

Evaluating Los Angeles County's SNAP-Ed Program: A Multi-Method Assessment

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About This Report

This report presents findings from a comprehensive evaluation of Los Angeles County Department of Public Health's Supplemental Nutrition Assistance Program Education (SNAP-Ed), known locally as CalFresh Healthy Living (CFHL). SNAP-Ed is a federally funded nutrition education and obesity prevention program that aims to improve dietary behaviors, food security, and physical activity among individuals and households living at or below 200% of the Federal Poverty Level. The program provides free produce distribution, interactive nutrition education classes, cooking demonstrations, and physical activity opportunities in community settings such as schools, clinics, and community centers, complementing the financial assistance provided by Supplemental Nutrition Assistance Program food benefits. A SNAP-Ed participant is someone who is currently participating in SNAP-Ed programming – specifically attending nutrition education sessions, produce distributions, or other SNAP-Ed activities. SNAP-Ed primarily targets individuals and families who are eligible for or currently receiving SNAP benefits. It also extends to those with low incomes who meet the criteria for other means-tested federal assistance programs. The evaluation addresses questions about the effectiveness and implementation of nutrition education programs serving low-income communities that experience high rates of food insecurity and diet-related chronic diseases. This report is designed for policymakers, public health administrators, SNAP-Ed program managers, community organizations, and other stakeholders interested in nutrition education and food security interventions in Los Angeles County.

From 2024 to 2025, we employed a multi-method approach to evaluate the implementation

of SNAP-Ed across various settings in Los Angeles County, focusing on three of its components: free produce distribution, adult nutrition education sessions in community settings and the Coordinated Approach to Child Health (CATCH) curricula in early childhood and K-12 schools.

First, we conducted a survey of 3,095 adults during the fall and winter of 2024. We restricted the sample to 2,742 (89%) who were SNAP-Ed eligible based on income and household size to address confounding. Then we identified 1,577 SNAP-Ed participants (defined as individuals who were recruited at a SNAP-Ed site) and 168 non-participants (defined as those those who were recruited from non-SNAP-Ed sites and who had never participated in SNAP-Ed programming). In a sensitivity analysis, an additional 1,351 were excluded from the analysis due to infrequent utilization of SNAP-Ed services (e.g., attending fewer than one session in the past 12 months).

Four-to-seven months after the baseline survey, all participants who provided contact information at baseline were sent a follow-up survey, and 411 responded. To understand whether SNAP-Ed services were associated with changes in outcomes, we limited our pre-post analysis to 36 individuals who had never engaged in SNAP-Ed at the time of the baseline survey. Among these, 13 actively participated in SNAP-Ed services during the four-to-seven-month follow-up period, while 23 served as controls.

Next, we elicited in-depth interviews with 26 adult SNAP-Ed participants exploring what helps and hinders participation in nutrition education classes and positive behavioral change. Finally, we held focus groups and interviews with 19 educators to

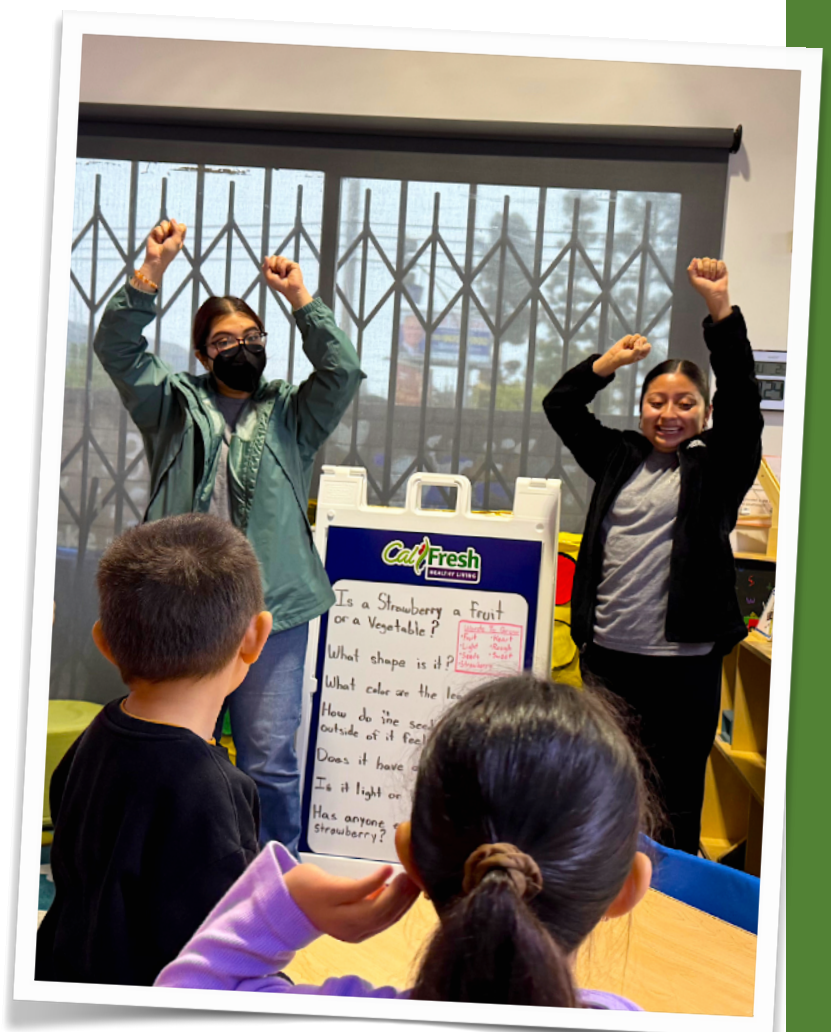
understand implementation of CATCH in early childhood and K-12 settings.

At the time of recruitment, survey data showed that 88% of SNAP-Ed participants reported household food insecurity, compared to 81% of non-participants. SNAP-Ed participants reported consuming fewer unhealthy foods (such as fried potatoes, sugar-sweetened beverages, fast food, and sweets) than non-participants. At baseline, among the 23 SNAP-Ed participants who reported being new to the program and 13 non-participants who reported never attending a program, there were no differences in changes in dietary behaviors, physical activity, food and nutrition security, nutrition assistance program use, and body mass index (BMI) between those who participated in SNAP-Ed services in the intervening months and those who did not.

Qualitative findings identified key barriers to SNAP-Ed access including transportation challenges, scheduling conflicts with work, inadequate translation services, and lack of childcare during classes. The Los Angeles County Department of Public Health SNAP-Ed program model included providing nutrition education classes with or without interactive cooking demonstrations and/or with a physical activity component, free, fresh produce distributions, and other culturally relevant programming. The evaluation findings indicate that SNAP-Ed programs in Los Angeles County face external implementation challenges that may limit their effectiveness in creating sustained dietary behavior change. While we observed some positive associations, the mixed results suggest that current program delivery methods and intensity may be insufficient to address the complex needs of

participants experiencing high rates of food insecurity and chronic disease.

As SNAP-Ed programming concludes in FY 2025, the report identifies specific operational modifications that remain relevant for similarly structured programs regardless of funding source. These include expanding evening and weekend class offerings, establishing quality standards for translation services, systematically integrating produce distribution with nutrition education sessions, developing online training modules to address staff turnover, piloting transportation vouchers in low-walkability areas, partnering with community organizations for childcare during classes, and implementing regular participant feedback mechanisms to monitor program quality.



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Key Findings

- Participants who were already engaged with the SNAP-Education program at the time of recruitment reported lower consumption of unhealthy foods compared to non-participants. However, among those who had not used SNAP-Education services at baseline, there were no differences in dietary behaviors, physical activity, food and nutrition security, nutrition assistance program use, and BMI between those who did and did not use SNAP-Education services at the four- to seven-month follow-up.
- Transportation barriers, work schedule conflicts, poor-quality translation services, and lack of childcare prevented many eligible individuals from attending nutrition education classes, despite strategic placement in community locations.
- Interactive cooking demonstrations, free, fresh produce distribution coupled with nutrition education, culturally relevant content, and physical activity integration were identified as the most liked program components by participants.
- During the previous year, less than half of SNAP-Education participants (43%) at baseline said that they utilized free produce pick-up services, 20% attended a nutrition class, 6% participated in a physical activity class, while 27% reported no participation in any SNAP-Education activities.
- During the previous year, less than a third (28%) of SNAP-Education participants said they attended program activities at least once a month.
- The Coordinated Approach to Child Health (CATCH) curricula implementation in early childhood education and K-12 schools faced challenges including high staff turnover, limited facilities for food demonstration, inadequate cultural representation in materials, and low parental engagement with flyers and other content.
- The absence of change in dietary behaviors after four to seven months of SNAP-Education services warrants further investigation. This could be a function of our small sample size, that participants had not participated in enough SNAP-Education services after four to seven months to result in meaningful change, or that the services themselves were not effective.
- Operational improvements could enhance program effectiveness: expanding evening/ weekend hours, ensuring professional translation services, integrating free, fresh produce distribution with all education sessions, developing asynchronous staff training modules, providing transportation vouchers in low-walkability areas, and establishing childcare partnerships.



1. Introduction

The United States faces significant public health challenges as approximately 60% of American adults are living with diet-related chronic diseases, such as heart disease, type 2 diabetes, and obesity (CDC, 2024a; Hacker, 2024). These conditions continue to disproportionately affect low-income communities (Juckett, 2017; Mozaffarian et al., 2016), where limited access to nutritious food creates cycles of poor dietary quality and increased chronic disease risk (Berkowitz et al., 2013). For instance, diabetes prevalence is nearly twice as high (19%) among individuals with less than a high school education (a socioeconomic indicator) compared to those with more than a high school diploma (11%) (CDC, 2024b).

These health disparities are particularly pronounced in Los Angeles County, where communities with the highest rates of diabetes and cardiovascular disease also experience the greatest food access challenges (Cleveland et al., 2023). In October 2024, 25% of all households in the county (approximately 832,000) experienced food insecurity (i.e., lacking reliable access to sufficient food), with rates reaching 41% among low-income residents (de la Haye et al., 2024). Over one-third of Black and Latino adults reported their households had food insecurity. Nutrition security describes the state in which individuals and households have consistent and reliable access to affordable, nutritious, and culturally appropriate food that meets their dietary needs and promotes their health and well-being (Perez-Escamilla, 2024). Nutritional insecurity (i.e., lacking access to foods that promote health and well-being) was substantially higher among Asian residents and those below 100% of the federal poverty line (de la Haye et al., 2024; LACDPH, 2024).

Los Angeles County (LA County) with nearly 10 million residents (Census, 2024) encompassing significant demographic diversity—including large Latino, Asian, African American, and immigrant communities—faces complex intersections of economic constraints, cultural dietary practices, and varying access to nutritious foods across different neighborhoods (LACDPH, 2024). Areas identified as ‘food deserts’ – characterized by limited access to fresh produce and grocery stores – are predominantly located in South Los Angeles, East Los Angeles, Antelope Valley, and portions of the San Fernando Valley (de la Haye et al., 2023; Palimaru et al., 2023). A quarter of residents of LA County live in a food desert (de la Haye et al., 2021). Addressing demographic and nutrition-related health disparities requires targeted interventions that combine individual nutrition education with improvements in food retail infrastructure, culturally relevant food access programs, and affordable transportation options (Dubowitz et al., 2015). However, prior work identified that dietary behavior changes can be influenced by factors beyond proximity to sources of healthy food (Ghosh-Dastidar et al., 2017) and full-service supermarkets offer a wide array of nutrient-poor energy-dense processed foods and beverages (Ravandi et al., 2025).



While public health officials and policymakers are increasingly interested in restricting SNAP purchases to improve dietary quality and intake, this approach has met significant resistance (Todd & Ver Ploeg, 2015). Current debates include the feasibility and burden of SNAP restrictions for retailers, impacts on SNAP participants, such as increased stigmatization and confusion about eligible purchases, and whether such a policy measure would be effective in altering food purchases and dietary behaviors. Indeed, very little evidence exists that supports the idea that SNAP restrictions would improve dietary quality (Krobath et al., 2025). Rigorous evaluation of such an effort is difficult because SNAP participants self-select into the program largely because they are experiencing a greater burden of food insecurity (Nord & Golla, 2009), although the evidence supporting this hypothesis is mixed (Acciai et al., 2024). However, a randomized experimental trial found no evidence that restricting food purchases would improve participant nutrition, even with a fruit and vegetable incentive (Harnack et al., 2024).

