



2023 WOMEN, INFANTS AND CHILDREN (WIC) SPECIAL COLLECTION



Healthy
Eating
Research

About the 2023 NOPREN HER WIC Special Collection

The WIC program currently serves over 6 million women, infants, and children by providing access to nutritious foods, breastfeeding support, nutrition education, and referrals to health care and other social services. The benefits of participating in WIC are well documented: improved nutrition and health outcomes, savings in healthcare costs, and improved infant feeding practices.

Healthy Eating Research (HER), a national program of the Robert Wood Johnson Foundation, is committed to advancing nutrition and health equity by supporting and disseminating research on policy, systems, and environmental strategies that promote healthy eating among children and families. Among the research funded by HER to date, over 80 studies focus on WIC. HER recognizes the importance of WIC and the significant positive impact it has on children and their families.

The Nutrition and Obesity Policy Research and Evaluation Network (NOPREN), funded by CDC's Division of Nutrition, Physical Activity, and Obesity, is a collaborative network that informs policies and practices designed to support the equitable intake of healthy, nutritious foods so that everyone has a fair chance at health. NOPREN has been proud to partner with HER to advance the study of implementation of WIC best practices.

This special collection is a result of the strong NOPREN and HER partnership. It includes five important WIC studies from 2023. The study topics include assessments of diet quality measures, WIC benefit redemptions and their implications, program implementation, and participant experiences. The selected studies fill research gaps and present opportunities to inform policy and practice.



1. AN EVALUATION OF THE IMPLEMENTATION OF THE WOMEN, INFANTS, AND CHILDREN (WIC) FARMERS MARKET NUTRITION PROGRAM AT FOUR CHICAGO WIC SITES

Jacobs, J., Holcomb, J., Margellos-Anast, H., Martinez, L., & San Miguel, C. (2023). An Evaluation of the Implementation of the Women, Infants, and Children (WIC) Farmers Market Nutrition Program at Four Chicago WIC Sites. *Nutrients*, 15(5), 1122. <https://doi.org/10.3390/nu15051122>

Abstract:

The Farmers Market Nutrition Program (FMNP), a program of the U.S. Department of Agriculture (USDA), provides coupons to individuals/families enrolled in the Special Supplemental Nutrition program for Women, Infants, and Children (WIC) to purchase fresh produce from approved farmers markets. While some studies suggest FMNP may improve nutrition for WIC clients, there is limited research on program implementation in practice. A mixed-methods equitable evaluation framework was utilized to: (1) better understand the FMNP in practice at four WIC clinics on Chicago's west and southwest sides that serve predominately Black and Latinx families; (2) detail facilitators and barriers to participation in the FMNP; and (3) describe the potential impact on nutrition. In this manuscript, we present qualitative findings from Aim 1. We identified six steps for how the FMNP has been implemented in our study setting and opportunities to improve the implementation of the program. Findings suggest that well-defined and consistent guidelines on: (1) how to seek state approval for farmers markets; and (2) coupon distribution and redemption, are necessary to optimize utilization. Future research should explore the impact of newly offered electronic coupons on redemption rates and fresh fruit and vegetable purchasing behaviors.

2. INCREASED WIC CASH VALUE BENEFIT IS ASSOCIATED WITH GREATER AMOUNT AND DIVERSITY OF REDEEMED FRUITS AND VEGETABLES AMONG PARTICIPATING HOUSEHOLDS

Anderson, C., Au, L. E., Martinez, C., Ritchie, L. D., Tsai, M., & Whaley, S. E. (2023). Increased WIC Cash Value Benefit is Associated with Greater Amount and Diversity of Redeemed Fruits and Vegetables among Participating Households. *Current Developments in Nutrition*, 7(9), 101986–101986. <https://doi.org/10.1016/j.cdnut.2023.101986>

Abstract:

Background

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) food packages for children ages 1 to 4 y include a cash value benefit (CVB) redeemable for fruits and vegetables (FVs) with participating vendors. The CVB value was increased beginning in June 2021.

