RESEARCH ARTICLE

Prevalence of Overweight and Obesity among Pre-adolescence school children at Al- Nasiriya city, Iraq

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Abstract

Objective: To examine the sociodemographic factors and determine the prevalence of overweight and obesity among students in their early adolescent years.

Method: The cross-sectional study was conducted at four governmental intermediate schools located in Al-Nasiriya city of Thi-Qar Governorate in Iraq from January 2 to February 15, 2021, and comprised students of either gender aged 12-14 years. Data was gathered using a self-designed questionnaire. Body mass index was calculated after measuring the subjects' weight in kilograms on a properly calibrated digital scale and their height in centimetres on an appropriate tape meter scale. Data was analysed using SPSS 23.

Results: Of the 218 subjects, 124(56.88%) were girls and 94(43.12%) were boys. Overall, 100(45.87%) subjects were aged 13 years. There were 71(32.56%) overweight and 30(13.76%) obese subjects. Age and gender were significantly associated with body mass index ($p<0.05$).

Conclusion: Students in their early adolescent years were relatively more likely to be overweight and obese. Age and gender had a correlation with body mass index.

Keywords: Overweight, Body mass, Paediatric, Obesity, Demography. **DOI: https://doi.org/10.47391/JPMA.IQ-15**

Introduction

Being overweight and obese has a range of biological, environmental and psychological variables working in the background,[1] one of them being excessive fat storage.[2] It can have a negative impact on one's health, resulting in a shorter life expectancy and more medical issues.[3] Obesity in children increases the risk of comorbidities, including, among others, cardiovascular disease, type 2 diabetes mellitus (T2DM), orthopaedic conditions, respiratory illnesses, and chronic obesity in adulthood.[1,4]

Both industrialised and developing nations are seeing an increase in the prevalence of childhood obesity, which is spreading quickly as a global epidemic. Child overweight and obesity are new public health issues in the 21st century.[5,6] In 2011-12, there were 31.8% children and teenagers aged 2-19 years who were either overweight or obese, and almost 17% were obese.[7] This could be attributed to modern lifestyles that are characterised by consumption of foods high in fat and calories, snacking, and increased inactivity because of television, video games,

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computers, and smartphones that have replaced outdoor activities and other forms of exercise.[8,9] Further research is needed to reduce or prevent obesity in order to fully comprehend the effects of diet and other specific risk factors as well as to evaluate the effectiveness of different management solutions for this pervasive and growing health issue.[10]

Body mass index (BMI), which is defined as body weight in kilograms divided by height in meters squared for adults, is used to measure obesity and overweight.[11] employing gender-specific BMI for age percentile charts in children and adolescents.[12] The current study was planned to examine the sociodemographic factors and determine the prevalence of overweight and obesity among students in their early adolescent years.

Subjects and Methods

The cross-sectional study was conducted at four governmental intermediate schools located in Al-Nasiriya city of Thi-Qar Governorate in Iraq from January 2 to February 15, 2021, and comprised healthy students of either gender aged 12-14 years. Those having any illness were excluded. After permission was obtained from the Thi-qar Education Directorate's Research and Development Centre, 2 boys' schools and 2 girls' schools were approached.

There were 48,065 schoolchildren age 12-16 years in the Thi-qar Governorate, according to the Central Statistical

Organisation, Iraq.[13] The sample size was calculated using the formula:[14]

$$ss = \frac{Z^2 * p * (1-p)}{c^2}$$

In the formula, Z value was 1.96 with 95% confidence level; p was percentage picking a choice expressed as 0.5 for the required sample size; c was confidence interval (CI) expressed as 04 = ± 4.[14]

The sample was raised using simple random sampling technique. Verbal consent was taken from the subjects and their parents also furnished written consent. Data was gathered using a predesigned questionnaire. Age, gender, socioeconomic status (SES), as measured by Kuppuswamy's SES scale,[15] parent education, and anthropometric measures were noted. Weight was measured in kilograms using a calibrated digital scale, and height was measured in centimetres using an appropriate tape meter scale. BMI was calculated and the subjects were categorised using the Centres for Disease Control and Prevention (CDC) gender-specific BMI for age percentile chart(16), according to which, <5th percentile was underweight, 5th to 85th percentile was healthy weight, <85th and <95th percentile was overweight, and 95th percentile or more was obese.[16]

Data was analysed using SPSS 23. Frequencies and percentages were calculated and cross-tabulated. P<0.05 was considered significant.