The Supplemental Nutrition Assistance Program Education (SNAP-Ed), known in California as CalFresh Healthy Living (CFHL), represents a federal investment in addressing demographic and nutrition-related health disparities through comprehensive nutrition education and obesity prevention interventions that complement the financial assistance provided by SNAP food benefits to eligible households (Puma et al., 2021). Funded by the United States Department of Agriculture and often administered through state agencies, SNAP-Ed aims to improve dietary behaviors, food security, and physical activity among individuals and households living at or below 200% of the federal poverty level (CDSS, 2025; Ryan-Ibarra et al., 2020).

Receipt of SNAP food benefits is not required to participate in SNAP-Ed programs (USDA, 2024b, p. 7), but SNAP-Ed sites are usually located in communities where at least half the population is low-income.

Delivered in community settings, SNAP-Ed programs offer interactive learning experiences tailored to participants' needs (USDA, 2024a), such as cooking demonstrations (Savoie et al., 2015), meal planning workshops (Jomaa et al., 2020), lessons on purchasing nutritious food on a limited budget (Adedokun et al., 2018), and instruction on reading food labels (Eicher-Miller et al., 2020; Pratt et al., 2019; Russell-Fritch et al., 2020). Additionally, SNAP-Ed promotes physical activity through exercise classes and family engagement (Adedokun et al., 2018; Buscemi et al., 2019), and implements policy, systems, and environmental change strategies (PSEs) to address social drivers of health (Galuska et al., 2024). Figure 1 highlights key aspects of the LA County program as it was evaluated in this study, noting that the full scope includes strategies that were not evaluated here, such as screening for food insecurity in healthcare settings.

Multi-level interventions addressing individual knowledge, skills, and environmental barriers have demonstrated success, though results vary considerably across populations and settings (Molitor et al., 2020; Qin et al., 2023; Verghese et al., 2019). While studies demonstrate immediate improvements in nutrition-related behaviors, such as increased fruit and vegetable consumption and enhanced food resource management skills (Atoloye et al., 2021; Savoie et al., 2015; Verghese et al., 2019), maintaining these changes over time has proven challenging (Atoloye et al., 2021).

Educational settings, including early childhood education and K-12 schools, have been a priority for

SNAP-Ed, given the promise of establishing healthy behaviors early in life (Oettgen et al., 2019). In LA County, SNAP-Ed-funded strategies are multifaceted, ranging from improving access to fresh foods through free produce distribution, improving water access in schools, conducting nutrition education classes with students and their caregivers, and implementing the Coordinated Approach to Child Health (CATCH). The CATCH Early Childhood (ECE) program for ages 3-5 (Chuang et al., 2018; Samuel-Hodge et al., 2023), and CATCH Kids Club (CKC) for K-12 students (Kelder et al., 2005; Sharpe et al., 2011) integrate nutrition education, physical activity, and family engagement components. These structured interventions provide educators with tools to foster healthy behaviors within classrooms while addressing the unique needs of low-income, ethnically diverse student populations (Coleman et al., 2005; Sharma et al., 2013). The CATCH curricula have demonstrated improvements in dietary knowledge, food preferences, and physical activity levels among children (Dzewaltowski et al., 2010; Sharma et al., 2013; Slusser et al., 2013). However, barriers such as managing children’s moods and picky eating habits, insufficient parental involvement which limits reinforcement of healthy behaviors at home, and resource and infrastructure constraints often hinder the effective implementation of these programs (Brooks et al., 2024; Hammerschmidt et al., 2011).

While previous research has documented short-term improvements in nutrition knowledge and attitudes following SNAP-Ed participation, it often did not capture the nuanced mechanisms driving behavior change or the contextual factors that enable or constrain program effectiveness (Atoloye et al., 2021; Caldwell et al., 2021; Garcia et al., 2022; Tobey et al., 2019; Wong et al., 2022).

Existing research inadequately addresses cultural responsiveness, with many studies treating diverse populations as monolithic groups rather than examining how program effectiveness varies across cultural and organizational contexts (Fuller et al., 2019; Villegas et al., 2020).

This evaluation explores these gaps through a multi-method assessment of SNAP-Ed implementation in LA County, based on the following research questions:

- To what extent is SNAP-Ed participation associated with changes in dietary behaviors, physical activity, food and nutrition security, nutrition assistance program use, and BMI?
- What implementation factors help or hinder effective program delivery at nutrition education sites and in early childhood education and school settings?



Figure 1. Select SNAP-Ed Program Implementation Attributes of Current Evaluation Study

SNAP-Ed/CalFresh Healthy Living (CFHL) in Los Angeles County: Program Overview

Program Reach and Structure

Partner Organizations: 15 CFHL partner organizations across 5 categories:

- K-12 schools
- Early childhood education centers
- Food pantries
- Healthcare clinics
- Nutrition education partners

Geographic Coverage:

Programs distributed across Los Angeles County's diverse communities

Target Population:

Individuals and families at or below 200% of federal poverty level

Nutrition Education Approach

Trauma-Informed Philosophy: CFHL educators use a non-judgmental approach that:

- Avoids classifying foods as "good" or "bad"
- Does not use terms like "junk food"
- Respects participants' food choices and cultural preferences

Core Messages:

- Focus on obtaining nutrients through the 5 food groups
- Emphasize balance and variety for health
- Encourage limiting foods high in added sugars, sodium, and saturated fats
- Promote MyPlate guidelines without demonizing any foods

Program Components

Adult Education:

- Interactive cooking demonstrations
- Nutrition label reading
- Budget-friendly shopping strategies
- Physical activity integration (Zumba, exercise classes)
- Fresh produce distribution with recipes

Youth Programs:

- Coordinated Approach to Child Health (CATCH) Early Childhood (ages 3-5)
- CATCH Kids Club (K-12) after-school programming

CATCH Implementation Features

CATCH Early Childhood (ECE):

- Age-appropriate nutrition activities for preschoolers
- Movement and physical activity games
- Parent engagement components
- Visual learning materials

CATCH Kids Club (CKC):

- Structured weekly sessions
- Hands-on food preparation activities
- Physical activity through games and sports
- Take-home materials for family engagement
- Adaptable curriculum for diverse age groups

Unique Program Elements

- **Cultural Responsiveness:** Programs adapted for Los Angeles County's diverse Latino, Asian, African American, Armenian, Russian, and other communities
- **Language Access:** Classes offered in English and Spanish with interpretation services
- **Community Integration:** Programs embedded in existing community settings where families already gather
- **Holistic Approach:** Combines nutrition education with physical activity and community resources

Key Implementation Principles

- Meet participants where they are without judgment
- Build on existing cultural food traditions
- Provide practical skills for real-life application
- Create supportive learning environments
- Connect education to available resources and benefits



2. Methods

2.1. Overall Study Design

We conducted a multi-method program evaluation from May 2024 to April 2025, employing both quantitative and qualitative approaches to assess SNAP-Ed effectiveness and implementation. The SNAP-Ed program in California is referred to locally as CalFresh Healthy Living (CFHL). All methods and materials were approved by RAND's Human Subjects Protection Committee and were designed to provide a comprehensive understanding of SNAP-Ed's impact and areas for improvement. Below we provide an overview of each method. See Appendix A for additional methodological details.

2.2. Quantitative Data Collection

We conducted a survey of 3,095 adults between September and December of 2024 that included an intervention sample of 1,717 respondents from SNAP-Ed free produce distributions. The SNAP-Ed produce distributions were held at 13 SNAP-Ed partner organization sites, which included two parks, four healthcare clinics, three food pantries, and three community centers. Additionally, a comparison sample of 1,378 respondents was recruited from 21 local food bank and social service organization events that did not receive SNAP-Ed funding, located at four parks, two healthcare clinics, two food pantries, seven community centers, three churches, and three libraries, all located in matched ZIP Codes to SNAP-Ed funded sites. Individuals were eligible to complete the survey if they were aged 18 years or older, lived within Los Angeles County, and spoke either Spanish or English. Both the baseline and

follow-up surveys were available in English and Spanish and participants received \$10 compensation for each survey.

The baseline survey was conducted by staff from the RAND Survey Research Group (SRG). To maintain data integrity, SRG adhered to a strict recruitment protocol, ensuring that SNAP-Ed program staff did not have access to participant responses. SRG also addressed any participant questions in a manner that did not influence their answers. Participants received printed copies of the consent form and survey, which they completed independently. The survey took approximately 15-20 minutes to complete.

Of the 3,095 adults who completed the survey, 1,717 were recruited from SNAP-Ed sites during SNAP-Ed produce distributions, while 1,378 individuals were recruited from non-SNAP-Ed sites. Our intention was to create an intervention group from the SNAP-Ed sites and a control group from the non-SNAP-Ed funded community sites. However, at baseline, individuals from both types of recruitment sites included those who reported having previously participated in SNAP-Ed programming (e.g., adult education programming, free produce distributions, etc.), and those who had not.

We restricted the sample to 2,742 (89%) who were SNAP-Ed eligible based on income (i.e., <200% of the Federal Poverty Level) and household size to address confounding. Then we identified 1,577 SNAP-Ed participants (those who were recruited at a SNAP-Ed site) and 168 non-participants (defined as those who were recruited from non-SNAP-Ed sites of who had never used SNAP-Ed programming) among all survey respondents. In a sensitivity analysis, we excluded 1,350 individuals from the analysis due to infrequent utilization of SNAP-Ed

services (e.g., fewer than one session in the past 12 months).

In April 2025, participants who provided their phone number or email address at the time of the baseline survey were invited to participate in a follow-up survey. These included 2,184 survey respondents (1,202 SNAP-Ed participants and 982 recruited from non-SNAP-Ed sites). This survey was administered online by SRG, with participants notified of the survey link via email and/or text messages. The reference period for the follow-up varied between four months (for those who completed the baseline survey in December) and seven months (for those who filled out the baseline in September). Of the 2,184 participants invited, 411 responded. For our analysis to focus on understanding whether SNAP-Ed services were associated with changes in outcomes, we limited our pre-post analysis to the 36 individuals who had never engaged in SNAP-Ed at the time of the baseline survey. Among these, 13 actively engaged in SNAP-Ed services during the four-to-seven-month follow-up period, while 23 served as controls.

Table A1 in Appendix A summarizes the domains and survey items in both the baseline and follow-up surveys. The 40-question baseline survey aimed to elicit a comprehensive profile of participants' characteristics, health behaviors, socioeconomic circumstances, and program engagement. Specifically, it captured demographic data, SNAP-Ed (i.e., CalFresh Healthy Living) program awareness and participation, physical activity levels, detailed dietary intake patterns over the past week using the Dietary Screener from the 2009 California Health Interview Survey (NCI, 2019) (including fruits, vegetables, fried foods, sugar-sweetened beverages (SSB) sweets, and fast food consumption), tobacco and e-cigarette use, chronic

health conditions, nutrition security (Mozaffarian, 2023), the Hunger Vital Sign food insecurity measure that has been validated against the US Department of Agriculture 18-item Household Food Security Survey measure (Hager et al., 2010), and self-reported height and weight for BMI calculation. Our team reviewed cases with extreme values for height (<2' 8" or greater than 6'), weight (<50 lbs or >500 lbs), and BMI (<10 kg/m² or > 50 kg/m²) and set the values to missing if we deemed them invalid based on what is humanly possible (Hillson, 2020) and population-level anthropometric distributions (Census, 2011). The survey also assessed neighborhood food access, participation in various government assistance programs, and perspectives on potential SNAP benefit increases.

We used previously developed scoring algorithms to categorize survey respondents' reported fruit and vegetable intake according to whether they met the recommended amounts of 5 or more servings per day (NCI, 2019). The prediction algorithm has been previously reported, but briefly, after removing extreme values, reported intakes were converted to servings per day based on age and gender (Moore et al., 2015). In the cases where survey respondents reported a gender other than male or female, we randomly assigned their gender. We categorized SSB, fried potato, sweets, and fast-food intakes into tertiles of times per week.

2.3. Quantitative Data Analysis and Limitations

The intent of our design was to recruit SNAP-Ed participants from SNAP-Ed sites and non-participants from sites that were not funded by SNAP-Ed. However, we found that survey respondents reported participating and not

participating in SNAP-Ed programs at both types of sites. While the number of those recruited from SNAP-Ed produce distributions reporting never attending was relatively low (n=24, 2.4%) this suggests that participants were unclear that the produce distribution they were participating in was associated with SNAP-Ed. Therefore, we used recruitment site and self-reported frequency of participating in a SNAP-Ed program to distinguish participants from non-participants. We classified “participants” as those recruited from SNAP-Ed sites and “non-participants” as those who were recruited from non-SNAP-Ed sites and who reported never participating in SNAP-Ed programming. By further restricting the sample of SNAP-Ed participants and non-participants to those who were SNAP-Ed eligible (n=2,742, 89%) based on income and household size being 200% of the federal poverty line, no covariates need to be controlled for because ZIP Code and income are held constant by design (see Figure A1 in Appendix A for an example graph that guided our analyses) (Digitale et al., 2022). The sample included 1,577 SNAP-Ed participants and 168 non-participants.

