates in a majority of population. Obesity is a chronic illness that can strike anyone at any age. Because the persistence of obesity is linked to the development of comorbidities, it is critical to accurately diagnose obesity at a young age. Given that obesity can begin in childhood and progress into maturity, the length of obesity is considerable, and the risk of problems is raised. As a result, safeguards should be taken not just in healthcare facilities, but also in provinces through city council resolutions, and communities should be notified about the importance of obesity.

Since there is a dearth of studies related to improper dietary habits in school-aged children in Turkey, the present study was conducted to assess differences in nutritional status, lifestyle, and eating habits in the schooling period in both the genders.

Materials and Methods

The present descriptive and observational study enlisted the participation of 1279 children, aged 7 to 11 years, from four primary schools in Istanbul, Turkey in the year 2019-2020. A questionnaire was employed to objectively assess the dietary habits along with their relationship with lifestyle pattern. Demographic and anthropometric parameters (weight, height, waist, and hip diameter) were assessed. Direct observation methods, questionnaire response patterns, and physical examination were all used to collect data.

Lifestyle-related questions, work and sleep schedules, meal frequency and routines, meal content, eating habits, and lifestyle choices among the participants' own family members were all included in the questionnaire. The Ministry of Public Health, Turkey fabricated the relevant questions about daily meal consistency, the categories and quantity of beverages consumed on a daily basis, the different kinds of daily and weekly workout, the number of leisure hours expended in front of a computer or TV, and questions about adherence with suggested food groups and their emergence into the daily diet. The enrolled school-aged children also remarked on how they ate their meals by choosing from the categories listed as standing, eating directly from the food pan, watching TV, eating out of boredom, emotional eating, and eating late at night or in tiny amounts but repeatedly. Informed consent was given by parents.

In terms of physical assessment, calculating the Body Mass Index (BMI) necessitated the measurement of both weight and height while fasting for more than 8 hours. The children were weighed with an empty bladder and dressed gently, and their BMI was compared to percentile charts specific to boys and girls.

Because BMI is a measure of body fatness, it can be considered as an initial screening method, even though it can be utilized to diagnose health problems. BMI was calculated for children and teenagers using age and gender-specific tables that compensated for varied growth rates in both sexes. It is a known fact that boys and girls both have different weights and fat percentage in their bodies, which alters with growing height and age. BMI percentiles (2 to 20 years) for both boys and girls were used [18,19].

Statistical analysis

SPSS v 24 was used to analyze the data, with P-values of 0.05 deemed statistically significant for two-tailed testing. For continuous variables, the data is expressed as the median (interquartile range), while for categorical variables, the data is expressed as the number of cases and percentages. Subjects were categorized according to gender and were further compared using one-way ANOVA and t-tests. The level of confidence was greater than 95%.

Results and Discussion

A total number of 490 boys and 780 girls were enrolled in the study. In terms of anthropometric indices, the waist circumference of boys (75.23 ± 12.11) was substantially higher than girls (67.46 ± 9.91) (p = 0.001). Furthermore, a comparative analysis presented in table 1 and figure 1 revealed that boys had a larger rate of obesity than girls (11% vs. 4%) and the observed difference was determined to be statistically significant (p = 0.04).

Factors	Boys	Girls
Number of children participated	499	780
Underweight (< 5%)	12%	6%
Normal (5-85%)	48%	64%
Overweight or obese (≥ 85%)	25%	20%
Obese (≥ 95%)	15%	10%

Table 1: Group distribution according to gender and percentile.

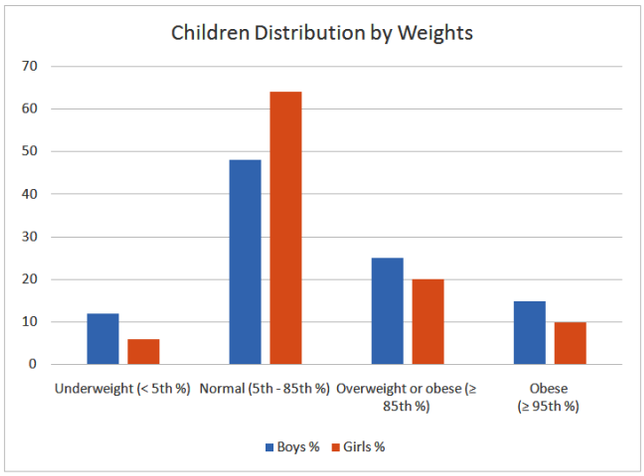

Figure 1: Group distribution according to weight and gender.

When it comes to eating patterns and maintaining a consistent rhythm in main meals, it was observed that boys substantially skipped breakfast than girls (60% vs. 43.1%) and the majority of boys (83%) consumed ready-to-eat packaged items from the school canteen (Table 2). In terms of meal composition, boys consumed a lot of ready to eat meals like chips, fried foods, and farinaceous (starchy) foods, whereas girls were noted to consume a lot of fruits (77%) (Table 3). It was also found that at least two fast food meals were consumed by 77% of boys and 60% of girls on a weekly basis. figure 2 depicts the content of the most commonly consumed foods by both the genders.

Factors	Female		Male		p value
Breakfast	Yes	57	Yes	40	0.001
	No	43	No	60	
Eating All the time	Yes	42	Yes	75	0.004
	No	58	No	25	
Snacks from canteen	Yes	68	Yes	83	0.0000
	No	32	No	17	

Table 2: Meal and snack intake pattern according to gender.

