Policy Brief
CENTER FOR POVERTY & INEQUALITY RESEARCH

Volume 15, Number 3
December 2026

Infant Diet Quality and Participation in Federal Nutrition Programs Associated with Later Childhood Diet Quality

By Christabel A. Domfe, UC Davis; Charles D. Arnold, UC Davis; Edward A. Frongillo, University of South Carolina; Lorrene D. Ritchie, UC Agriculture and Natural Resources; Shannon E. Whaley, PHFE WIC; Marianne P. Bitler, UC Davis; and Lauren E. Au, UC Davis

The quality of children's diets in infancy may have lasting implications for their nutrition and health. Federal assistance programs such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the Supplemental Nutrition Assistance Program (SNAP), and Medicaid support low-income families, but less is known about how participation in these programs relates to children's later diets, or what role infant feeding practices play.

In a recent study, we examined associations between infant diet quality, participation in these three programs, and diet quality and weight status among children aged 2–5. We found that more consistent WIC participation was associated with better diet quality at ages 2–4, while children in households participating in SNAP generally had lower diet quality scores than those in households not participating. Infant diet quality partly explained the differences associated with SNAP participation. Medicaid participation was not associated with either diet quality or weight status.

Our findings highlight the importance of nutrition during infancy, and of maintaining access to WIC and SNAP while improving coordination between the programs. They also suggest that nutrition support and caregiver education may help improve later dietary outcomes, particularly among children in households receiving SNAP.

Key Facts

More consistent WIC participation was associated with better diet quality at ages 2–4.

Associations between SNAP participation, poorer infant diet quality, and lower subsequent diet quality highlight the first year of life as a potential opportunity for targeted support.

Nutrition services and caregiver education during infancy, particularly for families participating in SNAP, may help improve later dietary outcomes.

Background

Infancy is an important period for establishing dietary patterns that can influence later health. Research has linked infant diet and growth to socioeconomic circumstances, with mothers experiencing socioeconomic disadvantage or having lower educational attainment less likely to follow recommended infant feeding guidelines. These differences include earlier introduction of solid foods and lower rates of breastfeeding, practices associated with childhood obesity and poorer subsequent diet quality.[1,2,3] Other research has linked infant food exposures with early childhood diet quality.[4]

Federal nutrition assistance programs may help address these disparities. Revisions to the WIC food package have been associated with improvements in children's diet quality and reductions in obesity risk among some infants.[5,6] SNAP provides food assistance to low-income households, and research has found that participation can reduce food insecurity.[7]

Studies have also associated longer WIC participation with better diet quality in young children.[8] However, less is known about how participation in WIC, SNAP, and Medicaid together relates to later diet quality and weight status, or how infant nutrition might help explain these relationships. In our study, we addressed this gap by examining children's diets and weight status between ages 2 and 5 in relation to infant diet quality and participation in the three programs.[9]

Exploring program participation and diet quality

We used data from the WIC Infant and Toddler Feeding Practices Study-2, a national longitudinal

1. Emmett, P.M. and Jones, L.R. (2014). "Diet and growth in infancy: relationship to socioeconomic background and to health and development in the Avon Longitudinal Study of Parents and Children." *Nutrition Reviews*, 72(8), 483–506. doi: 10.1111/nure.12122.
2. Wen, X., Kong, K.L., Eiden, R.D., Sharma, N.N. and Xie, C. (2014). "Sociodemographic differences and infant dietary patterns." *Pediatrics*, 134(5), e1387–e1398. doi: 10.1542/peds.2014-1045
3. Cameron, A.J., Spence, A.C., Laws, R., Hesketh, K.D., Lioret, S. and Campbell, K.J. (2015). "A review of the relationship between socioeconomic position and the early-life predictors of obesity." *Current Obesity Reports*, 4(3), 350–362. doi: 10.1007/s13679-015-0168-5.
4. Gibbs, B.G. and Forste, R. (2014). "Socioeconomic status, infant feeding practices and early childhood obesity." *Pediatric Obesity*, 9(2), 135–146. doi: 10.1111/j.2047-6310.2013.00155.x
5. Tester, J.M., Leung, C.W. and Crawford, P.B. (2016). "Revised WIC food package and children's diet quality." *Pediatrics*, 137(5), e20153557. doi: 10.1542/peds.2015-3557
6. Chaparro, M.P., Anderson, C.E., Crespi, C.M., Wang, M.C. and Whaley, S.E. (2020). "The new child food package is associated with reduced obesity risk among formula-fed infants participating in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) in Los Angeles County, California, 2003–2016." *International Journal of Behavioral Nutrition and Physical Activity*, 17, 18. doi: 10.1186/s12966-020-0921-3.
7. Anderson, C.E., Martinez, C.E., Ritchie, L.D. et al. (2022). "Longer Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) participation duration is associated with higher diet quality at age 5 years." *The Journal of Nutrition*, 152(8), 1974–1982. doi: 10.1093/jn/nxac134.
8. Mabli, J., Ohls, J., Dragoset, L., Castner, L. and Santos, B. (2013). Measuring the Effect of Supplemental Nutrition Assistance Program (SNAP) Participation on Food Security. US Department of Agriculture, Food and Nutrition Service. doi: 10.22004/ag.econ.339046
9. Domfe, C.A., Arnold, C.D., Frongillo, E.A. et al. (2026). "Infant Diet Quality and Federal Nutrition Assistance Program Participation Predict Later Diet Quality in United States Children 2–5 Years Old." *The Journal of Nutrition*. DOI: 10.1016/j.tjnut.2026.101831.

