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Variation in WIC Cash-Value Voucher Redemption among American Indian Reservation Communities in Washington State

Kimberly C. McLaury, MPH¹, Valarie Blue Bird Jernigan, DrPH, MPH², Donna B. Johnson, PhD, RD¹, Dedra Buchwald, MD³, and Glen Duncan, PhD⁴

¹Nutritional Sciences Program, University of Washington, Box 353410, Seattle, WA 98195

²Health Promotion Sciences, College of Public Health, 4502 E 41st St., Tulsa, Oklahoma 74135-2512

³University of Washington, Partnerships for Native Health, 1100 Olive Way, Suite 1200, Seattle, WA 98101

⁴Washington State University, Department of Nutrition and Physiology, PO Box 1495, Spokane, WA 99210-1495

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Introduction

The United States Department of Agriculture (USDA) Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), established in 1975, is a federal grant program for which Congress authorizes a specific amount of funds each year to provide nutrition education, social service referrals, and food supplement packages to low-income pregnant women, infants, and children at risk for poor or inadequate nutrition.¹ In 2006, prompted by a rising national obesity prevalence² and recommendations by the Institute of Medicine,³ the USDA issued new regulations to improve the nutritional content of the WIC food packages.⁴ An important change was the inclusion of cash-value vouchers (CVVs) that could be used toward the purchase of fresh fruits and vegetables to encourage consumption of these foods.⁴ In 2009, in accordance with the new regulations, the Washington State WIC agency began issuing CVVs for fresh fruits and vegetables with monthly values of six dollars for children and ten dollars for pregnant, breastfeeding, and postpartum women.

Limited evidence suggests that providing WIC participants with CVVs increases consumption of fruits and vegetables^{5,6} and improves access to healthy foods in urban areas.⁷ A recent study of urban WIC participants identified individual-level barriers to using CVVs such as difficulty separating and calculating the CVVs and unfamiliarity with fruits

and vegetables.⁸ Environmental barriers included both an absence of produce and poor quality produce in stock in the stores accessed by participants.⁸

The impact of the CVV program on healthy food access and consumption in rural food environments remains poorly understood, particularly within American Indian reservations, areas of land managed by Native American tribes rather than state governments where the reservations are located.⁹ National data show that 39% of American Indian children ages two to five years are overweight or obese,¹⁰ a majority of American Indian community members rely on federal food and nutritional assistance programs,^{11–14} and the availability of high-quality produce is limited.^{11–14} Indeed, a 2011 report issued by the Wisconsin State WIC program found that American Indian and Alaskan Native participants had the highest non-redemption of CVVs, and the lowest full-redemption of CVVs among all racial and ethnic groups.¹⁵ One explanation for the low redemption cited by the Wisconsin report included cashiers prohibiting Native WIC participants to use the CVVs beyond the dollar amount printed on their check, regardless of Wisconsin WIC Program rules that permit WIC participants to pay for fruits and vegetables beyond the amount listed on their checks.¹⁵

Our own research examined food access and cost on all 22 land based reservations within Washington state using the Thrifty Food Plan market basket tool developed by the USDA.¹⁴ We assessed the type of store (i.e., supermarket, grocery, or convenience), location, and number of stores by type, as well as the availability and price of market basket food items. We also separated tribes without supermarkets from those with supermarkets within their tribal lands. Because many tribes are located physically distance from metropolitan areas, we found that the average distance to a supermarket for all tribes in the state was 11.1 miles but the range was considerable (0.4 to 44.4 miles). Thus, that most reservations had limited availability of fresh fruits and vegetables and that these foods were more expensive than in non-reservation communities.¹⁴

Similarly, our previous studies of food access and food security in rural and reservation communities in California noted structural and environmental barriers to vegetable and fruit consumption, including geographic isolation and limited availability of fresh produce.^{11,12} American Indians reported buying meals from convenience stores, which sold primarily unhealthy foods (sodas, chips, candy) and rarely carried produce.¹¹ The Apache Healthy Stores study, one of the only other studies examining reservation food environments, also found that reservation residents had extremely limited access to fresh fruits and vegetables and, when produce was available in reservation stores, it was often of poor quality and highly priced.¹⁶

Therefore, this study aimed to 1) estimate CVVs redemption among reservation and non-reservation WIC clinics in Washington State; and 2) examine differences in CVV redemption between reservation-based WIC clinics that have and do not have supermarkets located on the reservations.

