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Dietary Behaviors among Public Health Center Clients with Electronic Benefit Transfer Access at Farmers' Markets

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ABSTRACT

Background Although increasing access to electronic benefit transfer (EBT) at farmers' markets has become a popular strategy for encouraging healthy eating, its relationships to a number of dietary behaviors in low-income populations are not well understood.

Objective To describe the frequency of and relationships between EBT access, fruit and vegetable intake, and sugar-sweetened beverage (SSB) consumption among public health center (PHC) clients with access to EBT at farmers' markets during 2011-2012.

Design Cross-sectional.

Participants/setting Low-income participants recruited from the waiting rooms of five multipurpose PHCs operated by the Los Angeles County Department of Public Health.

Main outcome measures Fruit and vegetable and SSB consumption (number per week).

Statistical analysis Data from the 2012 Los Angeles County Health and Nutrition Examination Survey were analyzed using multivariable regressions, with EBT access at farmers' markets as the primary independent variable. Covariates included EBT use, transportation behaviors, neighborhood attributes, and sociodemographic characteristics.

Results A total of 1,503 adults participated in the survey (response rate=69%). Of these, 529 reported receiving EBT benefits. Among these benefits recipients, 64% were women, 54% were aged 25 to 44 years, 62% were black, and 75% were unemployed or part-time employed. In multivariable regression analyses, EBT access at farmers' markets was positively associated with higher fruit and vegetable consumption; however, an association to SSB consumption was not demonstrated.

Conclusions EBT access at farmers' markets is related to higher fruit and vegetable consumption among PHC clients in Los Angeles County. However, the finding of no association to SSB consumption raises important questions about the need for strategies to discourage EBT recipients' purchase of foods of minimal nutritional value in other venues that accept nutrition assistance program benefits.
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DISPARITIES IN OBESITY PREVALENCE AMONG LOW-income and minority communities have been attributed to a number of environmental factors, including unequal neighborhood access to healthy foods and beverages (eg, fruits and vegetables and water as an alternative to soda).[1-4] In recent years, federally funded obesity prevention initiatives in the United States have focused on policy, systems, and environmental change strategies to address these and other socioecologic barriers to healthy eating.[5-8] For example, among underserved neighborhoods, strategies such as community gardens,[8] corner store conversions/makeovers,[9] and farmers' markets[4,10,11] have become popular as program interventions for increasing access to fresh produce. In particular, expanding the availability of farmers' markets is seen as an important grassroots strategy that can be tailored to increase access to affordable, fresh fruits and vegetables in geographic areas where there is a low density of supermarkets or grocery stores that sell these produce (ie, food deserts).[12] Research suggests that the popularity of farmers' markets could be the result of the strategy's natural capacity to promote community and social cohesion.[13] The US Department of Agriculture (USDA) views farmers' markets as a community-based, portable intervention that can be implemented with relative ease.[14,15]

Although greater access to farmers' markets could benefit recipients of federally funded nutrition assistance programs such as the Supplemental Nutrition Assistance Program (SNAP), acceptance of these program benefits via electronic benefit transfer (EBT) at point of purchase is often limited for a number of reasons. Presently, access to EBT terminals at farmers' markets is not readily available in many jurisdictions. In most farmers' markets across the United States, acceptance of SNAP benefits through EBT is optional and

voluntary.[13] Point-of-sale terminals are typically used to accept EBT transactions at farmers' markets.[16,17] Although many markets can access the required point-of-sale terminals free of charge from the USDA Food and Nutrition Service,[18] having access to electricity and/or a landline often pose barriers to their wider use.[19,20] In addition, costs such as those related to contracting third-party vendors to process EBT transactions are added barriers to EBT acceptance in these venues.[16,17] Despite these barriers, recent research suggests farmers' markets and market operators do value low-income shoppers and are willing to take on the inconvenience of meeting their needs, especially in cases where technical support or subsidies are available.[21]

