

Flake, Collin

Home Cookin':

The Mechanisms that Affect Child Obesity

Faculty Mentor: Renata Forste, Sociology

After careful consideration and several discussions with my faculty advisor about potential projects, I set out to tackle the problem of child obesity. I began my project by extensively reviewing previous literature on the issue. Child obesity is rapidly becoming one of the most prevalent health concerns in the U.S. In fact, the World Health Organization estimates nearly a quarter of U.S. adolescents are overweight or obese, and projected numbers suggest a dramatic raise in the future (Morrill and Chin, 2004). Childhood obesity rates are particularly worrisome in the Southern region of the United States, where 23% of children suffer from obesity. To date, researchers have been unable to adequately explain why children in some regions of the U.S. are more prone to obesity than in other regions.

While much is understood about the effects of obesity on children's health, I found that there is little empirical research that identifies the role of parents and the importance of the family in preventing this illness. Hood et al. (2000) suggest that parents have an essential role in the education and prevention of obesity in their children. Though researchers have identified some of the causes of obesity, specific populations for obesity prevention are yet to be targeted. Consequently, the goal of my research is to shed light on whether latent family factors associated with obesity mediate the effect of geographic region. In addition, I aim to identify potential target populations for obesity prevention. I hypothesize that mediating factors such as parenting style, family characteristics, and child characteristics are the best predictors of child obesity.

After conducting a literature review and building a theoretical model, I analyzed the data. To test my hypothesis, logistic regression was applied in an analysis of data from the 2003 National Survey of Children's Health (N = 102,353); using this statistical method establishes the probability that child obesity is related to parental and environmental factors. The dependent variable, child obesity, is a dichotomy coded 1 if a teen is identified as obese based on body mass index measures (Center for Disease Control indicators). The first model consists of family background variables, the second model combines family background and child characteristics measures, and the third model adds family interaction and parent health variables (see Table 2). Possible lurking variables such as gender and race were controlled for.

Tables 1 and 2 present the findings of my analysis. 12% of teens aged 12 to 17 are obese based on body mass index. On average, youth exercise 3.7 days a week and watch an average of 1.5 hours of television a day. Teens from low-income, single-parent homes have a higher likelihood of obesity relative to teens from higher income, two-parent homes. Interestingly, family verbal and physical abuse is associated with increased obesity, as is a close parent/teen relationship. Boys are 2.3 times more likely to be obese than girls, while playing sports reduces the likelihood of obesity by 32%, and each day exercising lowers the odds by 8%. Consistent with previous studies, youth in the West are 26% less likely to be obese compared to teens in other regions.

Table 1. Means (Percents) and Standard Deviations for Family Background, Child Characteristics, Family Interaction, and Parent Health; Youth aged 12 to 17 in 2003

Characteristics	Mean or Percent	Standard Deviation
Family Background		
Family Structure		
Live with both parents	60%	
Live in step family	13%	
Live with single mother	22%	
Live with other family	6%	
Children in household under age 18	1.77	.87
Parental Education		
Less than high school degree	3%	
High school degree only	21%	
Post high school degree	77%	
Race		
Black	9%	
White	79%	
Other	12%	
Hispanic ethnicity	9%	
Poverty Level (1 = less than 100% poverty level, 8 = at or above 400% poverty)	6.00	2.28
Region		
South	33%	
West	24%	
Midwest	25%	
Northeast	18%	
Live in metropolitan area	48%	
Child Characteristics		
Male	52%	
Age (12 to 17 years)	14.6	1.71
Played sports in past year	63%	
Number of days exercised past week	3.76	2.34
Hours of television watch daily	1.56	1.81
Attend private school	11%	
Family Interaction		
Family Violence (1 = never, 5 = always)	1.81	.51
Number of days past week family ate together	4.59	2.21
Family closeness (1 = very, 4 = not at all)	1.26	.41
Parent Health		
Mother's health (1 = excellent, 5 = poor)	2.15	1.03
Father's health (1 = excellent, 5 = poor)	2.05	.96
[N]	[34728]	

Source: National Survey of Children's Health, 2003

Table 2. Likelihood of Obesity in Youth (Ages 12-17) in the U.S. by Family and Child Characteristics, Family Interaction, and Parent Health (Odds)

Characteristics	Model (1)	Model (2)	Model (3)
Family Background			
Family Structure			
Live with both parents	1.00	1.00	1.00
Live in step family	1.104	1.050	1.039
Live with single mother	1.148**	1.110*	1.135**
Live with other family	1.122	1.030	1.062
Total children under age 18	.885***	.876***	.899***
Parental Education			
Less than high school degree	1.109	1.071	1.018
High school degree only	1.00	1.00	1.00
Post high school degree	.695***	.755***	.791***
Race and Ethnicity			
Race			
Black	1.703***	1.656***	1.611***
White	1.00	1.00	1.00
Other	1.230***	1.234***	1.189**
Hispanic ethnicity	1.177**	1.139*	1.111
Poverty Level	.912***	.926***	.956***
Region			
South	1.066	1.040	1.016
West	.775***	.752***	.743***
Midwest	1.00	1.00	1.00
Northeast	.964	.945	.938
Live in metropolitan area	.902**	.886***	.889***
Child Characteristics			
Male		2.332***	2.348***
Age		.872***	.876***
Played sports in past year		.661***	.681***
Number of days exercised		.920***	.919***
Hours of television watched		1.058***	1.053***
Attend private school		.852*	.866*
Family Interaction			
Family violence			1.116***
Number of days eat together			1.032***
Family closeness			.856***
Parent Health			
Mother's health			1.214***
Father's health			1.113***
-2 log likelihood	24315.97	23339.11	23107.15
Chi-square (df)	762.44 (14)	1739.31 (20)	1971.26 (25)
[N]	[34728]	[34728]	[34728]

Source: National Survey of Children's Health, 2003

* p<.05 **p<.01 ***p<.001

According to the data, the group with the highest likelihood of obesity (70%) is 12 year old black males who live in single-parent, verbally or physically abusive homes in the rural south, who do not play sports or exercise and who watch over 3 hours of television daily. In contrast, the group with the lowest likelihood of obesity (4.3%) is 17 year old white females living in two-parent homes in the metropolitan West, who play sports and exercise and have healthy parents.

After concluding my data analysis and writing up the results section, I was fortunate to be permitted to use my project for several class papers and presentations. This provided me the opportunity to further develop the research, writing, and data analysis portions of my project. In order to display my research publicly, I constructed a poster that I presented at the 2008 Mary Lou Fulton Mentored Research Conference at Brigham Young University.

Perhaps my most significant contribution to the existing research was the vindication of my hypothesis that parent characteristics – particularly health, marital status, and parenting style – are the major mediating factors that affect the likelihood of child obesity. While previous research has merely identified the regional differences in child obesity, my study identifies what actually contributes to these differences. Uncovering these mediating factors better equips us to solve the obesity crisis, which could potentially improve the lives of hundreds of thousands of children in the U.S.