

Analysis for All Fairview Schools Combined, December 2005

Table 1 presents the number of students in each BMI category as well as the percentage. The frequency of BMI categories with respect to blood pressure is presented in Table 2. Of the 1795 blood pressure readings, 167 had an elevated blood pressure (9.3%). Of the students that are considered to be overweight, 88 had an elevated blood pressure (22.9%). Of the students that are considered to be at risk for becoming overweight, 33 had an elevated blood pressure (11.1%). Of the students that are considered to be normal weight, 45 had an elevated blood pressure (4.2%). Of the students that are considered to be underweight, 1 had an elevated blood pressure (3.0%).

Characteristics of the study population are presented in Table 3. For analysis, cases were defined as those with a BMI-for-age that is classified in the 85th percentile or greater and non-cases were defined as those with a BMI-for-age that is in a classification less than the 85th percentile.

Cases and non-cases were relatively similar with respect to race, ethnicity, and gender. However, cases were slightly older than non-cases. Although the age difference does not appear to be that great, it was statistically significant (p-value <0.0001).

Additionally, cases were more likely to have a high blood pressure reading (n = 121, 17.8%) as compared to the readings in the non-case group (n = 46, 4.1%). With a p-value of <0.0001, this result is statistically significant. Therefore, children who are overweight or are at risk for becoming overweight are more likely to have high blood pressure when compared to children who are not overweight or who are not at risk for becoming overweight.

Table 4 presents the association of BMI categories with high blood pressure. With respect to those who are not overweight and who are not at risk for becoming overweight, being at risk for becoming overweight appears to be associated with having an elevated blood pressure (OR = 2.9). With a 95% confidence interval that excludes the null (a value of 1.0) and a p-value of <0.0001 , this result is very statistically significant. Therefore, it is unlikely that this result occurred by chance.

With respect to those who are not overweight and who are not at risk for becoming overweight, being overweight also appears to be associated with having an elevated blood pressure. Students who are overweight are 6.9 times more likely to have an elevated blood pressure than students who are not overweight. With a 95% confidence interval that does not include the null and a p-value of <0.0001 , this result is very significant. Therefore, although possible, this result occurring by chance is unlikely.

Lastly, with respect to those who are not overweight and who are not at risk for becoming overweight, being overweight or being at risk for becoming overweight appears to be associated with having an elevated blood pressure. Students who are overweight or at risk for becoming overweight are 5.0 times more likely to have an elevated blood pressure than students who are not overweight or are not at risk for becoming overweight. With a 95% confidence interval that does not include the null and a p-value of <0.0001 , this result is also statistically significant.

Table 1. Frequency of BMI Categories.

BMI Category	Total Number of Students in BMI Category	Percent of Students in BMI Category (%)
Underweight	34	1.8
Normal Weight	1126	60.2
Risk of Overweight	307	16.4
Overweight	405	21.6
Total	1872	100

Table 2. Frequency of BMI Categories compared to Blood Pressure Readings.

BMI Category	Number of Students with a Normal BP Reading	Number of Students with an Elevated BP Reading	Percent of Elevated Blood Pressures for each BMI Category
Underweight	32	1	3.0
Normal Weight	1037	45	4.2
Risk of Overweight	263	33	11.1
Overweight	296	88	22.9
Total	1628	167	9.3

Note: There were a total of 77 participants who did not get a blood pressure reading.

Table 3. Demographic characteristics. Cases are those with a BMI-for-age that is classified in the 85th percentile or greater. Non-cases are those with a BMI-for-age that is in a classification less than the 85th percentile.

	Cases				Non-Cases				p-value
	n	%	Mean	SD	n	%	Mean	SD	
Race									0.4467
Asian	4	0.6			5	0.4			
Black	16	2.3			17	1.5			
Native American	0	0			3	0.3			
Native Hawaiian	1	0.1			1	0.1			
White	691	97.1			1134	97.8			
Hispanic									1.0000
Yes	15	2.1			25	2.2			
No	697	97.9			1135	97.8			
Gender									0.6003
Female	339	47.6			568	49.0			
Male	373	52.4			592	51.0			
Age	712		10.8	3.5	1160		10.4	3.6	<0.0001
Blood Pressure									<0.0001
Normal	559	82.2			1069	95.9			
High	121	17.8			46	4.1			

Table 4. Association of BMI Categories with High Blood Pressure.

	OR	95% Confidence Interval	p-value
Crude BMI Categories			
Not Overweight or Not at Risk of Overweight	Ref.		
Risk of Overweight	2.9	1.8 – 4.7	<0.0001
Overweight	6.9	4.7 – 10.1	<0.0001
Overweight or at Risk of Overweight vs. Not Overweight or at Risk	5.0	3.5 – 7.2	<0.0001