Objectives

This study evaluated associations of the augmented CVB with the amount and diversity of redeemed FVs.

Methods

Price look-up codes (PLUs) in redemption data determined outcomes including any redemption (any, none), amount redeemed (United States dollars [USD]/mo), and percent of total CVB redemption (percent) in 54 FV commodity groups among a cohort of 1770 WIC-participating children in Southern California. Outcomes across all commodity groups for fresh fruits, fresh vegetables, and all FVs were evaluated including dollar amount redeemed, percentage of redemption, and diversity of produce redeemed (variety and balance among items redeemed). Comparisons were made between augmented CVB periods (35 USD/mo in June–September 2021, 24 USD/mo October 2021–June 2022) and the preaugmentation period (9 USD/mo in June 2020–May 2021). Associations were tested in multivariable generalized estimating equation Poisson (any redemption) and linear (amount, percent, diversity) regression models.

Results

The augmented CVB was associated with higher any redemption prevalence and amount redeemed for 53 of 54 commodity groups at both 35 USD/mo and 24 USD/mo compared with 9 USD/mo. Redemption diversity increased for both fruits, vegetables, and all produce during both augment periods, and modestly greater increases in redeemed fruits relative to vegetables were observed at 35 USD/mo. The most commonly redeemed vegetables were tomatoes, onions, cucumbers, peppers, and avocados and the most commonly redeemed fruits were bananas, apples, grapes, limes, and melons.

Conclusions

The augmented CVB was associated with greater redeemed FV amount and greater redeemed FV diversity. Data on FV intake diversity among WIC-participating children are needed to understand dietary impacts of the CVB increase.

3. LOWER REDEMPTION OF MONTHLY SPECIAL SUPPLEMENTAL NUTRITION PROGRAM FOR WOMEN, INFANTS AND CHILDREN BENEFITS ASSOCIATED WITH HIGHER RISK OF PROGRAM DISCONTINUATION

Anderson, C. E., Yezpe, C. E., & Whaley, S. E. (2023). Lower redemption of monthly Special Supplemental Nutrition Program for Women, Infants and Children benefits associated with higher risk of program discontinuation. *Public Health Nutrition*, 26(12), 3041–3050. <https://doi.org/10.1017/s136898002300201x>

Abstract:

Objective:

To determine whether Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) food benefit redemption is associated with discontinuing WIC participation, failure to recertify, overall and by race/ethnicity-language preference and participant category.

Design:

Retrospective cohort study, using multivariable modified Poisson regression to determine risk ratios (RR) and 95 % CI for associations between household-level food benefit redemption (interval-scaled benefit redemption percent, averaged across WIC benefit subcategories, for the final 3, 6 and 12 months of certification) and failure to recertify in WIC, overall and within strata of race/ethnicity-language preference and participant category.

Setting:

WIC administrative data collected November 2019–July 2021 in Southern California.

Participants:

WIC-participating children ages 0–3 years at initial certification from November 2019 to May 2020 (n 41 263).

Results:

In all time periods, and for all subgroups, every 10 % lower food benefit redemption was associated with increased risk of failure to recertify. Among households without missing food benefit data, failure to recertify risk peaked at 505 % higher (RR = 6.05, 95 % CI (5.63, 6.51)) in households with average 12-month redemption <10 % compared with households with ≥70 % redemption.

Conclusions:

Lower WIC benefit redemption was associated with higher risk of failing to recertify among participants. Focused nutrition education around benefit redemption may improve WIC retention and child health through incremental increases in food benefit redemption.