It also appeared that follow-up survey respondents did not always recognize the produce distributions they attended as SNAP-Ed (i.e., CalFresh Healthy Living) programs. For example, 31% of the follow-up sample who were recruited from SNAP-Ed sites reported at follow-up that they had never attended CalFresh Healthy Living programming. Given that those who reported participating frequently were more likely to be engaged SNAP-Ed participants, in a sensitivity analysis, we categorized SNAP-Ed participants as those recruited from SNAP-Ed sites and who reported participating in CalFresh Healthy Living programming at least once per month in the past

year. This sample included 226 SNAP-Ed participants and 168 non-participants. To understand SNAP-Ed’s impact, we restricted the participant group in follow-up analyses to those who reported being new to the program at baseline (i.e., attending their first SNAP-Ed programming), which included 13 SNAP-Ed participants and 23 non-participants.

In baseline and follow-up analyses, we estimated prevalence differences for binary and categorical outcomes, and risk differences estimates for continuous variables (e.g., BMI). We used logistic regression models for binary outcomes, probit models for ordered categorical outcomes, and linear regression for continuous outcomes. To estimate prevalence differences, we used the Stata 19.5 command ‘adjrr’ for the binary and categorical outcomes and the ‘margins’ command following linear regression for continuous outcomes (StataCorp, College Station, TX). In follow-up analyses, models included baseline outcomes to account within-person change from baseline.

The analysis has several limitations that should be considered. First, the cross-sectional design means that baseline findings should be interpreted with caution since there is no long-term data. The follow-up period of four-to-seven months may not be enough to capture lasting changes, the sample size was extremely small, and multiple testing and inconsistent self-reports of height between the two time periods limits the ability to identify meaningful associations. In addition, our small follow-up sample precludes us from examining how participation in different SNAP-Ed programming may drive behavior change more than others. Additionally, health behaviors were self-reported, which can lead to inaccuracies due to recall and social desirability bias. This bias may be compounded in the follow-up analyses which are based on two sets of self-

reported data. We lacked objective height and weight measures from which we could have corrected for self-report bias in height and weight measures (Zhao et al., 2023). Important data, such as participants' pregnancy or breastfeeding status, was not collected, which might have affected dietary behaviors and BMI. In addition, there was some confusion about what programs were SNAP-Ed. Lastly, the study did not evaluate the quality or intensity of participants' experiences in the SNAP-Ed program.

2.4. Qualitative Data Collection

To address the second research question about what helps and hinders implementation of nutrition education across the SNAP-Ed partner organizations, we conducted in-depth semi-structured interviews with two groups: 1) SNAP-Ed program and school staff who implemented the CATCH (Coordinated Approach to Child Health) curricula in early childhood and K-12 settings, and 2) SNAP-Ed adults who participated in nutrition education sessions.

2.4.1. Qualitative Data Focused on Implementation in Early Childhood Education and K-12 Settings

In May-June 2024, our research team conducted three focus groups and six in-depth interviews, for a total sample of 19 educators and program implementers. Focus groups included early childhood education staff (associate teachers, teaching assistants) and SNAP-Ed program staff at partner agencies (coordinators, educators, managers). Individual interviews explored perspectives from school CATCH curriculum supervisors and after-school implementers in K-12 settings. Participants received \$20 compensation except for SNAP-Ed staff who were not remunerated per organizational policy.

The protocol, derived from the Consolidated Framework for Implementation Research (Damschroder et al., 2022), explored program activities, implementation strategies, challenges across different components (nutrition education, physical activity), cultural representation, parent involvement, and staff preparedness. Questions were tailored to interviewee roles while maintaining common themes across groups. Data collection occurred via a virtual platform (Zoom), with interviews lasting 30-45 minutes and focus groups ranging from 90 minutes to 2 hours.



2.4.2. Qualitative Data Focused on Implementation of Adult Nutrition Education

Between September and December 2024, RAND's SRG and a member of our research team, conducted 26 interviews using quota sampling to ensure representation across the five organizational categories of Los Angeles County SNAP-Ed partners: K-12 schools (n=6), food pantries (n=6), nutrition education partners (n=6), healthcare clinics (n=7), and early childhood education (n=1).

Participants were recruited through organizational contacts using flyers distributed via email and print. Interviews were conducted via Zoom, phone, or in-person after nutrition classes, lasting 30-45 minutes. The sample was predominantly female (88%) and Latina (73%), with ages ranging from 28-86 years. Sixteen interviews were conducted in English and ten in Spanish by trained interviewers with experience working with low-income populations.

The interview protocol explored attendance patterns, participation barriers and facilitators, experiences with specific program activities, behavioral influences, motivations, and recommendations for improvement. Questions addressed practical aspects like transportation and childcare needs, as well as deeper explorations of how classes influenced food-related behaviors and family practices.

2.5. Qualitative Data Analysis and Limitations

Across both sets of transcripts we employed thematic analysis (Braun & Clarke, 2006) using NVivo software (Lumivero, 2024), with deductive codes based on the Consolidated Framework for Implementation Research and inductive codes drawn from the data (Damschroder et al., 2022). Two coders achieved inter-rater reliability of 0.73 (Cohen's kappa) after co-coding three transcripts. The analysis included joint displays examining thematic variation by participant characteristics and recruitment site (Creswell, 2015).

The qualitative component has several limitations that impact the applicability of its findings. It involved a small number of participants from specific organizations, which affects how widely the findings can be applied. Those who chose to participate may differ significantly from those who didn't, which could skew the results. The reliance on personal experiences introduces subjectivity, which may lack the reliability of quantitative research. Additionally, for the adult participant interviews, differences in the timing of nutrition sessions may have influenced participants' recall accuracy. These factors underscore the need for caution in interpreting the study's results.



3. Findings

Below we describe our sample in more detail, followed by findings for each of the two research questions.

3.1. Survey Participant Characteristics, Food and Nutrition Security, Dietary Behaviors, Health Status, and Baseline Associations with SNAP-Ed Participation

Survey respondents were predominantly female and Latina, with relatively low income and low educational attainment (Table 1). In unadjusted baseline prevalence differences, SNAP-Ed participants were more likely to report consuming fewer SSBs than non-participants. For example, the unadjusted estimate suggests that 10 percent more SNAP-Ed participants reported consuming SSBs 0-4 times per week than non-participants (prevalence difference = 0.10, 95% confidence interval (CI): 0.04, 0.16). Similarly, SNAP-Ed participants reported consuming fewer sweets, fried potatoes, and less fast food per week than non-participants. SNAP-Ed participants were more likely to participate in non-SNAP nutrition assistance (e.g., food banks).

Seven percent more SNAP-Ed participants (88%) reported being food insecure than non-participants (81%). These rates far exceeded the national average of 13.5% of U.S. households (Rabbitt et al., 2024). However, our recruitment design targeted populations with socioeconomic disadvantage so it is not surprising to see high rates of food insecurity in this sample. Overall, only a third (32%) reported being nutritionally secure, i.e., having consistent access to enough healthy food to meet dietary needs, with no differences between SNAP-Ed participants and non-participants. Both

SNAP-Ed participants and non-participants reported having high BMI and concomitant diet-related chronic disease that are common in socioeconomically disadvantaged populations (Seligman et al., 2010). However, SNAP-Ed participants' BMI was higher by 2kg/m² than non-participants (prevalence difference = 2.07, 95% CI: 1.02, 3.12). The survey also showed that more SNAP-Ed participants (85%) used other nutrition assistance programs compared to those who didn't participate in SNAP-Ed (77%). Free produce distribution was the most common SNAP-Ed activity participants reported attending (43%).



Table 1

Separate Model Estimates of Prevalence and Risk Differences of Food and Nutrition Security, Dietary Behaviors, and Health Status Between SNAP-Ed Participants and Non-Participants at Baseline (September – December 2024), Among SNAP-Ed Eligible Participants

Outcomes	Non- participants n=168 N (%) or mean (SD)	Participants n=1577 N (%) or mean (SD)	Unadjusted Prevalence Difference or Linear Regression Coefficient (95% CI)	P-value
Fruit and vegetable intake (servings/day)				
<1	7 (4.3)	21 (1.4)	0.0002 (-0.01, 0.01)	0.97
1-<5	140 (85.4)	1390 (91.7)	0.004 (-0.02, 0.03)	0.97
5+	17 (10.4)	104 (6.9)	-0.0006 (-0.04, 0.03)	0.97
Total	164 (100)	1515 (100)		
Tertiles of SSB intake (times/week)				
0-4	53 (31.5)	575 (36.6)	0.10 (0.04, 0.16)	0.003
5-9	44 (26.2)	575 (36.6)	0.0007 (-0.008, 0.01)	0.88
10+	71 (42.3)	419 (26.7)	-0.10 (-0.17, -0.03)	<0.001
Total	168 (100)	1569 (100)		
Tertiles of fried potato intake (times/week)				
0-1	66 (39.5)	941 (61.2)	0.21 (0.13, 0.28)	<0.001
2	41 (24.6)	294 (19.1)	-0.03 (-0.04, -0.03)	<0.001
3+	60 (35.9)	303 (19.7)	-0.17 (-0.24, -0.11)	<0.001
Total	167 (100)	1538 (100)		
Tertiles of sweets intake (times/week)				
0-1	50 (29.8)	522 (33.7)	0.07 (0.01, 0.13)	0.03
2-4	55 (32.7)	612 (39.5)	0.0005 (-0.007, 0.008)	0.90
5+	63 (37.5)	414 (26.7)	-0.07 (-0.14, -0.009)	0.01
Total	168 (100)	1548 (100)		
Tertiles of fast-food intake (times/week)				
0	43 (26.2)	631 (41.1)	0.19 (0.14, 0.25)	<0.001
1-2	58 (35.4)	649 (42.3)	-0.02 (-0.03, -0.005)	0.009
3+	63 (38.4)	255 (16.6)	-0.17 (-0.24, -0.11)	<0.001
Total	164 (100)	1535 (100)		
Physical activity (days/week)				
Vigorous	2.6 (2.5)	2.3 (2.2)	-0.35 (-0.72, 0.02)	0.06
Moderate	3.2 (2.7)	2.6 (2.4)	-0.57 (-0.97, -0.17)	0.005
Food insecure				
No	31 (18.9)	185 (11.9)		
Yes	133 (81.1)	1375 (88.1)	0.07 (0.008, 0.13)	0.03
Total	164 (100)	1560 (100)		
Nutrition secure				
No	107 (64.5)	1056 (67.9)		
Yes	59 (35.5)	499 (32.1)	-0.03 (-0.11, 0.04)	0.38
Total	166 (100)	1555 (100)		
Supplemental Nutrition Assistance Program (SNAP) use				
No	97 (58.4)	962 (62.3)		
Yes	69 (41.6)	583 (37.7)	-0.04 (-0.12, 0.04)	0.34
Total	166 (100)	1545 (100)		
Non-SNAP Nutrition Assistance Program use[^]				
No	51 (30.5)	240 (15.3)		
Yes	116 (69.5)	1331 (84.7)	0.15 (0.08, 0.22)	<0.001
Total	167 (100)	1571 (100)		
Body mass index (kg/m²)	27.6 (5.5)	29.6 (6.3)	2.07 (1.02, 3.12)	<0.001