Methods

This was a secondary cross-sectional analysis that combined two data sets. Using data from the Washington State Department of Health WIC Program, we separated 212 WIC clinics throughout Washington State into tribal and non-tribal clinics. Washington State is home to 29 federally recognized tribes; seven are landless, which leaves 22 tribes with reservations. Using a list from the Washington State Department of Health WIC Program, a researcher called all of the tribal WIC clinics to determine whether or not a WIC clinic was physically located on the reservation.

We obtained data from the Washington State Department of Health WIC Program on the number of checks issued per month and the number of checks cashed per month at each clinic. With these data, we calculated the annual CVV redemption data for each tribal and non-tribal WIC clinic. The number of checks issued and number of checks cashed for each WIC clinic were summed for the year. A mean monthly CVV redemption for each WIC clinic was determined by dividing the number of checks cashed by the number of checks issued for each clinic, generating the annual redemption for every WIC clinic.

To address the second aim of the study, the WIC CVV data were matched with data on food access and the nutrition environment of American Indian reservations in Washington State obtained from our previous investigation noted previously.¹⁴ The specific instrument used was the USDA Food Security Assessment Toolkit, Food Store Survey Instrument market basket.¹⁷ The data were collected between April and May 2009; 16 tribes in Washington State did not have a supermarket on their reservation, and five tribes had supermarkets located within the bounds of the reservation. Using data from two different time periods was justified based upon the assumption that access to food remained unchanged. One of the tribes in the previous investigation did not have a designated WIC clinic, and therefore, was not included in the CVV redemption data; this tribe did not have a supermarket located on their reservation.

Data Analysis

To address the primary aim, a two-sided, independent samples t-test at the 0.05 alpha level was used to test for differences between tribal and non-tribal clinics. Distribution of data was shown using the Tukey box plot. To address the second aim, we compared WIC clinics located on reservations with supermarkets and WIC clinics were located on reservations without supermarkets. A two-sided, independent samples t-test at the 0.05 alpha level was used to test for differences between tribes with and without supermarkets. Tukey box plots were used to show distribution. All analyses were conducted using Stata 13 (College Station, TX).

Results

Of the 22 land-based tribes, 21 had one or more WIC clinics located on their reservations. A total of 27 WIC clinics were located on 21 federally recognized reservations, and 185 WIC clinics not located on reservations. Of the 27 tribal WIC clinics, 10 were located on reservations with supermarkets and 17 were located on reservations without supermarkets.

The distributions of non-tribal and tribal WIC CVV redemption are shown in Figure 1. Among a total of 212 clinics, six non-tribal WIC clinics were missing complete data for the 2011 calendar year. All tribal WIC clinics had 12 months of complete data. The mean percent CVVs cashed for non-tribal WIC clinics was 0.806 and the mean for tribal WIC clinics was 0.652. The proportion of CVV cashed differed between non-tribal and tribal WIC clinics ($p < 0.0001$).

CVV redemption for tribes with and without supermarkets on their tribal lands is depicted in Figure 2. The mean percent CVV cashed was similar for tribal WIC clinics with and without supermarkets (0.652 vs. 0.651, $p > 0.05$).

Discussion

We found significant disparities in CVV redemption in Washington State for tribal reservation WIC clinics, compared to non-tribal clinics. Although our work cannot address the reasons for this finding, our results seem to be consistent with the literature on barriers to CVV redemption in general, and limited food access in the American Indian population in Washington State more specifically.¹⁴ For example, barriers to the redemption of CVVs identified in previous studies of non-Native populations include negative interactions with cashiers, variability between stores in the enforcement of CVV redemption rules, and embarrassment while using CVVs.¹⁸ In Washington State, barriers among WIC participants include cost of produce, unfamiliarity with certain fruits and vegetables, frustration with calculations required to use the CVV, and misunderstandings about how to use CVVs.⁸