Results

Of the 218 subjects, 124(56.88%) were girls and 94(43.12%) were boys. Overall, 100(45.87%) subjects were aged 13 years; 54(54%) girls and 46(46%) boys (Table 1).

Of the total sample, 71(32.56%) were overweight and 30(13.76%) were obese. Among the obese, 11(36.6%) had high SES, 12(40%) had moderate SES and 7(23.3%) had low SES (Table 2)

Table-1: Age and gender of the subjects.

Variable	Groups	Age groups (years) [n (%)]			Total
		12	13	14	
Gender	Male	30 (37.04)	46 (46.00)	18 (48.65)	94 (43.12)
	Female	51 (62.96)	54 (54.00)	19 (51.35)	124 (56.88)
	Total	81 (100.00)	100 (100.00)	37 (100.00)	218 (100.00)

Table-2: Socioeconomic status (SES) and body mass index (BMI) values.

Variable	Groups	BMI [n (%)]			Total
		Normal	Overweight	Obese	
SES	High	42 (35.89)	21 (29. 60)	11 (36.66)	74
	Moderate	44 (37.60)	30 (42.25)	12 (40.00)	86
	Low	31 (26.49)	20 (28.16)	7 (23.33)	58
	Total	117 (100.00)	71 (100.00)	30 (100.00)	218 (100)

Table-3: Association of gender and age with body mass index (BMI).

Variable	Groups	BMI n (%)			Total	p-value
		Normal	Overweight	Obese		
Gender	Male	46 (39.32)	29 (40.85)	19 (63.33)	94 (43.12)	0.054
	Female	71 (60.68)	42 (59.15)	11(36.67)	124 (56.88)	
	Total	117(100.00)	71 (100.00)	30 (100.00)	218 (100.00)	
Age	12	44 (37.61)	31 (43.66)	6 (20.00)	81 (37.16)	0.005
	13	46 (39.32)	32 (45.07)	22 (73.33)	100 (45.87)	
	14	27 (23.08)	8 (11.27)	2 (6.67)	37 (16.97)	
	Total	117 (100.00)	71 (100.00)	30 (100.00)	218 (100.00)	

Significant at ≤ 0.05 level

Age and gender were significantly associated with body mass index (*p*<0.05) (Table 3).

Discussion

The key finding was that 13% of the participants were obese and 32.6% were overweight, which is consistent with an earlier study.[17,18]

Among boys, the prevalence was the highest in those aged 14 years, while it was the lowest in those aged 12 years., Among the girls, the prevalence was the highest in those aged 12 years. The finding is consistent with an earlier study in terms of gender, but not according to age.[19]

The current study found higher percentage of overweight and obese children among those with moderate SES, while lower percentage was found among those with low SES, which was in line with literature.[20] However, a 2022 study in South Africa reported no significant association between childhood obesity and household SES.[21]

More girls were found to be overweight compared to boys, and similar findings have been reported earlier.[22,23]

Finally, the relationship between age and BMI showed significant association, and similar results have been reported by studies done in Iraq and Kuwait.[24,25]

In the light of the findings, it recommended that schools should implement comprehensive health education programmes for students and staff with the aim of creating awareness regarding obesity's origins, complications, and preventive measures.

Conclusion

Students in their early adolescent years were relatively more likely to be overweight and obese. Age and gender had a correlation with BMI.

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Conflict of Interest: None.

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