Covariates	Non- participants n=168 N (%) or mean (SD)	Participants n=1577 N (%) or mean (SD)	Unadjusted Prevalence Difference or Linear Regression Coefficient (95% CI)	P-value
Age – mean (SD)	51.9 (16.0)	54.3 (15.4)	2.41 (-0.07, 4.88)	0.06
Gender				
Female	81 (49.4)	1171 (75.2)	0.26 (0.18, 0.34)	<0.001
Male	79 (48.2)	374 (24.0)	-0.24 (-0.32, -0.16)	<0.001
Other	4 (2.4)	12 (0.8)	-0.02 (-0.04, 0.007)	0.17
Total	164 (100)			
Race/ethnicity				
Latinx	88 (54.3)	1194 (77.1)	0.23 (0.15, 0.31)	<0.001
Non-Latinx Black	29 (17.9)	82 (5.3)	-0.13 (-0.19, -0.07)	<0.001
Non-Latinx Other	14 (8.6)	142 (9.2)	0.005 (-0.04, 0.05)	0.82
Non-Latinx White	31 (19.1)	130 (8.4)	-0.11 (-0.17, -0.04)	<0.001
Total	162 (100)	1548 (100)		
Income				
\$20,000 or more	44 (26.2)	330 (20.9)	0.007 (-0.04, 0.06)	0.79
\$10,000-19,000	31 (18.5)	398 (25.2)	0.003 (-0.02, 0.02)	0.79
Less than \$10,000	40 (23.8)	446 (28.3)	-0.002 (-0.01, 0.01)	0.78
No earned income	53 (31.5)	403 (25.6)	-0.008 (-0.06, 0.05)	0.78
Total	168 (100)	1577 (100)		
Education				
Any college	66 (41.3)	415 (27.3)	-0.06 (-0.23, -0.09)	<0.001
High school diploma or GED	44 (27.5)	345 (22.7)	-0.009 (-0.02, -0.002)	0.01
Less than a high school	50 (31.3)	761 (50.0)	0.17 (0.10, 0.24)	<0.001
Total	160 (100)	1521 (100)		
Tobacco use				
Current User	40 (23.8)	119 (7.6)	-0.16 (-0.23, -0.10)	<0.001
Former User	25 (14.9)	180 (11.5)	-0.03 (-0.09, 0.02)	0.24
Never User	103 (61.3)	1264 (80.9)	0.20 (0.12, 0.27)	<0.001
Total	168 (100)	1563 (100)		
Walkability^{^^}	14.7 (1.6)	14.3 (2.4)	-0.04 (-0.06, -0.008)	0.01
Supermarket access^{^^^}	0.7 (0.2)	0.7 (0.2)	0.03 (0.003, 0.07)	0.03
Access to physical activity resources				
No	86 (52.4)	616 (40.3)		
Yes	78 (47.6)	913 (59.7)	0.12 (0.04, 0.20)	0.003
Total	164 (100)	1529 (100)		
Obesity				
No	114 (75.5)	752 (58.0)		
Yes	37 (24.5)	545 (42.0)	0.18 (0.10, 0.25)	<0.001
Total	151 (100)	1297 (100)		
Chronic disease				
No	83 (50.0)	584 (37.6)		
Yes	83 (50.0)	971 (62.4)	0.12 (0.04, 0.20)	0.002
Total	166 (100)	1555 (100)		
Weight loss medication use				
No	158 (94.6)	1436 (94.0)		
Yes	9 (5.4)	92 (6.0)	0.006 (-0.03, 0.04)	0.73
Total	167 (100)	1528 (100)		

Covariates	Non- participants n=168 N (%) or mean (SD)	Participants n=1577 N (%) or mean (SD)	Unadjusted Prevalence Difference or Linear Regression Coefficient (95% CI)	P-value
CFHL programming				
Nutrition or cooking class		216 (19.7)		
Physical activity class		67 (6.1)		
Free produce pick-up		467 (42.6)		
Other CFHL		47 (4.3)		
None of the above		299 (27.3)		
Total		1096 (100)		
Times during the past year attended a CalFresh Healthy Living program?				
Never	168 (100)	24 (2.4)		
Once (first time ever)		538 (54.3)		
Once (not first time ever)		115 (11.6)		
Rarely		33 (3.3)		
Once a month		106 (10.7)		
Twice a month		24 (2.4)		
Three times a month		62 (6.3)		
Once a week		22 (2.2)		
More than once a week		66 (6.7)		
Total		990 (100)		
Perceived impact of effort to increase CalFresh benefit				
No difference in ability to afford foods	18 (11.0)	186 (12.7)	-0.46 (-0.49, -0.43)	0.37
Small impact on ability to afford foods	7 (4.3)	41 (2.8)	0.12 (0.96, 0.14)	0.03
Moderately impact ability to afford foods	54 (32.9)	397 (27.0)	0.03 (0.02, 0.04)	0.51
Significantly impact ability to afford foods	75 (45.7)	691 (47.1)	0.06 (0.05, 0.08)	0.74
Not applicable – do not receive CalFresh benefits	10 (6.1)	153 (10.4)	0.10 (0.09, 0.13)	0.13
Total	164 (100)	1468 (100)		

Statistical comparisons conducted using prevalence differences for binary and categorical variables and risk differences for continuous variables. BMI calculated from self-reported height and weight ^Includes WIC, food pantries, school meal programs ^^Scale 1-20, where higher scores indicate greater walkability ^^Within 0.5 miles in urban areas, 1 mile in rural areas. Significance level: p < 0.05 considered statistically significant.

¹ Participants were retained because they were recruited from a SNAP-Ed site and were either unaware the produce distribution was associated with SNAP-Ed or they mis-reported.

3.2. Associations between SNAP-Ed Participation, Food and Nutrition Security, Dietary Behaviors, and Health Status at Follow-up

Table 2 shows the comparison of dietary behaviors between SNAP-Ed participants and non-participants at baseline and at follow-up. Fruit and vegetable intake was relatively modest, with the majority of respondents (92% of SNAP-Ed participants and 91% of non-participants) consuming these items less than the recommended amount of 5 servings per day. This pattern was consistent across both SNAP-Ed participants and non-participants, indicating no significant association between SNAP-Ed participation and increased fruit or vegetable consumption. However, at baseline we observed that those who utilized SNAP-Ed programming in the intervening four-to-seven months were already less likely to consume fried potatoes, sweets, and fast food compared to those who did not engage in SNAP-Ed services over the follow-up period. For example, 8 percent more

of those who engaged in SNAP-Ed at baseline reported consuming no fast food in the last week compared to non-participants (prevalence difference = 0.08, 95% CI: 0.003, 0.17). However, this group was also less likely to engage in moderate physical activity (prevalence difference = -0.64, 95% CI: -1.13, -0.15). At follow-up those who participated in SNAP-Ed programming reported a higher BMI than non-participants (prevalence difference = 5.68, 95% CI: 2.59, 8.77). Similarly, obesity was higher among SNAP-Ed participants than non-participants. However, these findings should be interpreted cautiously given extremely small sample sizes, relatively short follow-up period, multiple testing and inconsistent self-reports of height between the two time periods.

After accounting for survey respondents' baseline outcomes, we found no differences between SNAP-Ed participants' and non-participants' dietary behaviors, food and nutrition security, nutrition assistance program use, and BMI four to seven months after SNAP-Ed participants engaged in their first SNAP-Ed produce distribution.



Table 2

Separate Model Estimates of Prevalence and Risk Differences of Food and Nutrition Security, Dietary Behaviors, and Health Status Between SNAP-Ed Participants and Non-Participants at Baseline (September – December 2024) and Follow-up (April 2025), Among SNAP-Ed Eligible Participants

Outcomes	Baseline				Follow-up					
	Non-participants n=23 N (%) or mean (SD)	Participants n=13 N (%) or mean (SD)	Prevalence Difference or Regression Coefficient (95% CI)	P- Value	Non-participants n=23 N (%) or mean (SD)	Participants n=13 N (%) or mean (SD)	Prevalence Difference or Regression Coefficient (95% CI)	P- Value	Longitudinal Prevalence Difference or Linear Regression Coefficient (95% CI)	P- Value
Fruit and vegetable intake (servings/day)										
<5	21 (91.3)	12 (92.3)	0.001 (-0.007, 0.01)	0.76	21 (91.3)	12 (92.3)	0.01 (-0.18, 0.20)	0.92	0.10 (-0.18, 0.20)	0.92
5+	2 (8.7)	1 (7.7)	-0.008 (-0.06, 0.04)	0.76	2 (8.7)	1 (7.7)	-0.01 (-0.20, 0.18)	0.92	-0.01 (-0.20, 0.18)	0.92
Total	23 (100)	13 (100)			23 (100)	13 (100)				
Tertiles of SSB intake (times/week)										
0-4	9 (39.1)	1 (8.3)	0.02 (-0.06, 0.10)	0.68	13 (56.5)	4 (30.8)	-0.25 (-0.54, 0.04)	0.09	-0.22 (-0.50, 0.06)	0.13
5-9	11 (47.8)	9 (75.0)	-0.002 (-0.01, 0.007)	0.67	8 (34.8)	6 (46.2)	0.10 (-0.03, 0.24)	0.14	0.09 (-0.04, 0.22)	0.17
10+	3 (13.0)	2 (16.7)	-0.02 (-0.09, 0.06)	0.68	2 (8.7)	3 (23.1)	0.15 (-0.05, 0.35)	0.15	0.13 (-0.06, 0.32)	0.18
Total	23 (100)	12 (100)			23 (100)	13 (100)				
Tertiles of fried potato intake (times/week)										
0-1	13 (56.5)	8 (66.7)	0.16 (0.06, 0.24)	0.001	9 (39.1)	8 (61.5)	0.21 (-0.11, 0.52)	0.19	0.14 (-0.17, 0.46)	0.37
2	7 (30.4)	3 (25.0)	-0.03 (-0.05, -0.01)	0.002	5 (21.7)	2 (15.4)	-0.03 (-0.09, 0.04)	0.43	-0.02 (-0.07, 0.04)	0.53
3+	3 (13.0)	1 (8.3)	-0.12 (-0.20, -0.05)	0.001	9 (39.1)	3 (23.1)	-0.18 (-0.45, 0.08)	0.18	-0.13 (-0.49, 0.14)	0.35
Total	23 (100)	12 (100)			23 (100)	13 (100)				
Tertiles of sweets intake (times/week)										
0-2	13 (56.5)	4 (33.3)	0.10 (0.01, 0.19)	0.03	11 (52.4)	5 (41.7)	-0.11 (-0.43, 0.21)	0.51	-0.09 (-0.41, 0.23)	0.58
3-4	5 (21.7)	3 (25.0)	-0.01 (-0.03, 0.0001)	0.05	5 (23.8)	3 (25.0)	0.02 (-0.03, 0.06)	0.52	0.01 (-0.03, 0.06)	0.58
5+	5 (21.7)	5 (41.7)	-0.09 (-0.16, -0.01)	0.03	5 (23.8)	4 (33.3)	0.09 (-0.19, 0.37)	0.52	0.08 (-0.21, 0.36)	0.59
Total	23 (100)	12 (100)			21 (100)	12 (100)				
Tertiles of fast food intake (times/week)										
0	6 (28.6)	4 (30.8)	0.08 (0.003, 0.17)	0.047	7 (31.8)	6 (46.2)	-0.01 (-0.30, 0.28)	0.94	-0.04 (-0.30, 0.22)	0.77
1-2	11 (52.4)	6 (46.2)	-0.02 (-0.05, 0.0003)	0.05	12 (54.5)	3 (23.1)	0.003 (-0.07, 0.08)	0.94	0.01 (-0.06, 0.08)	0.77
3+	4 (19.0)	3 (23.1)	-0.06 (-0.12, -0.0009)	0.04	3 (13.6)	4 (30.8)	0.008 (-0.21, 0.23)	0.94	0.03 (-0.16, 0.22)	0.77
Total	21 (100)	13 (100)			22 (100)	13 (100)				
Physical activity (days/week)										
Vigorous	3 (2.7)	2.6 (1.7)	-0.12 (-0.58, 0.35)	0.62	2.5 (2.2)	2.9 (2.1)	0.47 (-1.05, 1.99)	0.54	0.91 (-0.49, 2.32)	0.19
Moderate	2.8 (2.6)	2.6 (2.3)	-0.64 (-1.13, -0.15)	0.01	3 (2.1)	2.5 (2.0)	-0.46 (-1.96, 1.05)	0.54	-0.48 (-2.14, 1.18)	0.59
Food insecure										
No	8 (34.8)	3 (23.1)			6 (26.1)	3 (23.1)				
Yes	15 (65.2)	10 (76.9)	0.12 (-0.18, 0.42)	0.45	17 (73.9)	10 (76.9)	0.03 (-0.26, 0.32)	0.84	-0.005 (-0.29, 0.28)	0.98
Total	23 (100)	13 (100)			23 (100)	13 (100)				
Nutrition secure										
No	12 (52.2)	9 (69.2)			12 (52.2)	8 (61.5)				
Yes	11 (47.8)	4 (30.8)	-0.17 (-0.48, 0.15)	0.30	11 (47.8)	5 (38.5)	-0.09 (-0.43, 0.24)	0.58	0.01 (-0.26, 0.28)	0.94
Total	23 (100)	13 (100)			23 (100)	13 (100)				
Supplemental Nutrition Assistance Program (SNAP) use										
No	13 (56.5)	7 (53.8)			8 (34.8)	7 (53.8)				
Yes	10 (43.5)	6 (46.2)	0.03 (-0.31, 0.37)	0.88	15 (65.2)	6 (46.2)	-0.19 (-0.52, 0.14)	0.26	-0.21 (-0.44, 0.02)	0.08
Total	23 (100)	13 (100)			23 (100)	13 (100)				
Non-SNAP Nutrition Assistance Program use										
No	6 (26.1)	3 (23.1)			3 (13.0)	2 (15.4)				
Yes	17 (73.9)	10 (76.9)	0.03 (-0.26, 0.32)	0.84	20 (87.0)	11 (84.6)	-0.02 (-0.26, 0.22)	0.85	-0.03 (0.27, 0.21)	0.82
Total	23 (100)	13 (100)			23 (100)	13 (100)				
Body mass index (kg/m²)	25.1 (4.3)	31.1 (6.1)	1.24 (-0.02, 2.5)	0.50	26 (4.0)	31.7 (4.4)	5.68 (2.59, 8.77)	0.001	1.62 (-0.87, 4.11)	0.19
Weight (lbs)	161.1 (25.4)	164.7 (28.8)	-6.84 (-15, 1.43)	0.10	165.3 (31.2)	167.2 (24.5)	1.89 (-18.58, 22.37)	0.85	-1.18 (-14.21, 11.86)	0.86
Covariates										
Age (years)	59 (19.4)	51.8 (14.2)	-0.56 (-3.54, 2.42)	0.71	---	---	---	---	---	---
Gender										
Female	13 (56.5)	12 (92.3)	0.36 (0.11, 0.61)	0.005	---	---	---	---	---	---
Male	10 (43.5)	1 (7.7)	-0.36 (-0.61, -0.11)	0.005	---	---	---	---	---	---
Total	23 (100)	13 (100)								
Race/ethnicity										
Latinx	9 (39.1)	12 (92.3)	No convergence	---	---	---	---	---	---	---
Non-Latinx Black	5 (21.7)	0 (0.0)	No convergence	---	---	---	---	---	---	---
Non-Latinx Other	1 (4.3)	0 (0.0)	No convergence	---	---	---	---	---	---	---
Non-Latinx White	8 (34.8)	1 (7.7)	No convergence	---	---	---	---	---	---	---
Total	23 (100)	13 (100)								