We found no differences in CVV redemption between WIC clinics located on federally recognized reservations with supermarkets and those without supermarkets. The Washington State reservations range in size from 12 to 1,400,000 acres.⁹ Thus one possible reason for this finding is that many of the smaller tribes are located close to urban areas, allowing residents to commute to non-tribal supermarkets. Additionally, within larger tribal reservations that may span several counties, a supermarket on one part of the reservation may increase healthy food access for tribal members located in the vicinity of the supermarket, but not for those located at a distance. These findings are not congruent with a previous study that reported increased distance to a supermarket was associated with lower availability of more healthful foods among lower-income rural residents.¹⁹ Likewise, studies using Census tract data have documented that neighborhoods with supermarkets have a 9% lower prevalence of overweight, and a 24% lower prevalence of obesity compared to Census tracts without supermarkets.²⁰

This study has several limitations. First, 6 WIC clinics had incomplete data available (with between 2 to 10 months of data), most likely because the clinics either closed or opened partway through the year. Therefore, data were aggregated and percentages by number of observations (i.e., months), rather than actual numbers, were calculated so as to minimize the impact of less than annual data on the study results, although this may have still led to some bias in the measurement of redemption proportions. Second, the environmental data on food stores and food access was gathered in 2009 and the data on CVV redemption were collected in 2011. Some food stores may have closed prior to 2011 or new stores might have

opened, thereby potentially influencing the number of stores that could serve WIC clients. Third, in response to the new WIC program guidelines and CVVs, reservation-based food stores may have increased their stocks of fresh fruits and vegetables, as has been the case in some urban areas,^{6,21} which could have biased the results (i.e., reflecting a lower proportion of CVV redemption than might otherwise occur with more fruit and vegetable availability).

Finally, our study lacks qualitative input from participating tribes and tribal community stakeholders. Future research must engage the broader tribal community, which could lead to greater insights into shaping tribally-led approaches to changing the food environment across Indian Country. Examples of such current research efforts underway include the National Heart, Lung, and Blood Institute-funded THRIVE study – Tribal Health and Resilience in Vulnerable Environments – which aims to identify physical, social, and environmental factors contributing to obesity within American Indian reservations and implement “healthy makeovers” in tribally-owned convenience stores.²² Another example is the Healthy, Native North Carolinians Initiative (HNNC).²⁴ Informed by qualitative, spatial, and policy analyses gathered through the community-based participatory research project known as the American Indian Healthy Eating Project,²³ HNNC works with tribes and urban Indian organizations in North Carolina to develop, implement, evaluate, disseminate, and sustain tribally-led community changes that promote active living and healthy eating. Taken together, these efforts are beginning to shed light on barriers and facilitators to healthy eating in rural and reservation-based American Indian communities.

Conclusions

Evidence suggests that the new WIC food package and CVVs are increasing fruit and vegetable consumption among WIC participants.^{5,6,7} However, tribal WIC participants may not be benefiting from the CVVs for unclear reasons. Our findings add to a limited literature on tribal reservation-based WIC programs and CVV redemption.¹⁵ Although tribal WIC CVV redemption was not associated with the presence or absence of a reservation-based supermarket, access to fresh produce may still be an issue for Washington State tribes. Even among those tribes with a supermarket on their reservation land, the average distance to a supermarket was 5.3 miles (range = 1.1 to 14 miles) whereas among those without a supermarket on their reservation land the average distance to a supermarket was 11.1 miles (range = 0.4 to 44.4 miles).¹⁴ Thus, more research is needed to determine the causes around low CVV check redemption, including the use of geographic information system data to determine exact locations of stores and WIC clinics, as well as socioeconomic and cultural barriers to CVV redemption within the reservation setting.

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Figure 1. Distribution of cash-value voucher (CVV) redemption rates for non-tribal and tribal Special Supplemental Nutrition Program for Women, Infants and Children Program (WIC) clinics over the 2011 calendar year.

Figure 2. Distribution of cash-value voucher (CVV) redemption rates for tribal Special Supplemental Nutrition Program for Women, Infants and Children Program (WIC) clinics with and without supermarkets located on their reservation for the 2011 calendar year.