



Associations of Social Determinants of Health and Childhood Obesity: A cross-sectional analysis of the 2021 National Survey of Children's Health

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Background

- Childhood obesity is a growing health problem.
- Social determinants of health are known to influence overall health.
- Specifically, children of low socioeconomic status have been shown to be more likely to experience being overweight and having poor health outcomes.
- Childhood obesity can have profound effects on health into adulthood.

Objective

Use the National Survey of Children's Health (NSCH) 2021 data to determine current associations between childhood obesity and social determinants of health.



Methods

- Used the 2021 NSCH survey to extract data from questions relating to the SDOH domains.
 - During the past 12 months, did this child receive any kind of medical care?
 - During the past 12 months, was there a time when this child needed healthcare but it was not received?
 - Since this child was born, has it frequently been hard to cover basics on your family's income?
 - Has your household had difficulty with being able to afford food in the last 12 months?
 - To what extent do you agree with this statement? This child is safe in our neighborhood.
 - To what extent do you agree with this statement? This child is safe at school.
- Any parent or guardian whom answered the variable *BMI Class* in children aged 10-17 was included.
- Sociodemographic variables were extracted and used as controls.
- We constructed bivariate and multivariable logistic regression models to determine the associations of SDOH and childhood obesity via odds ratios.

Results

- Children identified as having obesity were more likely than non-obese children to experience SDOH in all domains.
- Children identified as having obesity were significantly more likely to experience food insecurity when compared to non-obese children (AOR = 1.39; 95% CI: 1.13-1.17).

Table 1. Prevalence and associations between a child having obesity and experiencing SDOH from 2021 National Survey of Children's Health.

BMI Classification	Yes n, (%)	Binary Model OR (95% CI)	Adjusted Model ^a AOR (95% CI)
During the past 12 months, did this child receive any kind of medical care?			
BMI < 95th percentile	12551 (69.62)	1 (Ref)	1 (Ref)
BMI >= 95th percentile	2122 (65.79)	0.84 (0.69-1.03)	1.09 (0.88-1.35)
During the past 12 months, was there a time when this child needed healthcare but it was not received?			
BMI < 95th percentile	739 (4.07)	1 (Ref)	1 (Ref)
BMI >= 95th percentile	195 (6.32)	1.59 (1.07-2.38)	1.41 (0.9-2.20)
Since this child was born, has it frequently been hard to cover the basics on your family's income?			
BMI < 95th percentile	1659 (11.26)	1 (Ref)	1 (Ref)
BMI >= 95th percentile	564 (17.46)	1.67 (1.32-2.10)	1.22 (0.94-1.57)
Has your household had difficulty with being able to afford food in the last 12 months?			
BMI < 95th percentile	3744 (26.27)	1 (Ref)	1 (Ref)
BMI >= 95th percentile	1172 (40.18)	1.88 (1.57-2.27)	1.39 (1.13-1.70)
To what extent do you agree with this statement? This child is safe in our neighborhood?			
BMI < 95th percentile	461 (3.9)	1 (Ref)	1 (Ref)
BMI >= 95th percentile	144 (6.14)	1.61 (1.01-2.58)	1.16 (0.73-1.85)
To what extent do you agree with this statement? This child is safe at school?			
BMI < 95th percentile	411 (2.37)	1 (Ref)	1 (Ref)
BMI >= 95th percentile	100 (2.58)	1.09 (0.72-1.66)	0.9 (0.57-1.41)

a. model controlled for race/ethnicity, household income (%FPL), parental education, and child sex. b. Ability to afford household basics answers were collapsed into binary variables of *Not difficult and Difficult*. c. Ability to afford food answers were collapsed into binary variables of *Food secure and Food insecure*. d. Neighborhood and school safety answers were both collapsed into binary variables as *Safe and Unsafe*.



Significance of Findings

- Early experience with food insecurity may be a driver of childhood obesity and associated with poor health outcomes.
- Addressing barriers to food security and increasing access to supplemental food programs is a critical step.
- Food pantries and food banks can play a significant role in providing supplemental nutrition to low-income families not qualifying for government assistance.

Conclusion

- Improving policies for programs such as SNAP and addressing lack of access to nutritious foods (i.e. food deserts) may help alleviate some food insecurity.
- Improving access to adequate amounts of nutritious foods for children and their families is critical.
- Using these approaches may help address childhood obesity and thus, decrease the risk of developing chronic disease(s) and poor long-term health outcomes.



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