

LETTERS

FOOD SECURITY AND C-REACTIVE PROTEIN IN ADOLESCENTS

Several studies have shown an association between food insecurity and adverse health outcomes.¹⁻³ This association may be partially caused by the affordable nature of high caloric foods, which if consumed frequently, can result in obesity.⁴ This theory does not account for the association between food-insecure, undernourished adults and adverse health outcomes. Because of this gap in theory, alternate pathways from food insecurity to adverse health outcomes other than obesity are becoming an area of interest. Gowda et al. used National Health and Nutrition Examination Survey data to demonstrate an association between C-reactive protein (CRP) and food security in adults that was mediated by immune markers in the United States using National Health and Nutrition Examination Survey data (Table 1).⁵ However, it seems that in adolescents, because CRP and low body mass index (BMI; defined as weight in kilograms divided by the square of height in meters) are not associated with food insecurity, we can postulate that the risk posed by food insecurity in adolescence may result from the consumption of lower priced food high in calories.

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TABLE 1—Associations between Food Insecurity and Body Mass Index in Adolescents: National Health and Nutrition Examination Survey, United States, 1999–2006

Food Security	BMI < 18.5 kg/m ² , OR (95% CI)	BMI 25.00–29.99 kg/m ² , OR (95% CI)	BMI ≥ 30 kg/m ² , OR (95% CI)
Secure (Ref)	1.00	1.00	1.00
Marginally insecure	0.685 (0.420–1.118)	0.945 (0.629–1.420)	1.148 (0.752–1.752)
Highly insecure	1.011 (0.728–1.404)	1.466* (1.102–1.949)	1.244 (0.923–1.675)

Note. BMI = body mass index; CI = confidence interval; OR = odds ratio. The sample size was n = 6037.
*P ≤ .001

Gowda et al. observed that adults who were highly food insecure were 21% more likely to have the highest CRP levels. We did not observe any association when looking at adolescents aged 12 to 17 years (n = 6037) from the same population and using adjusted models with Gowda et al.'s definitions of CRP, food security, and biomarkers.

Adults were 33% more likely to be obese if they were marginally food insecure and 74% more likely to be underweight if they were highly food insecure. Contrarily, in adolescents we found that being overweight (BMI = 25.00–29.99) was associated with being highly food insecure. Adolescents who experienced high food insecurity were 47% more likely to be overweight than those who were food secure.

These results demonstrate that the detrimental effects of being food insecure in adolescents may occur in different pathways than in adults. This means that for adolescents, food insecurity should be intervened upon with adolescent-specific strategies, possibly through nutritional education interventions. It will be important to continue development of a knowledge base that will support public health programs designed to alleviate food insecurities in adolescents specifically, not only in the adult population. ■

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Contributors

K. P. Theall was responsible for the conceptualization and design of the research, interpretation, and reporting. E. Mabile was responsible for the data analysis. L. F. Dunaway contributed substantive writing and editorial comments and participated in finalizing the letter.

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