Covariates	Baseline				Follow-up				Longitudinal Prevalence Difference or Linear Regression Coefficient (95% CI)	P- Value
	Non- participants n=23 N (%) or mean (SD)	Participants n=13 N (%) or mean (SD)	Prevalence Difference or Linear Regression Coefficient (95% CI)	P- Value	Non- participants n=23 N (%) or mean (SD)	Participants n=13 N (%) or mean (SD)	Prevalence Difference or Linear Regression Coefficient (95% CI)	P- Value		
Income										
No earned income	4 (17.4)	5 (38.5)	0.04 (-0.01, 0.09)	0.16	6 (27.3)	3 (23.1)	-0.02 (-0.26, 0.22)	0.88	---	---
Less than \$10,000	4 (17.4)	4 (30.8)	0.02 (-0.01, 0.05)	0.16	0 (0.0)	3 (23.1)	-0.003 (-0.04, 0.03)	0.88	---	---
\$10,000-19,000	8 (34.8)	1 (7.7)	0.002 (-0.003, 0.007)	0.52	10 (45.5)	2 (15.4)	0.0006 (-0.008, 0.01)	0.90	---	---
\$20,000 or more	7 (30.4)	3 (23.1)	-0.06 (-0.14, 0.02)	0.15	6 (27.3)	5 (38.5)	0.02 (-0.25, 0.29)	0.88	---	---
Total	23 (100)	13 (100)			22 (100)	13 (100)				
Education										
Less than high school	6 (27.3)	6 (46.2)	0.20 (0.13, 0.26)	<0.00	5 (21.7)	8 (61.5)	0.41 (0.13, 0.70)	0.005	---	---
High school diploma or GED	2 (9.1)	3 (23.1)	0.06 (0.03, 0.09)	1	5 (21.7)	3 (23.1)	-0.02 (-0.12, 0.08)	0.70	---	---
Any college	14 (63.6)	4 (30.8)	-0.26 (-0.34, -0.17)	<0.001	13 (56.5)	2 (15.4)	-0.39 (-0.64, -0.14)	0.002	---	---
Total	22 (100)	13 (100)			23 (100)	13 (100)				
Tobacco use										
Current User	3 (13.0)	1 (7.7)	-0.05 (-0.25, 0.15)	0.60	2 (8.7)	1 (7.7)	-0.01 (-0.20, 0.18)	0.92	---	---
Former User	2 (8.7)	3 (23.1)	0.14 (-0.11, 0.40)	0.27	4 (17.4)	1 (7.7)	-0.10 (-0.31, 0.12)	0.37	---	---
Never User	18 (78.3)	9 (69.2)	-0.09 (-0.39, 0.21)	0.56	17 (73.9)	11 (84.6)	0.11 (-0.16, 0.37)	0.42	---	---
Total	23 (100)	13 (100)			23 (100)	13 (100)				
Chronic disease										
No	12 (52.2)	6 (46.2)			11 (47.8)	5 (38.5)				
Yes	11 (47.8)	7 (53.8)	0.06 (-0.28, 0.40)	0.73	12 (52.2)	8 (61.5)	0.09 (-0.24, 0.43)	0.58	---	---
Total	23 (100)	13 (100)			23 (100)	13 (100)				
Non-nutrition assistance program use										
No	14 (60.9)	5 (38.5)			7 (30.4)	8 (61.5)				
Yes	9 (39.1)	8 (61.5)	0.22 (-0.11, 0.56)	0.18	16 (69.6)	5 (38.5)	-0.31 (-0.64, 0.01)	0.06	---	---
Total	23 (100)	13 (100)			23 (100)	13 (100)				
Walkability										
Supermarket access	14.9 (1.1)	14.6 (1.6)	-0.33 (-0.76, 0.11)	0.14	---	---	---	---	---	---
Access to physical activity resources	0.7 (0.3)	0.8 (0.1)	0.001 (-0.04, 0.04)	0.96	---	---	---	---	---	---
Obesity										
No	14 (60.9)	2 (15.4)			14 (63.6)	6 (46.2)				
Yes	9 (39.1)	11 (84.6)	0.14 (0.18, 0.73)	0.001	8 (36.4)	7 (53.8)	0.17 (-0.16, 0.51)	0.31	---	---
Total	23 (100)	13 (100)			22 (100)	13 (100)				
Weight loss medication use-%										
No	19 (86.4)	7 (53.8)			20 (87.0)	4 (36.4)				
Yes	3 (13.6)	6 (46.2)	0.33 (0.02, 0.63)	0.04	3 (13.0)	7 (63.6)	0.51 (0.19, 0.82)	0.002	---	---
Total	22 (100)	13 (100)			23 (100)	11 (100)				
CFHL class										
Nutrition or cooking class	20 (87.0)	12 (92.3)			20 (87.0)	12 (92.3)				
Physical activity class	3 (13.0)	1 (7.7)	-0.05 (-0.25, 0.15)	0.60	3 (13.0)	1 (7.7)	-0.05 (-0.25, 0.15)	0.60	---	---
Total	23 (100)	13 (100)			23 (100)	13 (100)				
CFHL class										
Nutrition or cooking class	0 (0.0)	7 (53.8)	---	---	1 (5.0)	3 (27.3)	---	---	---	---
Physical activity class	0 (0.0)	1 (7.7)	---	---	0 (0.0)	1 (9.1)	---	---	---	---
Free produce pick-up	0 (0.0)	5 (38.5)	---	---	10 (50.0)	6 (54.5)	---	---	---	---
Other CFHL	0 (0.0)	0 (0.0)	---	---	0 (0.0)	0 (0.0)	---	---	---	---
None of the above	23 (100)	13 (100)	---	---	9 (45.0)	1 (9.1)	---	---	---	---
Total	23 (100)	158 (100)	---	---	20 (100)	11 (100)				
Perceived impact of effort to increase CalFresh benefit										
No difference in ability to afford foods	3 (13.0)	1 (7.7)	---	---	0 (0.0)	2 (15.4)	---	---	---	---
Small impact on ability to afford foods	3 (13.0)	0 (0.0)	---	---	2 (8.7)	2 (15.4)	---	---	---	---
Moderately impact ability to afford foods	3 (13.0)	2 (15.4)	---	---	9 (39.1)	2 (15.4)	---	---	---	---
Significantly impact ability to afford foods	7 (30.4)	7 (53.8)	---	---	9 (39.1)	4 (30.8)	---	---	---	---
Not applicable – do not receive CalFresh benefits	7 (30.4)	3 (23.1)	---	---	3 (13.0)	3 (23.1)	---	---	---	---
Total	23 (100)	13 (100)			23 (100)	13 (100)				

Statistical Tests: Prevalence differences for categorical variables and risk differences for continuous variables. Baseline and follow-up estimates are unadjusted. Longitudinal change comparisons between participants and non-participants are based on adjusted longitudinal models controlling for baseline outcomes and covariates based on DAG (See Table A2). Each outcome was modeled separately.

Significance level: p < 0.05 considered statistically significant.

¹ Model would not converge when controlling for baseline fruit and vegetable intake.

3.3. Sensitivity Analysis of Subgroup SNAP-Ed Participation at Baseline

Table B1 in Appendix B presents the baseline prevalence and risk differences when restricting the SNAP-Ed participant group to those who reported participating in a SNAP-Ed class at least once per month. The unadjusted prevalence and risk differences were almost identical to the estimates among the full sample of participants (Table 1).

3.4. Understanding What Helps or Hinders SNAP-Ed Nutrition Education

3.4.1. Attendance Challenges of Adult SNAP-Ed Nutrition Education

Among SNAP-Ed participants in the baseline survey who engaged with at least one CFHL activity, attendance frequency varied considerably. Almost a quarter (24%) reported never attending a CFHL program in the previous 12 months despite indicating participation in specific activities, suggesting possible confusion about program identification or sporadic engagement. Among those who did attend, 54% were first-time attendees, while less than a third (28%) of SNAP-Ed participants said they attended program activities at least once a month. The relatively low frequency of regular attendance indicates that most participants engage with CFHL programs on an occasional rather than routine basis.

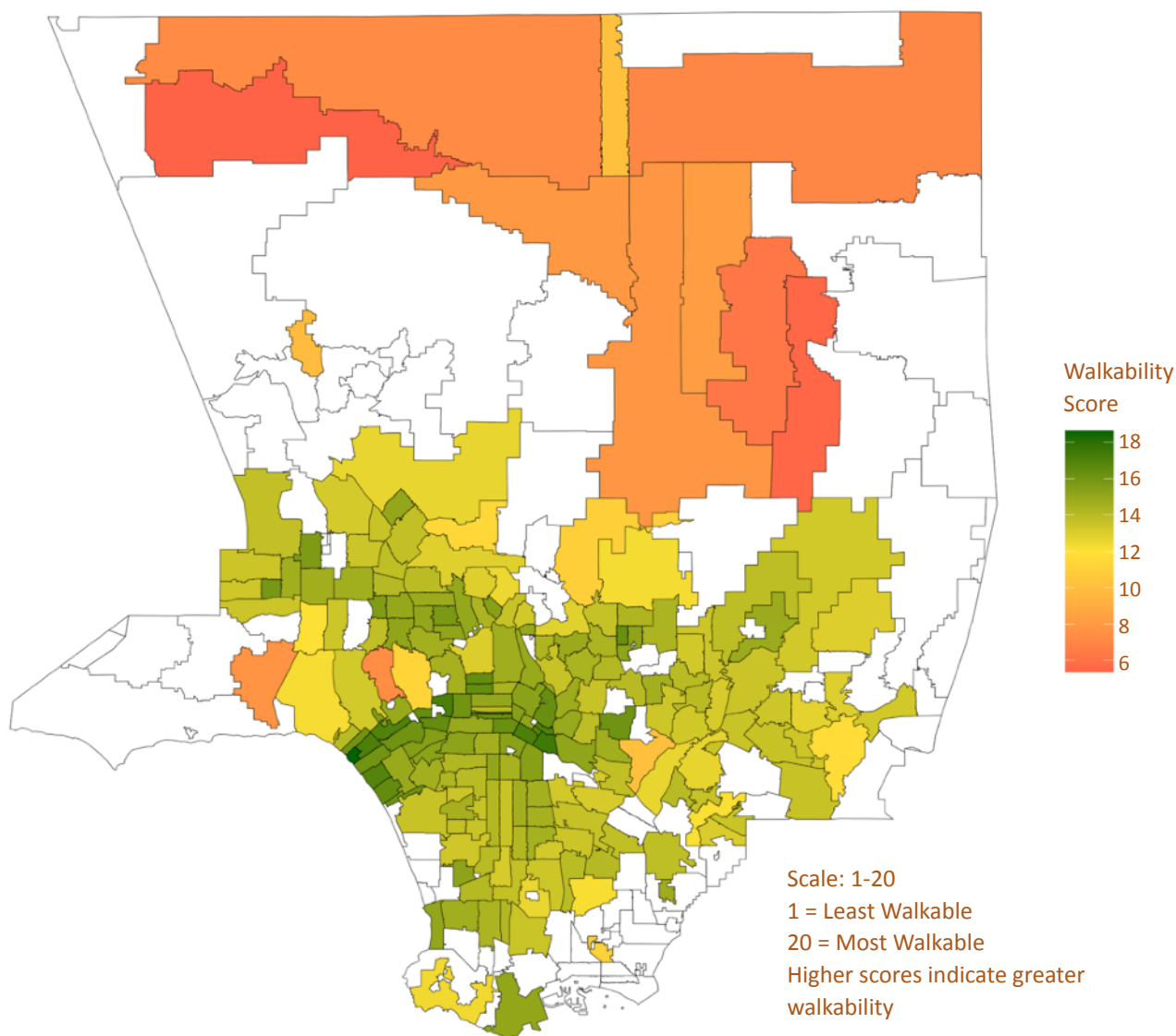
Despite strategic placement of SNAP-Ed adult nutrition education programs in early childhood education settings, K-12 schools, healthcare clinics, and food pantries, significant barriers limited class attendance. In interviews, we heard that