	Female		Male		p value
Fruits and vegetables	Yes	77	Yes	40	0.001
	No	23	No	60	
Dairy Products	Yes	41	Yes	75	0.004
	No	59	No	25	
Meat	Yes	37	Yes	83	0.0000
	No	63	No	17	
Bread and Pasta	Yes	60	Yes	77	0.0000
	No	40	No	23	
Sweet, Market products	Yes	41	Yes	75	0.0000
	No	59	No	25	
Butter and Oily Products	Yes	37	Yes	83	0.0000
	No	63	No	17	

Table 3: Frequency of food intake per weekaccording to gender.

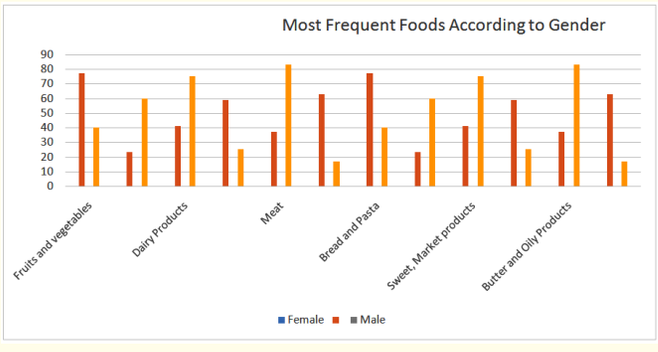

Figure 2: Most Frequently consumed foods according to gender.

Obesity among children is a severe public health concern in Turkey. In the present research, it was noted that 37% of boys and 21% of girls were overweight or obese. Obesity in Turkey's school going population may be attributed in part by the country's emergence 30 years down the lane when limited cuisines were available. Hence unbalanced and high-calorie diets were more preferred choices among the population than the healthy foods [20]. Spending leisure time in front of the TV, phone, or tablet has grown more popular than engaging in reasonable physical activity, recreational sports, or walking. In addition, the home environment is critical because it provides children with role models and ongoing education about the consequences of poor food and a sedentary lifestyle [21].

Overweight/obesity was associated with decreased physical activity involvement and increased engagement in television viewing time along with following an unhealthy food habit in the current study, with prevalence rates being higher in boys than in girls. Skipping breakfast with rigorous consumption of high fat embedded ready-to-eat packaged items may be the probable factors for the observed effect. Obesity and being overweight are induced by a discrepancy in energy intake and expenditure, although the precise reason for this is unknown. Obesity has been linked to variations in dietary patterns over the last few decades, such as a rise in the consumption of high fat and sugar foods [22]. Similar results were seen in the present study. It was reported in a study conducted in a Turkish population that with increasing age, there was a substantial rise in the fraction of those who were obese or overweight ($p = 0.001$) [23].

Even though daily breakfast eating is thought to be beneficial to one's nutritional status, cognitive function, and body weight management, school-aged youngsters appear to be unaware of this fact. Breakfast intake is revealed to have numerous health benefits as presented in a meta-analysis report [24].

The intake of fresh fruits and vegetables, grain cereals, somewhat low-fat dairy products and cheese, and unprocessed animal products as opposed to pre-cooked food, junk food, and fizzy drinks needs to be encouraged as part of a program to avoid childhood obesity and overweight. Nonetheless, children's education in schools is crucial, along with the introduction of nutritional educational programs and other outdoor activities are required to be thoroughly promoted [25].

Fruit and vegetable consumption is particularly concerning, as the embedded nutrients are beneficial against some chronic disease conditions such as obesity, cardiovascular disease, and certain types of cancer [26,27]. Fast food intake is a significant risk factor for obesity, with our study indicating that nearly 70% of youngsters ingest fast food at least once a week. In terms of meal composition, most youngsters consume bread, meat, and vegetables on a regular basis which proves to be detrimental on their health status [28]. Snacking between meals has also been shown to be a protective factor against obesity, however this is highly dependent on the quality and quantity of the chosen snacks.

Obesity has been linked to a lack of physical activity [29]. This could be explained by elevated dietary intake from eating while watching electronic gadgets or from the impacts of food advertising, lowered energy expenditure while watching TV, phone or tablets [30]. According to certain research, there is a proven connection between physical inactivity and obesity, particularly among schoolchildren [31].

An appropriate and balanced diet is critical for illness treatment and prevention, and it is well documented that poor eating habits developed during childhood and adolescence are attributed to decreased adult health. Lack of knowledge pertaining to nutrition is a major contributor to the emergence of many health-related issues. Instructors have a critical role in helping children develop healthy eating habits as the children spend the majority of their days at school. As a result, nutrition education for both teachers and students can be effective at improving children's nutrition understanding and abilities [32]. Prelip., *et al.* employed a nutrition education program to look at intake of fruit and vegetable, knowledge, attitudes and beliefs about fruit and vegetable consumption, and the influence of parents and teachers on these thoughts and behaviors in a group of school going children. It was noted that knowledge pertaining to nutrition as well as their attitudes and beliefs about healthy eating habits improved. The study results also inferred that teachers have an influence on the perceptions and attitudes of children [33]. As children can communicate on new information, nutrition education for school-aged children has a significant impact on their nutritional status and health. It also promotes to the emergence of habits that fosters health in families and communities. As a result, engagement of families and instructors in school-age children's training is critical for reinforcing and maintaining their knowledge [34,35].

Conclusion

According to our findings, being physically inactive and consumption of unhealthy foods are both highly linked to being overweight or obese. As a result, public or school health initiatives focused at promoting participation in physical activity and minimizing sedentary habits should be launched, despite the fact that physical activity participation was shown to be relatively low in this study. To summarize, school-age children's instruction about dietary habits and physical exercise are crucial practices for creat-

ing obesity solutions that should be included in programs encouraging healthy eating and lifestyles. They should be incorporated in children's and teachers' school curriculum, and structured according to government nutritional guidelines.

Conflict of Interest

None.

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