From a public policy and practice perspective, increasing EBT access at farmers' markets represents a potentially promising approach for improving food access equity in underserved populations.[13] This viewpoint is reinforced by major funders who have invested and continue to invest in nutrition strategies involving farmers' markets. The Centers for Disease Control and Prevention (CDC), for example, have encouraged the development of new or expansion of existing farmers' markets (especially those that accept EBT) as a place-based strategy to increase healthy eating in low-resource communities.[10,22,23] The Robert Wood Johnson Foundation's Community Health Improvement Navigator—a tool that identifies evidence-based public health interventions and best practices for informing decision making—ranks farmers' market strategies as having "some evidence" of effectiveness.[24] And in its most recent strategic plan (2014 to 2018), the USDA recommends authorizing eligible vendors in low-access areas to equip farmers' markets to accept SNAP benefits via EBT.[25]

Despite these recent interests and efforts involving farmers' markets, much remains unknown about the relationship between having access to this venue and healthy eating among target groups, especially in urban settings. One recent study of about 200 SNAP participants reported that shopping at farmers' markets was associated with high consumption of fruit and vegetable intake. However, the study was conducted in a rural setting.[26] To date, no studies have examined the relationships between EBT access at farmers' markets and dietary behaviors (eg, fruit and vegetable and sugar sweetened beverage [SSB] consumption) in a low-income, urban population.

To help address these gaps in public health practice, the present study examined the association between EBT access at farmers' markets and dietary behaviors in a predominantly low-income population in Los Angeles County; that is, clients of the public health center system in the region. In the study analyses, the first primary outcome—healthy eating (operationalized as fruit and vegetable consumption)—was selected because it represents a lifestyle factor that affects obesity and chronic disease risk[27,28] and because fresh produce is readily available at farmers' markets. The second primary outcome—unhealthy eating (operationalized as SSB consumption)—was selected because it represents food of minimal nutritional value.[29,30] Its consumption could shift with increased access to farmers' markets. Given that farmers' markets main sales product is fruits and vegetables, we hypothesize that increased EBT access at this venue is associated with increased fruit and vegetable consumption. Based on prior study findings, we further hypothesize that increased EBT access at farmers' markets is not associated with SSB consumption. For example, in their recent study of SNAP participants in rural North Carolina, Jilcott Pitts and colleagues[26] observed a decrease in SSB consumption among SNAP participants who shopped at farmers' markets, but the association did not reach statistical significance.

METHODS

Study Sample

This study used cross-sectional data from the second round of the Los Angeles County Health and Nutrition Examination Survey (LAHANES-II). The data were collected between February and April 2012 at five safety-net, multipurpose public health centers operated by the Los Angeles County Department of Public Health (DPH). The LAHANES-II collected objectively measured anthropometric and clinical measurements, including height, weight, and blood pressure, and self-reported information on sociodemographic characteristics, chronic disease status, dietary and physical activity self-efficacy and behaviors, and factors related to the food environment (eg, EBT use at farmers' markets). The self-reported information was completed via a 95-item self-administered questionnaire. The questionnaire included questions drawn from validated surveys (eg, questions on fruit and vegetable intake and SSB consumption),[31] and questions that were developed internally (eg, EBT use behaviors) for emerging topics with limited literature. All relevant protocols and materials related to LAHANES-II were reviewed and approved by the DPH Institutional Review Board before field implementation. The behavioral profiles of the LAHANES-II participants have been described and published elsewhere.[32]

Recruitment of Participants

Los Angeles County residents were eligible to participate in the LAHANES-II if at the time of recruitment they were at least aged 18 years, spoke English or Spanish, were a client (patient) of one of the five selected DPH-operated public health centers (out of 14 centers total), were not pregnant, and agreed to complete anthropometric and self-administered assessments on specified days at specified locations. Participants were recruited from these centers because in recent years they have been the intended audiences of a range of obesity prevention efforts in the region,[33] including efforts to increase CalFresh (ie, California's SNAP) EBT use at farmers' markets.[34,35]

Before enrollment in the LAHANES-II, each prospective participant provided written informed consent to participate. Participants who completed the LAHANES-II assessments received a $50 gift card. Details of study recruitment methods have been published elsewhere.[32]

Measures

Measures Used in the Descriptive and Regression Analyses. Fruit and vegetable and SSB consumption among LAHANES-II participants were measured using validated questions adapted from the National Institute of Health's Eating at America's Table Quick Food Scan.[36] To measure fruit and vegetable consumption, participants were asked to answer a 6-item scale to estimate the daily intake of fruits for breakfast or morning snacks, vegetables for breakfast or