4. PANDEMIC-ERA WIC PARTICIPATION IN WILMINGTON, DELAWARE: PARTICIPANTS' EXPERIENCES AND CHALLENGES

Halverson, M. M., & Karpyn, A. (2023). Pandemic-Era WIC Participation in Wilmington, Delaware: Participants' Experiences and Challenges. *Nutrients*, 15(3), 520–520. <https://doi.org/10.3390/nu15030520>

Abstract:

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) participants faced unprecedented challenges during the coronavirus disease 2019 (COVID-19) pandemic including financial concerns, a national infant formula shortage, and rising food costs. To mitigate these challenges, the United States Department of Agriculture implemented WIC program waivers and flexibilities aiming to simplify program operations (e.g., remote appointments and food package substitutions). However, little is known about WIC participants' perceptions of these changes and their impact on in-store benefit redemption. As such, this study aimed to characterize how pandemic-related events impacted Delaware WIC participants' shopping experiences and program perceptions. The authors conducted semi-structured interviews with 51 WIC participants in Wilmington, Delaware. Survey measures included demographic questions, the Hunger Vital Sign, and open-ended questions regarding WIC program participation experiences during the pandemic. Data were analyzed using a hybrid inductive and deductive coding approach. The results demonstrate that WIC participants benefitted from the pandemic program's flexibilities. However, they continued to experience burdensome shopping trips as well as concerns about their ability to feed their families due to infant formula shortages and inflation. These findings indicate the importance of extending existing WIC flexibilities and providing continued support for both participants and WIC-authorized retailers.

5. SOCIAL SUPPORT AND BREASTFEEDING OUTCOMES AMONG A RACIALLY AND ETHNICALLY DIVERSE POPULATION

Lyons, G. C., Kay, M. C., Duke, N. N., Bian, A., Schildcrout, J. S., Perrin, E. M., Rothman, R. L., Yin, H. S., Sanders, L. M., Flower, K. B., Delamater, A. M., & Heerman, W. J. (2023). Social Support and Breastfeeding Outcomes Among a Racially and Ethnically Diverse Population. *American Journal of Preventive Medicine*, 64(3), 352–360. <https://doi.org/10.1016/j.amepre.2022.10.002>

Abstract:

Introduction:

Social support is a modifiable social determinant of health that shapes breastfeeding outcomes and may contribute to racial and ethnic breastfeeding disparities. This study characterizes the relationship between social support and early breastfeeding.

Methods:

This is a cross-sectional analysis of baseline data collected in 2019–2021 for an RCT. Social support was measured using the ENRICH Social Support Instrument (ESSI). Outcomes, collected via self-report, included (1) early breastfeeding within the first 21 days of life (2) planned breastfeeding duration, and (3) confidence in meeting breastfeeding goal. Each outcome was modeled using proportional odds regression, adjusting for covariates. Analysis was conducted in 2021–2022.

Results:

Self-reported race and ethnicity among 883 mothers was: 50% Hispanic, 17% Black, 23% White, and 10% other. A large proportion (88%) of mothers were breastfeeding. Most breastfeeding mothers (82%) planned to breastfeed for at least 6 months, with over half (58%) planning to continue for 12 months or more. Most women (65%) were “confident” or “very confident” in meeting their breastfeeding duration goal. In adjusted models, perceived social support was associated with planned breastfeeding duration ($p=0.042$), but not with early breastfeeding ($p=0.873$) or confidence in meeting breastfeeding goal ($p=0.427$). Among the covariates, maternal depressive symptoms were associated with lower breastfeeding confidence ($p<0.001$).

Conclusions:

The associations between perceived social support and breastfeeding outcomes are nuanced. In this sample of racially and ethnically diverse mothers, social support was associated with longer planned breastfeeding duration but not with early breastfeeding or breastfeeding confidence.

HER

Healthy Eating Research is a national program of the Robert Wood Johnson Foundation (RWJF) and supports research on policy, systems, and environmental (PSE) strategies that have strong potential to promote healthy eating among children, especially lower-income and racially and ethnically diverse population groups that are at highest risk for poor health and well-being and nutrition-related health disparities.

NOPREN

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