Obesity and Asthma among Women in North Carolina



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Studies have shown a positive relationship between obesity and asthma among women, but not among men. However, there is a lack of population-based research in the U.S. regarding this issue.

Introduction

In 2007, about 154,200 North Carolina adults (18+ years) with current asthma were obese (BMI >30.0) and an additional 125,600 adults were overweight (BMI 25.0 – 29.9).

• Study objective: To investigate the relationship between obesity and asthma among women using a state-wide sample of adults while controlling for selected demographic characteristics.

Background

"Obesity is associated with a higher prevalence of asthma." Office of the Surgeon General, 2008

"...Compared to adults with healthy weight (BMI values from 18.5 to 24.9), those with a body mass index of 40 or higher had an increased risk of being diagnosed with ... asthma (2.72 times greater) ..."

Centers for Disease Control and Prevention, 2002

Methods

- Source of data:
- 2007 N.C. Behavioral Risk Factor Surveillance System (BRFSS)
- Variables of interest:
- Asthma prevalence: lifetime asthma, current prevalence
- Selected demographic characteristics: gender, age, race, ethnicity, income, education
- **Body mass index:** recommended range (normal) = BMI 18.5-24.9, overweight = BMI 25.0-29.9, obese = BMI > 30.0
- Analysis:
- Biovariate and multiple logistic regression: to examine effect of obesity and being female on asthma prevalence
- Control for: age, race/ethnicity, income, education

Results

Table 1 Descriptive Statistics: 2007 N.C. BRFSS Survey					
	Adults 18+ Years				
_	N = 12,166				
	N	Weighted %			
Lifetime Asthma					
Yes	1,405	11.5			
No	10,761	88.5			
Current Asthma					
Yes	989	7.6			
No	11,177	92.4			
Weight					
Normal	4,072	34.0			
Overweight	4,503	36.8			
Obese	3,591	29.2			
Gender					
Female	7,444	49.3			
Male	4,722	50.7			

Source: 2007 N.C. BRFSS, N.C. State Center for Health Statistics

Table 2
Adults with Current Asthma,
by Weight Category and Gender
2007 N.C. BRFSS Survey

2007 Mich Bitti 33 Sai vey					
	Adults 18+ Years N = 12,166				
	N	Weighted %			
Weight					
Normal	272	7.2			
Overweight	305	6.2			
Obese	412	9.6			
Gender					
Female	724	9.2			
Male	265	5.9			

Source: 2007 N.C. BRFSS, N.C. State Center for Health Statistics

Table 3 **Logistic Regression Results** 2007 N.C. BRFSS Survey

Eamala Adulta 19, Voars with Current Asthma

Female Adults 18+ Years with Current Asthma						
	Adjusted OR	P value	Adjusted 95% CI			
Weight						
Normal/ Overweight	1.00					
Obese	1.36	.003	1.11 – 1.67			
Gender						
Male	1.00					
Female	1.53	<.001	1.22 – 1.93			
Race/Ethnicity						
White	1.00					
African American	0.98	.922	0.73 - 1.33			
Hispanic	0.35	.002	0.18 - 0.68			
Other	0.96	.872	0.63 - 1.49			
Age (Years)						
18-34	1.00					
35-49	0.81	.198	0.59 - 1.12			
50-64	0.87	.376	0.63 - 1.19			
65-74	0.85	.374	0.60 - 1.21			
75+	0.73	.142	0.48 - 1.11			
Education						
College Education	1.00					
Less Than High School	1.79	.003	1.22 – 2.62			
High School Graduate	1.39	.050	1.00 – 1.93			
Some College	1.08	.587	0.81 - 1.44			
Household						
Income						
\$50,000 +	1.00					
Less than \$15,000	2.38	<.001	1.60 – 3.56			
\$15,000 - 24,999	1.54	.024	1.06 - 2.24			
\$25,000 – 34,999	0.96	.856	0.66 – 1.41			
\$35,000 – 49,000	0.98	.903	0.70 - 1.37			

Source: 2007 N.C. BRFSS, N.C. State Center for Health Statistics

Conclusions

- Being female and obese greatly increased risk of asthma among N.C. BRFSS respondents.
- Demographic variability observed: lower educational and household income levels were factors associate with increased risk for asthma
- Intervention efforts might be appropriate for those with low educational and income levels

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