transportation was a primary challenge, with comments such as: *“If I don't have a car, I can't get there, because I don't have a bus nearby.”* Several suggested transportation stipends would enable attendance. The survey data showed that both SNAP-Ed participants and non-participants perceived living in neighborhoods that were generally easy to walk in. The average walkability score was 14.3 overall (on a scale from 1 to 20, with 1 being the least walkable and 20 being the most walkable)^[1], with SNAP-Ed participants scoring slightly lower at 14.3 and non-participants at 14.7 ($P < 0.001$). Figure 2 plots the walkability scores for the survey respondents. This suggests that the neighborhoods had good features for walking, encouraging physical activity. However, we acknowledge that additional neighborhood characteristics, such as crime levels, could act as confounders by influencing both physical activity and program participation. Due to time and scope constraints, we were unable to include a full set of these variables in our model.

[1] The National Walkability Index, created by the U.S. Environmental Protection Agency, evaluates the walkability of U.S. communities using data from the Smart Location Database. It considers street intersection density, proximity to public transportation, and land use diversity, assigning scores from 1 (least walkable) to 20 (most walkable).



Figure 2. Walkability Scores for Survey Respondents' Zip Codes



Language barriers created additional obstacles, particularly when translation quality during the session was perceived to be poor. One participant noted: *“There is a translator, but that person who translates omits many words, it is not the same when the person who is speaking in English translates into Spanish.”* This suggests that the program may need to monitor and address the quality of the interpretation services provided at their partner sites. Caregiving responsibilities

prevented many parents from attending, with participants suggesting: *“It would be good to have an area for children to be entertained during class time.”* The classes occur mostly during weekdays, in the mornings and around lunch time. For many with work schedules and caregivers of young children, particularly for those with unpredictable hours, this further limited participation. Evening and weekend options were frequently requested but rarely available.

3.4.2. Key Factors Driving SNAP-Ed Adult Nutrition Education Success

Based on the survey data, SNAP-Ed participants showed varied engagement across different CalFresh Healthy Living (CFHL) program activities over the past 12 months. The most popular activity was free produce distribution, with 43% of participants taking advantage of this service. Nutrition or cooking classes attracted 20% of participants, while physical activity classes had lower engagement at 6%. Notably, 27% of participants reported not participating in any of these specific CFHL activities despite attending a SNAP-Ed food distribution event, suggesting opportunities to increase program engagement and outreach.

In interviews, adult participants frequently cited the supportive attitude of SNAP-Ed program staff as a key motivator for attending classes. One participant shared, *“The staff attitude is very positive, and they make you feel welcome.”* Comments indicated that participants valued the interactive nature of the class content. Food demonstrations and recipe sharing were particularly impactful, as they provided practical strategies for healthier eating. Participants appreciated learning new recipes and trying unfamiliar ingredients, which empowered them to make healthier food choices. One participant recalled, *“They gave us a class on healthy breakfasts. It was about pita bread for breakfast. So it’s so easy and simple, and you eat healthy because it also has fruits.”* The integration of food budgeting and label reading into the curriculum also helped participants make informed choices. As one explained, *“Now I look at the label*

when I go to the grocery store. I check for sodium and sugar levels to take care of myself.”

Physical activities, such as Zumba, were enthusiastically received by interviewed participants. These activities not only promoted health but also created a fun and engaging environment. One participant shared, *“The dances we do in those classes are very Latino, which is very good.”* Another noted, *“Exercise has helped us a lot. It has helped us lose weight and reduce health problems like obesity.”* Participants suggested better integration of physical activities with nutrition classes and adaptations for varying abilities, such as chair exercises for those with mobility challenges.

Combining free fresh produce distribution and education was perceived to create powerful learning opportunities. Participants receiving produce boxes with accompanying recipes and demonstrations said they were more likely to try new foods and preparations. One participant explained: *“Just the act of giving the food. Personally, I don’t like wasting food. So, I use whatever I can do with the vegetables and food.”* Another noted, *“The recipe for black beans with mango was great ... I always use the things they give me.”*



3.4.3. Implementation Challenges of the CATCH Curricula

Qualitative insights from program and school staff discussions reveal a few challenges to the implementation of the CATCH curricula as well. Facility constraints limited food demonstrations, staff turnover disrupted program continuity, limited cultural representation affected curriculum appeal, and perceived low parental engagement may not reinforce program benefits at home. Staffing in particular was seen as a critical issue, with high turnover rates, especially in the K-12 afterschool setting, undermining program consistency and effectiveness. One teacher explained that additional staff support would allow her to *“pull out [more] kids to do the program, and do it more throughout the week.”* Implementers called for additional support staff to manage workloads and provide individualized attention to students. In discussions, we also heard dissatisfaction with one-time training sessions, particularly given the influx of new staff throughout the year. One person suggested to supplement the initial training: *“Maybe toward the end of the first three months [do] a refresher, to also keep the staff engaged.”* Interactive training

methods, such as role-playing and visual aids, were preferred over traditional approaches.

Cultural representation within the CATCH curricula was another area requiring attention. Implementers noted that the content sometimes lacked adequate representation of diverse cultural backgrounds, which limited its relevance and appeal to students from various ethnic groups. One teacher noted that their students came from across the school district’s Black, Armenian, Asian, and Hispanic communities, but *“[A]ll the foods are geared toward American food, which some kids may or may not eat, and may not know.”* Parental engagement presented ongoing challenges, despite various efforts to involve parents through handouts, flyers, and events: *“I can hand it to a parent. It doesn’t necessarily mean they’re going to read it. Half the time it ends up on the floor.”* Limited feedback from parents highlighted a communication gap that was perceived to hinder the extension of program benefits into the home environment. Implementers suggested using more visually appealing and interactive materials, as well as providing resources in multiple languages to improve accessibility.



3.4.4. Key Ingredients for Effectively Implementing the CATCH Curricula

The implementation of the CATCH curricula is supported by several key factors, including structured activities, cultural representation, staff engagement, community partnerships, and ongoing support from SNAP-Ed program coordinators. These elements collectively contribute to the program's success in promoting nutrition education and physical activity among students.

Staff appreciated the predictability of the program, as it helped establish a routine for students. One participant shared, *"Having the CATCH curriculum available to the students every week at the same time... always having it so the students knew exactly when and where we were going to be."* We heard that the variety and adaptability of activities were also seen as strengths. For example, physical activities such as obstacle courses, Ultimate Frisbee, and Zumba catered to different age groups and interests. One participant noted, *"The kids get involved with most of the games... they like all the yoga exercises because it's quick and easy to do."* For younger students, simple games like hula-hoops and parachute activities were particularly effective: *"It really fits along with preschool development milestones and it's simple. It's really just a box of games, so it's hard to go wrong."*

The interactive nature of nutrition education activities was a key factor in engaging students. Cooking demonstrations, healthy snack preparation, and food comparisons allowed students to see, touch, and taste new foods, making the learning process more interactive and enjoyable. One participant noted, *"I can't emphasize enough the*

importance of providing middle school students, and I'm sure elementary as well, with their own cooking experience." Visual aids and interactive methods further enhanced engagement. For example, food comparisons using printouts and allowing students to search for information on their phones or laptops made the learning process more relatable.

Ongoing support from Los Angeles County Department of Public Health program managers and SNAP-Ed program coordinators was important. Participants appreciated the responsiveness of program coordinators, who ensured they had the necessary resources and guidance. One participant shared, *"They've been so helpful. Anything that we need or if I get confused or have any problems, they're here very often, and I talk to them."* Training sessions that incorporated interactive methods were particularly effective. One participant recalled, *"It started with us attending a staff training where we had a couple of the coaches there. They were training us, and showing us, engaging us, which was great to get our attention and to be excited to bring that to our site."*

Finally, leadership buy-in was critical in ensuring program success. One participant explained, *"Having a good relationship with them [organizational leaders] has dictated what we can and can't do and how well we do it."* Visible engagement from leadership further reinforced the program's importance: *"I think we have their [leadership] support, and they come, and they see the stuff that we do."*



3.4.5. Community Matters: Enhancing Nutrition Education Through Local Resources and Partnerships

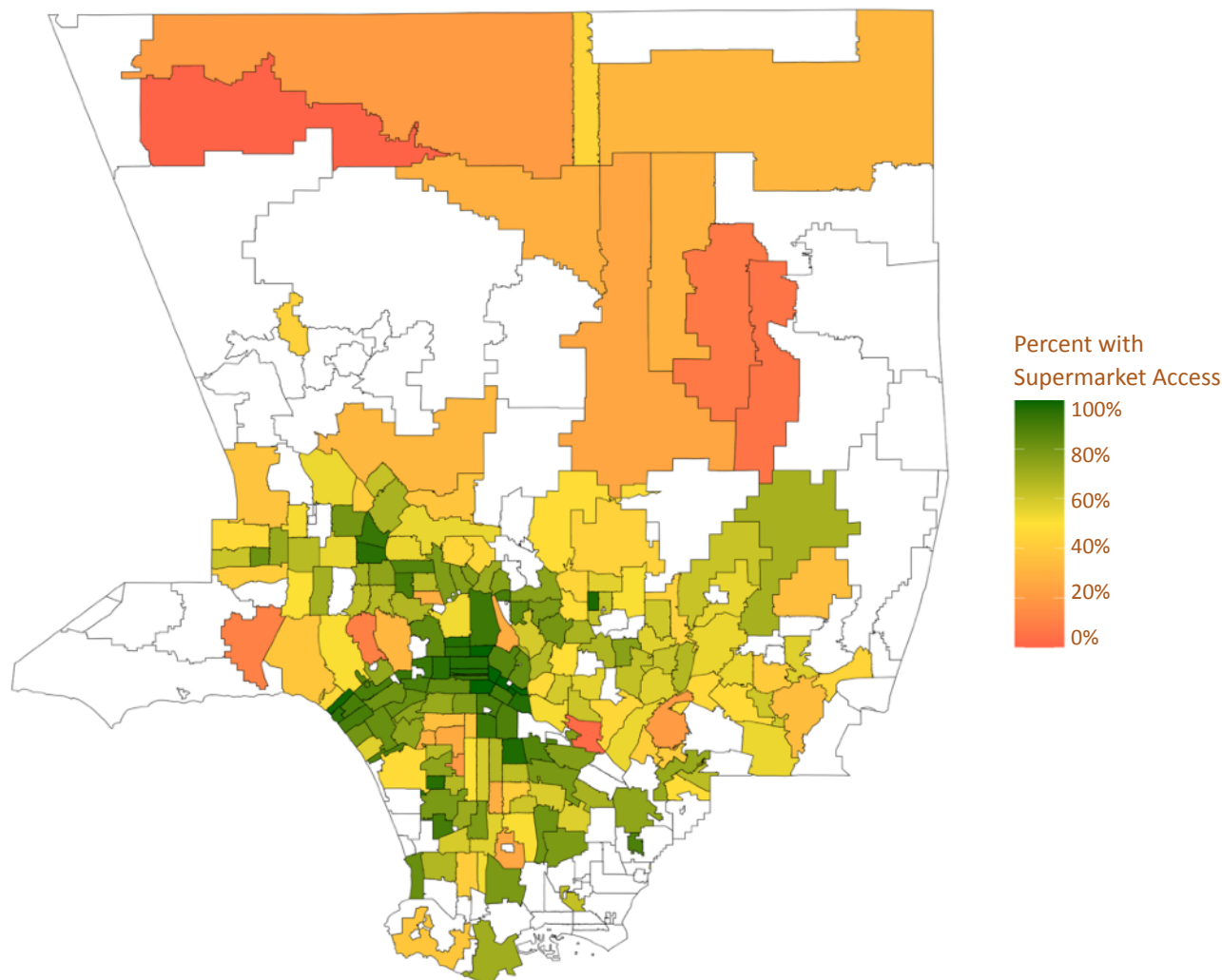
Community characteristics and resources play a pivotal role in shaping the success of both SNAP-Education adult nutrition education programs and the CATCH curricula. Factors such as access to transportation, food availability, an environment conducive to physical activity (e.g., shaded sidewalks), and community partnerships can either facilitate or hinder participation and program effectiveness. However, the availability of community resources appeared to vary across

neighborhoods. Some program participants benefited from site-level partnerships that provided fresh produce and opportunities for physical activity, while others did not.

