

How Do We Address Food Allergies in High-Risk Populations?



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Food allergies are a significant and growing health problem and occur with increased frequency in racial/ethnic minorities^{1,2} and those living in lower income households.² In particular, food allergies have been reported to occur more frequently among non-Hispanic black patients.^{3,4} Despite increased prevalence, the diagnosis and treatment of food allergies occur less frequently for these patients.^{2,5,6} The article by Coulson et al⁷ contributes to the growing food allergy literature to add further clarity to questions around racial and income disparities. In Project Viva, 1148 teens followed from birth were examined for the IgE level (only for the 647 with sufficient blood samples), self-report of allergic symptoms after food ingestion, household income, smoking in the home, and maternal education. Non-Hispanic black teens demonstrated significantly higher risk of sensitivity to peanut (more than twice that of the non-Hispanic white comparison group) and wheat, along with trends suggesting heightened sensitivity to milk, egg, and soy. Those with mixed race demonstrated a more than 4-fold increase in sensitivity to peanut, although these data are difficult to interpret with lack of racial specificity. Food sensitivity also increased in low-income households. Among the 647 with blood samples, a 3-fold increase in milk sensitivity occurred where mothers had less than a college degree. Paradoxically, participants whose mother had a college degree were more likely to demonstrate wheat sensitivity.

This report adds important information but also leaves some questions unanswered that might be addressed in future, large-scale studies. The nature versus nurture question is unresolved. The authors suggest that differences in childhood diet may explain some of the racial/ethnic and socioeconomic differences in food sensitivities, noting that non-Hispanic black teens from lower income households consume fewer nuts than their white counterparts.⁸ Studies conducted outside the United States add insight into other factors that may also come into play. For example, a large cohort study out of China⁹ and another out of Vietnam¹⁰ showed that the development of food allergies was related to geography. Building on the Coulson report, it may be

helpful if future studies could consistently inquire about parental atopy and breast-feeding history, and longitudinally document IgE, diet, shellfish allergy, physician diagnoses of atopy, and food allergy in all participants. These data in turn would answer additional questions about inherited and diet-mediated food allergy. Of particular importance, a better understanding of the interactions between race and diet could lead to effective strategies to mediate food-allergy disparities in at-risk populations.

REFERENCES

1. Gupta RS, Springston EE, Warrier MR, Smith B, Kumar R, Pongracic J, et al. The prevalence, severity, and distribution of childhood food allergy in the United States. *Pediatrics* 2011;128:e9-17.
2. Liu AH, Jaramillo R, Sicherer SH, Wood RA, Bock SA, Burks AW, et al. National prevalence and risk factors for food allergy and relationship to asthma: results from the National Health and Nutrition Examination Survey 2005-2006. *J Allergy Clin Immunol* 2010;126:798-806.e13.
3. Mahdavinia M, Fox SR, Smith BM, James C, Palmisano EL, Mohammed A, et al. Racial differences in food allergy phenotype and health care utilization among US children. *J Allergy Clin Immunol Pract* 2017;5:352-357.e1.
4. Joseph CL, Zoratti EM, Ownby DR, Havstad S, Nicholas C, Nageotte C, et al. Exploring racial differences in IgE-mediated food allergy in the WHEALS birth cohort. *Ann Allergy Asthma Immunol* 2016;116:219-224.e1.
5. Branum AM, Lukacs SL. Food allergy among children in the United States. *Pediatrics* 2009;124:1549-55.
6. Hannaway PJ, Connelly ME, Cobbett RM, Dobrow PJ. Differences in race, ethnicity, and socioeconomic status in schoolchildren dispensed injectable epinephrine in 3 Massachusetts school districts. *Ann Allergy Asthma Immunol* 2005;95:143-8.
7. Coulson E, Rifas-Shiman SL, Sordillo J, Bunyavanich S, Camargo CA Jr, Platts-Mills TAE, et al. Racial, ethnic, and socioeconomic differences in adolescent food allergy. *J Allergy Clin Immunol Pract* 2020;8:336-338.e3.
8. Nielsen SJ, Herrick KA, Akinbami LJ, Ogden CL. Nut consumption among U.S. Youth, 2009-2012. *NCHS Data Brief*; 2016:1-8.
9. Wang XY, Zhuang Y, Ma TT, Zhang B, Wang XY. Prevalence of self-reported food allergy in six regions of inner Mongolia, Northern China: a population-based survey. *Med Sci Monit* 2018;24:1902-11.
10. Le TTK, Nguyen DH, Vu ATL, Ruethers T, Taki AC, Lopata AL. A cross-sectional, population-based study on the prevalence of food allergies among children in two different socio-economic regions of Vietnam. *Pediatr Allergy Immunol* 2019;30:348-55.

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