study following mothers and their children from around birth to age 9. The analysis included 3,051 children, representing an estimated 413,211 children in the study's target population. All participants were enrolled in WIC at the time of recruitment.

We assessed infant diet quality using the Infant Diet Quality Index (IDQI), which measures 16 aspects of feeding during the first year of life. These include breastfeeding, the timing of introducing solid foods and other drinks, fruit and vegetable consumption, and feeding practices.

We measured later diet quality using the Healthy Eating Index-2020 (HEI-2020), based on caregiver reports of children's food and beverage consumption at ages 2, 3, 4, and 5. We also examined children's body mass index z-scores (BMIz), a measure of weight relative to age and sex.

Participation in WIC, SNAP, and Medicaid was assessed at several points between birth and age 5. Children were classified as having no, sporadic, or consistent participation, depending on the frequency of reported participation. We used statistical models to examine associations between participation and the outcomes, adjusting for a range of child, maternal, and household characteristics. We also assessed whether infant diet quality helped explain the observed associations.

Infant diet quality and nutrition-program participation associated with later diet quality

Children with consistent WIC participation had higher HEI-2020 total, adequacy (reflects consumption of recommended food groups), and moderation (reflects limited intake of food groups to consume in moderation) scores at ages 2–4 than children with sporadic participation. By age 5, however, these differences were no longer apparent. Infant diet quality did not explain the differences between the WIC participation groups to any substantial extent. WIC participation was also associated with weight status at age 2: children with sporadic participation had lower BMIz scores than those with consistent participation. This finding should be considered separately from the diet quality results; better diet quality was not necessarily associated with lower BMIz. Children in households with no SNAP participation had higher HEI-2020 total and adequacy scores at ages 2–5 than children in households with sporadic or consistent participation. Differences in moderation scores were also observed at several ages.

Infant diet quality helped explain some of these differences. Children with no SNAP participation had higher IDQI scores during infancy than children whose households participated in SNAP. Differences in infant diet quality accounted for up to 23 percent of the differences in overall HEI-2020 scores, 30 percent of differences in adequacy scores, and 15 percent of differences in moderation scores. These results point to the importance of understanding children's diet quality at the time of program entry, and to the potential value of additional support during infancy.

There were few consistent associations between SNAP participation and weight status. At age 4, children with sporadic participation had higher BMIz scores than those with no or consistent participation. We found no consistent associations between Medicaid participation and children's diet quality or weight status between ages 2 and 5.

Integrate infant nutrition education and support across assistance programs

Our findings suggest that infant diet quality is an important consideration when seeking to improve children's later nutrition. The associations between SNAP participation, poorer infant diet quality, and lower subsequent diet quality highlight the first year of life as a potential opportunity for targeted support.

Nutrition services and caregiver education during infancy, particularly for families participating in SNAP, may help improve later dietary outcomes. Our findings also reinforce the importance of WIC and suggest value in better integration among WIC, SNAP, and Medicaid, with greater emphasis on nutrition education during the first year of life.

Christabel A. Domfe *is a PhD candidate in the Department of Nutrition at UC Davis.*

Charles D. Arnold *is a senior statistician at the Institute for Global Nutrition at UC Davis.*

Edward A. Frongillo *a professor in the Department of Health Promotion, Education, and Behavior at the University of South Carolina.*

Lorrene D. Ritchie *is a cooperative extension nutrition specialist emeritus at UC Agriculture and Natural Resources.*

Shannon E. Whaley *is director of research and evaluation at PHFE WIC.*

Marianne P. Bitler *is a professor of economics at UC Davis.*

Lauren E. Au *is an associate professor in the Department of Nutrition at UC Davis.*

> "The associations between SNAP participation, poorer infant diet quality, and lower subsequent diet quality highlight the first year of life as a potential opportunity for targeted support."

About the Center

The UC Davis Center for Poverty & Inequality Research mission is to facilitate non-partisan academic research on poverty and economic inequality in the U.S., to disseminate this research, and to train the next generation of poverty scholars. Our research agenda spans four themed areas of focus:

- Labor Markets and Poverty
- Children and the Intergenerational Transmission of Poverty
- The Non-traditional Safety Net, focusing on health and education
- The Relationship Between Poverty and Immigration

poverty.ucdavis.edu

Center for Poverty & Inequality Research
University of California, Davis
1 Shields Ave | Davis, CA 95616
(530) 752-0401