The availability of healthy food options within a community was perceived to significantly impact the effectiveness of nutrition education programs. While baseline survey data (see Figure 3) showed that, on average, 70% of both SNAP-Education participants and non-participants lived near a supermarket (i.e., lived less than half a mile from a supermarket/large grocery store, or less than one mile in rural areas), in interviews we heard that proximity alone did not ensure access to healthy foods.



Figure 3. Percent of respondents who live less than half a mile (or less than a mile in rural areas) from a supermarket



The average access score for supermarkets was the same for both groups at 70%, on a scale from 0-100, where a higher score means more people have easier access to supermarkets.

Specifically, in interviews we learned that participants who reported living in food deserts—areas with limited access to fresh produce and grocery stores—faced additional challenges in implementing the lessons learned in class. One teacher described how lack of access affected her students and their families' ability to buy fresh produce: *"The closest store is blocks and blocks away... I don't see a lot of resources maybe for the*

community here." Food distribution programs, such as produce distribution events, were seen as valuable resources for addressing food access issues. Adult participants appreciated receiving fresh produce, which helped them try new recipes and ingredients, and teachers noted too that parents picking up food boxes at school were grateful for the opportunity.

Access to physical activity resources within the community can either support or limit the integration of exercise into nutrition education programs. Both adult SNAP-Ed participants and CATCH teachers noted that safety concerns in certain neighborhoods restricted outdoor activities, which could hinder efforts to promote physical activity. One participant explained, *“It’s a little bit just dangerous. Safety will be an issue.”* In contrast, communities with accessible parks and recreational facilities provided opportunities for participants to engage in physical activities outside of class. For example, one adult shared how the program influenced her family’s habits: *“With my daughter’s family, I always tell her that we are attending and we are learning a lot, and I share what we learn... They go to Griffith Park for exercises.”*

Community partnerships can act as a force multiplier for nutrition education programs, providing additional resources and support. For some school-based programs, collaborations with local organizations, such as public libraries and farmers’ markets, helped to provide an alternative

venue to facilitate CATCH curricula activities and address resource gaps, but the discussions suggested they happened infrequently. One teacher shared, *“We’ve partnered with the [public] library, at least on some of our parent nutrition classes. ... The library is in very close proximity.”*

Overall, community characteristics and resources were seen to play an important role in shaping the accessibility and effectiveness of nutrition education programs in various settings. Addressing barriers such as transportation, food availability, and safety concerns, while leveraging partnerships with local organizations that may have untapped resources, could significantly enhance program outcomes.



4. Discussion and Policy Implications

This evaluation examined SNAP-Ed implementation in Los Angeles County through two research questions: (1) the extent to which SNAP-Ed participation is associated with changes in dietary behaviors and other outcomes, and (2) what implementation factors help or hinder effective program delivery at nutrition education sites and in early childhood education and school settings. The findings reveal both the complexity of nutrition education programming in resource-constrained environments and specific opportunities for program improvement. With SNAP-Ed funding ending September 2025, these evaluation findings become valuable for informing the design and implementation of similar nutrition education programs that will continue to be funded. For example, any program that shares structural similarities with SNAP-Ed in its focus on low-income populations, could benefit from these implementation insights.

4.1. Dietary Behavior Associations

The quantitative analysis revealed mixed associations between SNAP-Ed participation and dietary behaviors. While participants showed lower consumption of some unhealthy foods at baseline (fried potatoes, sugar-sweetened beverages, and sweets), these patterns did not persist at follow-up. After accounting for SNAP-Ed participants' and non-participants' outcomes at baseline we found no significant associations with changes in outcomes four-to-seven months later between participants and non-participants. However, the very small sample size at follow-up severely limits our ability to detect meaningful differences.

These mixed results may reflect several factors identified in the qualitative data: the heterogeneity of program implementation across sites, variations in participant engagement levels, and the relatively short follow-up period of four-to-seven months. The lack of sustained dietary improvements suggests that current program intensity or duration may be insufficient to create lasting behavior change.

4.2. Implementation Facilitators and Barriers

The qualitative findings identified clear patterns in what helps and hinders program implementation across both adult nutrition education and school-based CATCH curricula.

Key Facilitators:

- Interactive program elements, particularly cooking demonstrations and hands-on food preparation
- Integration of physical activity components (though only 6% of survey participants engaged in these)
- Culturally relevant content and bilingual programming
- Strategic placement of programs in accessible community locations
- Supportive staff attitudes and consistent program scheduling



Key Barriers:

- Transportation challenges, particularly in neighborhoods with lower walkability scores
- Limited program hours that conflict with work schedules
- Quality concerns with translation services
- Lack of childcare options during adult classes
- High staff turnover in school-based programs

The finding that among SNAP-Ed participants 43% of participants utilized free fruit and vegetable produce distributions, compared to only 20%

attending nutrition classes, suggests that combining food distribution with nutrition education may enhance engagement.

4.3. Program Design Implications

The evaluation findings point to specific, actionable improvements that could be transferrable to similarly structured programs. For instance, the transportation barriers, translation quality issues, and scheduling conflicts identified in this evaluation are likely to affect participants in similar programs.



5. Recommendations by Priority

High Priority:

* **Explore clearer branding of SNAP-Ed events.**

Increasing participants' awareness that they are attending a SNAP-Ed event is critical to documenting the participants' perceived experience with the program.

* **Consistently integrate free fresh produce distribution with nutrition education sessions.**

Given higher engagement with produce distributions (43%) than classes alone (20%), systematically coupling these services may increase program participation and provide immediate opportunities to practice learned skills.

* **Implement quality standards for translation services.**

Establish monitoring protocols for interpretation quality at partner sites and provide resources for professional interpretation services to ensure program content is accurately conveyed to non-English speakers.

Other Recommendations:

Enhance program scheduling flexibility.

Expand evening and weekend nutrition education offerings to accommodate working participants. The current predominantly weekday morning and lunchtime schedule limits access for employed individuals.

Develop asynchronous training modules for implementers.

Address staff turnover challenges by creating online self-paced training resources that new staff can access throughout the year, supplementing one-time in-person trainings.

Develop partnerships that can support, fund, and pilot wraparound services like transportation voucher programs in low-walkability areas.

Test providing transportation stipends in neighborhoods with walkability scores below 10 to assess impact on attendance. This would benefit potential participants who do not live in proximity to the SNAP-Ed sites or those without reliable transportation.

Explore childcare partnerships.

Partner with existing community organizations to provide supervised children's activities during adult nutrition classes. These would particularly benefit caregivers of young children.

Strengthen feedback mechanisms.

Implement regular participant feedback collection to monitor program quality, including translation services, and make timely adjustments.



6. Conclusions

This multi-method evaluation of SNAP-Education programs in Los Angeles County provides insights into both the associations between program participation and dietary behaviors and the implementation factors that influence program delivery. While the quantitative findings show mixed results for dietary behavior change over the study period, the qualitative data illuminate specific, modifiable barriers to participation and engagement.

The evaluation reveals that SNAP-Education programs face significant implementation challenges, including scheduling conflicts, transportation barriers, translation quality issues, and staff turnover. Effective nutrition education requires more than curriculum delivery—it demands attention to accessibility, cultural relevance, and integration with food access support. However, participants value interactive program elements, particularly cooking demonstrations and produce distribution, suggesting clear pathways for enhancement within existing program structures. As SNAP-Education funding ends, these evaluation findings provide guidance for sustaining nutrition education efforts through alternative funding streams and program models. The operational barriers and facilitators identified—particularly transportation

challenges, translation quality, and the effectiveness of integrated food distribution—are likely to persist across different program structures and should inform the design of successor initiatives.

The recommendations presented focus on operational improvements that programs similar to SNAP-Education can implement: expanding program hours, ensuring translation quality, integrating food distribution with nutrition education classes, improving staff training systems, and addressing practical barriers like transportation and childcare. These principles remain relevant regardless of funding source or program structure, providing a foundation for future efforts to address diet-related health disparities in Los Angeles County. Future evaluations of similar programs should employ longer follow-up periods to assess sustained behavior change, include more detailed measures of program participation intensity, diet quality, and examine variations in implementation quality across sites. Additionally, cost-effectiveness analyses of proposed enhancements would help prioritize interventions within resource constraints. This evaluation contributes to the evidence base for nutrition education programming in low-income communities by identifying specific implementation factors that may enhance program effectiveness.

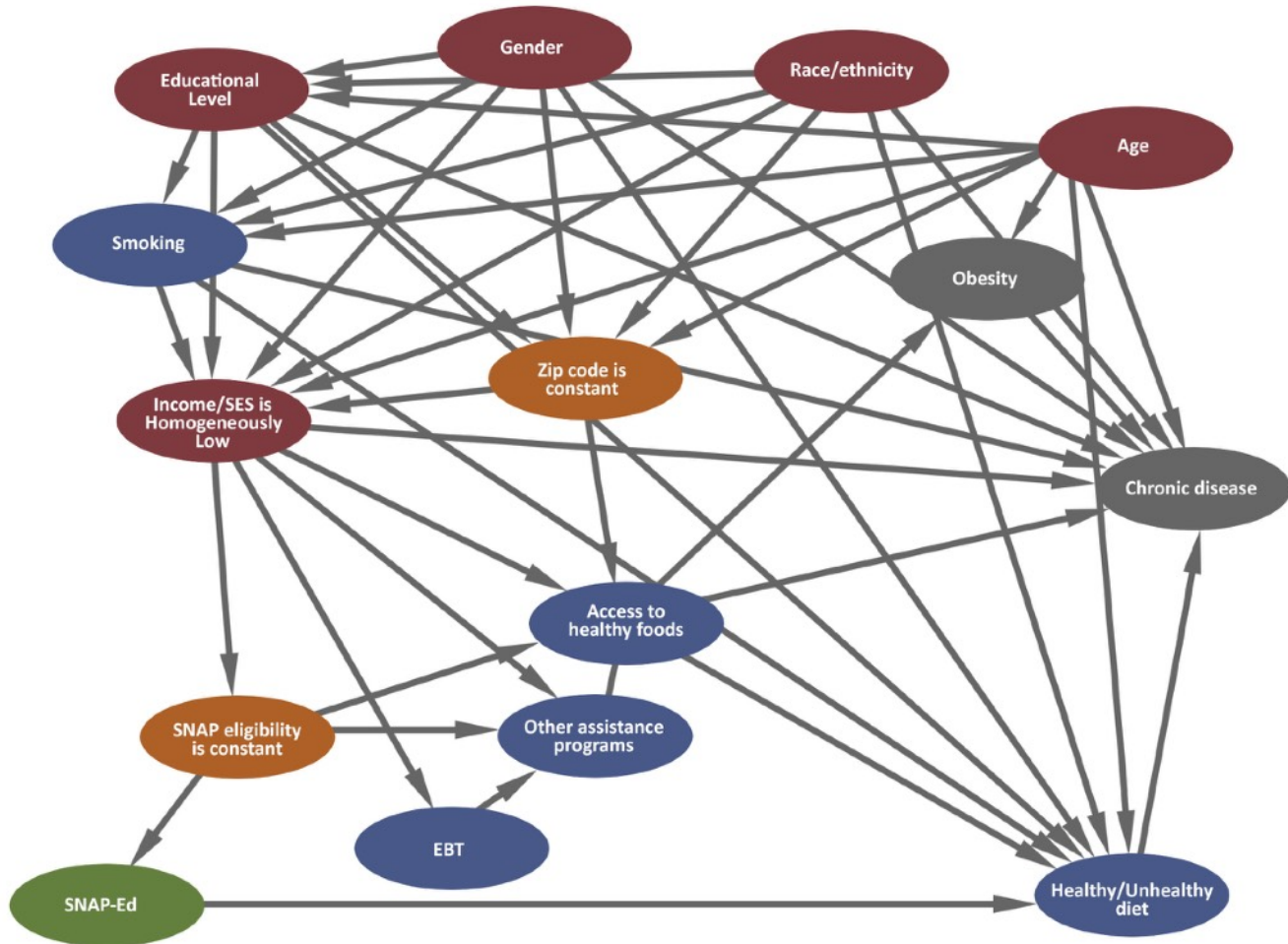
Appendix A. Additional Methodological Detail

Table A1. Baseline and Follow-up Survey Domains and Items

Domain	Baseline and Follow-up Survey Items	Question Numbers
Program Awareness & Participation	CalFresh Healthy Living awareness, participation types, frequency	Q1-Q3
Food Assistance Policy	Impact of CalFresh benefit increase (\$23→\$50)	Q4
Food Security & Access	Food pantry/bank usage frequency; fresh fruit/vegetable availability; affordability of produce	Q5-Q7
Physical Activity Environment	Neighborhood opportunities for physical activity	Q8
Physical Activity Behavior	Vigorous activity days (past 7 days); moderate activity days (past 7 days)	Q9-Q10
Dietary Intake	Fruit consumption; fried potato consumption; vegetable consumption; regular soda; sports/energy drinks; sweetened fruit drinks; coffee/tea with sugar; sweets/desserts; ice cream; fast food frequency (all past 7 days)	Q11-Q20
Tobacco Use	Cigarette smoking history and current use; chewing tobacco use; e-cigarette/vaping use	Q21-Q24
Anthropometric Measures	Self-reported weight (pounds/kilograms); self-reported height (feet/inches or meters/centimeters)	Q25-Q26
Health Conditions	Current chronic conditions (high cholesterol, diabetes, pre-diabetes, high blood pressure, heart disease, cancer, overweight/obesity)	Q27
Weight Management	Weight loss medication use (Ozempic, Wegovy, Zepbound, Mounjaro)	Q28
Food Security Assessment	Worry about food running out; food not lasting with insufficient money (past 12 months); adequacy of food in household (past 7 days)	Q29-Q31
Nutrition Security	Difficulty accessing and eating healthy foods (past 12 months)	Q32
Government Program Participation	Current participation in 12 assistance programs (CalFresh, WIC, CFAP, CalWORKS, etc.)	Q33
Demographics	Gender identity; age; race/ethnicity; education level; household income; household size; Zip Code	Q34-Q40

Figure A1

Example of a Directed Acyclic Graph that mapped causal assumptions and guided our subgroup analysis



Adjustment (total effect)

Exposure: SNAP-Ed

Outcome: Healthy/Unhealthy diet

Adjusted: Income/SES is homogeneously low, SNAP eligibility is constant, Zip Code is constant

Correctly adjusted

Minimal sufficient adjustment sets containing Income/SES is homogeneously low, SNAP eligibility is constant, Zip Code is constant for estimating the total effect of SNAP-Ed on Healthy/Unhealthy diet:

■ Income/SES is homogeneously low, SNAP eligibility is constant, Zip Code is constant

Appendix B Detailed Results

Table B1. Separate Model Estimates of Prevalence and Risk Differences of Food and Nutrition Security, Dietary Behaviors, and Health Status Between SNAP-Ed Participants Participating at Least Once Per Month and Non-Participants at Baseline (September – December 2024), Among SNAP-Ed Eligible Participants

Outcomes	Non-participants n=168 N (%) or mean (SD)	Participants n=226 N (%) or mean (SD)	Unadjusted Prevalence Difference or Linear Regression Coefficient (95% CI)	P-value
Fruit and vegetable intake (servings/day)				
<1	7 (4.3)	3 (1.4)	0.001 (-0.02, 0.02)	0.92
1-<5	139 (84.8)	201 (91.4)	0.002(-0.03, 0.03)	0.92
5+	18 (11.0)	16 (7.3)	-0.003 (-0.05, 0.05)	0.92
Total	164 (100)	220 (100)		
Tertiles of SSB intake (times/week)				
0-4	53 (31.5)	92 (40.9)	0.13 (0.05, 0.22)	0.002
5-9	44 (26.2)	76 (33.8)	-0.003 (-0.01, 0.008)	0.58
10+	71 (42.3)	57 (25.3)	-0.13 (-0.21, -0.05)	0.002
Total	168 (100)	225 (100)		
Tertiles of fried potato intake (times/week)				
0-1	66 (39.5)	125 (57.9)	0.20 (0.11, 0.29)	<0.001
2	41 (24.6)	52 (24.1)	-0.04 (-0.06, -0.01)	<0.001
3+	60 (35.9)	39 (18.1)	-0.16 (-0.24, -0.09)	<0.001
Total	167 (100)	216 (100)		
Tertiles of sweets intake (times/week)				
0-2	73 (43.5)	114 (51.6)	0.10 (0.004, 0.19)	0.04
3-4	32 (19.0)	47 (21.3)	-0.01 (-0.02, 0.001)	0.07
5+	63 (37.5)	60 (27.1)	-0.09 (-0.17, -0.003)	0.04
Total	168 (100)	221 (100)		
Tertiles of fast-food intake (times/week)				
0	43 (26.2)	89 (40.8)	0.19 (0.12, 0.28)	<0.001
1-2	58 (35.4)	95 (43.6)	-0.02 (-0.02, 0.004)	0.11
3+	63 (38.4)	34 (15.6)	-0.18 (-0.25, -0.10)	<0.001
Total	164 (100)	218 (100)		
Physical activity (days/week)				
Vigorous	2.6 (2.5)	2.9 (2.3)	0.27 (-0.22, 0.76)	0.28
Moderate	3.2 (2.7)	3 (2.3)	-0.18 (-0.69, 0.32)	0.47
Food insecure				
No	31 (18.9)	19 (8.6)		
Yes	133 (81.1)	202 (91.4)	0.10 (0.03, 0.17)	0.004
Total	164 (100)	221 (100)		
Nutrition secure				
No	107 (64.5)	154 (68.8)		
Yes	59 (35.5)	70 (31.3)	-0.04 (-0.14, 0.05)	0.37
Total	166 (100)	224 (100)		
Supplemental Nutrition Assistance Program (SNAP) use				
No	97 (58.4)	114 (51.6)		
Yes	69 (41.6)	107 (48.4)	0.07 (-0.03, 0.17)	0.18
Total	166 (100)	221 (100)		
Non-SNAP Nutrition Assistance Program use				
No	51 (30.5)	12 (5.3)		
Yes	116 (69.5)	213 (94.7)	0.25 (0.18, 0.33)	<0.001
Total	167 (100)	225 (100)		
Body mass index (kg/m²)	27.6 (5.5)	29.6 (6.3)	2.19 (0.92, 3.45)	0.001

Covariates	Non-participants n=168 N (%) or mean (SD)	Participants n=226 N (%) or mean (SD)	Unadjusted Prevalence Difference or Linear Regression Coefficient (95% CI)	P-value
Age – mean (SD)	51.9 (16.0)	54.3 (15.4)	4.02 (0.82, 7.22)	0.01
Gender				
Female	81 (49.4)	166 (74.8)	0.26 (0.16, 0.35)	<0.001
Male	79 (48.2)	54 (24.3)	-0.24 (-0.33, -0.14)	<0.001
Other	4 (2.4)	2 (0.9)	-0.02 (-0.04, 0.01)	0.26
Total	164 (100)			
Race/ethnicity				
Latinx	88 (54.3)	1194 (77.1)	0.26 (0.17, 0.35)	<0.001
Non-Latinx Black	29 (17.9)	82 (5.3)	-0.12 (-0.19, -0.06)	<0.001
Non-Latinx Other	14 (8.6)	142 (9.2)	-0.005 (-0.06, 0.06)	0.87
Non-Latinx White	31 (19.1)	130 (8.4)	-0.13 (-0.20, -0.06)	<0.001
Total	162 (100)	1548 (100)		
Income				
\$20,000 or more	31 (18.5)	330 (20.9)	-0.02 (-0.09, 0.06)	0.68
\$10,000-19,000	44 (26.2)	398 (25.2)	-0.003 (-0.02, 0.01)	0.67
Less than \$10,000	40 (23.8)	446 (28.3)	0.005 (-0.02, 0.03)	0.68
No earned income	53 (31.5)	403 (25.6)	0.01 (-0.05, 0.08)	0.67
Total	168 (100)	1577 (100)		
Education				
Any college	66 (41.3)	415 (27.3)	-0.17 (-0.25, -0.08)	<0.001
High school diploma or GED	44 (27.5)	345 (22.7)	-0.01 (-0.02, 0.003)	0.12
Less than high school	50 (31.3)	761 (50.0)	0.18 (0.09, 0.26)	<0.001
Total	160 (100)	1521 (100)		
Tobacco use				
Current User	40 (23.8)	119 (7.6)	-0.20 (-0.27, -0.13)	<0.001
Former User	25 (14.9)	180 (11.5)	-0.06 (-0.12, 0.01)	0.08
Never User	103 (61.3)	1264 (80.9)	0.26 (0.17, 0.34)	<0.001
Total	168 (100)	1563 (100)		
Chronic disease				
No	83 (50.0)	76 (34.2)		
Yes	83 (50.0)	146 (65.8)	0.16 (0.06, 0.26)	0.002
Total	166 (100)	222 (100)		
Non-nutrition assistance program use				
No	95 (57.2)	91 (41.2)		
Yes	71 (42.8)	130 (58.8)	0.16 (0.06, 0.26)	0.002
Total	166 (100)	221 (100)		
Walkability	14.7 (1.6)	14.5 (2.1)	-0.02 (-0.05, 0.01)	0.23
Supermarket access	0.7 (0.2)	0.7 (0.2)	0.034 (0.004, 0.08)	0.03
Access to physical activity resources				
No	86 (52.4)	57 (26.5)		
Yes	78 (47.6)	158 (73.5)	0.26 (0.16, 0.36)	<0.001
Total	164 (100)	215 (100)		
Obesity				
No	114 (75.5)	110 (60.8)		
Yes	37 (24.5)	71 (39.2)	0.15 (0.05, 0.25)	0.004
Total	151 (100)	181 (100)		
Weight loss medication use				
No	158 (94.6)	201 (92.2)		
Yes	9 (5.4)	17 (7.8)	0.02 (-0.03, 0.07)	0.34
Total	167 (100)	218 (100)		

Covariates	Non-participants n=168 N (%) or mean (SD)	Participants n=226 N (%) or mean (SD)	Unadjusted Prevalence Difference or Linear Regression Coefficient (95% CI)	P-value
CFHL class				
Nutrition or cooking class		60 (26.5)		
Physical activity class		20 (8.8)		
Free produce pick-up		134 (59.3)		
Other CFHL		12 (5.3)		
None of the above		0 (0.0)		
Total		226 (100)		
Times during the past year attended a CalFresh Healthy Living program?				
Never	168 (100)	0 (0.0)		
Once (first time ever)		0 (0.0)		
Once (not first time ever)		0 (0.0)		
Rarely		0 (0.0)		
Once a month		95 (42.0)		
Twice a month		63 (27.9)		
Three times a month		21 (9.3)		
Once a week		24 (10.6)		
More than once a week		23 (10.2)		
Total		990 (100)		
Perceived impact of effort to increase CalFresh benefit				
No difference in ability to afford foods	7 (4.3)	11 (5.2)	0.01 (-0.03, 0.05)	0.67
Small impact on ability to afford foods	10 (6.1)	19 (9.0)	0.03 (-0.02, 0.08)	0.29
Moderately impact ability to afford foods	18 (11.0)	35 (16.5)	0.06 (-0.01, 0.12)	0.12
Significantly impact ability to afford foods	75 (45.7)	111 (52.4)	0.07 (-0.04, 0.17)	0.20
Not applicable – do not receive CalFresh benefits	54 (32.9)	36 (17.0)	-0.16 (-0.25, -0.07)	0.004
Total	164 (100)	212 (100)		





Abbreviations

Abbreviation Full Term

BMI	Body Mass Index
CATCH	Coordinated Approach to Child Health
CDC	Centers for Disease Control and Prevention
CDSS	California Department of Social Services
CFHL	CalFresh Healthy Living
CFIR	Consolidated Framework for Implementation Research
CI	Confidence Interval
ECE	Early Childhood Education
HPI	Healthy Places Index
K-12	Kindergarten through 12th Grade
LAC	Los Angeles County
LACDPH	Los Angeles County Department of Public Health
RAND	Research and Development Corporation
SNAP	Supplemental Nutrition Assistance Program
SNAP-Ed	Supplemental Nutrition Assistance Program Education
SSB	Sugar-Sweetened Beverages
U.S.	United States
USDA	United States Department of Agriculture

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