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Abstract

Social ecology models applied to eating behaviors and health outcomes in low-income urban areas have focused on food deserts and other structural constraints to healthier eating. This study expands that work by identifying culturally specific constraints on food behaviors among low-income urban Native Americans. Exposure to commodities packages supplied by the Food Distribution Program on Indian Reservations has created a new conception of what is meant by "traditional food," creating a barrier to change. However, this study identifies opportunities to expand the institutional role of urban Indian Centers, allowing for culturally sensitive interventions to mitigate the negative impacts of obesogenic cultural drift.

Introduction

Nutrition transition is a shift in nutritional patterns within populations from associations with being underweight and having a high prevalence of infectious diseases to patterns dominated by being overweight or obese and suffering from nutrition-related noncommunicable diseases (Astrup et al. 2007; Compher 2006; Popkin and Gordon-Larsen 2004). This worldwide phenomenon has been driven by changes in economic factors, such as participation in wage labor systems and increasing discretional income, and social factors, such as more leisure time, technological changes for work, and mass media growth. Both of these are associated with urban-industrialized lifestyles. Essential to this process is a move away from nutritionally dense traditional foods, which are heavier in fiber, animal source proteins, and minerals (Kuhnlein and Receveur 2007), to processed energy-dense convenience foods and sugar-rich beverages (Popkin 2004).

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The consequences of this transition, combined with shifts in physical activity and the forces of acculturation, represent a double burden for the world's poor (Raschke and Cheema 2007; Turner and Turner 2008) and for indigenous people (Damman, Eide, and Kuhnlein 2008; Foley 2005; Kuhnlein and Receveur 2007). American Indian/Alaska Native (AIAN) populations have been deeply impacted by this trend (Kuhnlein and Chan 2000). Gittlesohn et al. (2006) and Companion (2008) find that food behaviors on reservations mirror that of nutritional transition: dominated by prepackaged components that are high in fat, sugar, and sodium. Greater exposure to television has heightened the sedentary nature of leisure time but also increased the number of cultural food/consumption messages aimed at youth. This fosters an obesogenic culture of eating among young people (Stevenson et al. 2007).

While studies of eating patterns in reservation communities exist, there is a dearth of research on AIANs living in urban centers. Existing research indicates a correlation between urbanization and negative implications for nutritional status associated with obesity, such as rates of Type 2 diabetes, hypertension, and cardiovascular disease (Urban Indian Health Institute [UIHI] 2008). Other work focuses on the difficulties in achieving a low-cost, nutritious diet as a result of "urban food deserts" (Companion 2010; Drewnowski 2007; Zenk, Schultz, Hollis-Neely, et al. 2005; Zenk, Schultz, Israel, et al. 2005).

However, little work has been done that focuses on the *culturally specific* constraints of eating habits among low-income AIANs living in urban centers. This study seeks to address that absence in the literature through in-depth interviews. By providing a look at the social and cultural forces at work in the food landscape, as framed by social ecology models, culturally sensitive strategies emerge to empower respondents to alter consumption patterns. Included in these suggestions is an expansion of the institutional role for urban Indian Centers.

Background

Social Ecology Models as a Theoretical Framework

Social ecology models recognize that biology and genetics represent one facet of the forces that result in health outcomes. They posit that an individual's health status is also influenced by interactions of broad social and economic trends, physical environment, cultural forces, and social relationships (Cassel 2010; Larson and Story 2009; Smedley and Syme 2001). For example, social ecology models frame access to supermarkets as "part of the physical and economic environment in which people make food choices, an environment that conditions, or at least reinforces consumer food choices" (Hawkes 2008:658).

Variations of this model, such as Cockerham's (2005) Healthy Lifestyle Theory, focus on the interplay between agency and structure. Cockerham defines agency as life choices based on socialization and experience. Structure shapes life chances and is influenced by class circumstances, age, gender, race, collectivities (how we are linked through social relationships such as work, kinship, and religion), and living conditions (Cockerham 2005:59). Frohlich, Corin, and Potvin's (2001) Collective Health Lifestyles posits that health risk factors, which can be observed in individuals, are created and reinforced within larger, specific contexts (Frohlich, Corin, and Potvin 2001:779). They define lifestyles as "patterns and ways of living or as behaviors and their interactions with cultural, social, psycho-social factors" (Frohlich, Corin, and Potvin 2001:784). Collective lifestyles, then, are "the relationship between people's social conditions and their social practices" (Frohlich, Corin, and Potvin 2001:785). Delormier, Frohlich, and Potvin (2009) expand upon this, focusing on food and eating as a social practice rather than just an individual behavior. They argue that "eating patterns form in relation to other people, alongside everyday activities that take place in family groups, work, and school" (Delormier, Frohlich, and Potvin 2009:217).

What these theoretical frameworks share is an acknowledgment that discussions of health-related risks, outcomes, and behaviors need to move beyond medical models. As Cassel (2010) noted, culture-specific concepts of health are critical in identifying interventions that lead to better health outcomes. This must include a discussion of food consumption and nutrition-related behaviors. Due to the unique economic, cultural, political experiences of Native America, social ecology models can provide a useful framework for exploring factors related to diet and nutrition-related opportunities and challenges within the urban AIAN population.

Poverty, Nutrition, and the Link to Health Issues within AIAN Populations

Low socioeconomic status is one of the most powerful risk factors for poor health outcomes (Companion 2008; Halpern 2007). AIANs are economically disadvantaged in comparison with the U.S. general population, putting many at risk (Companion 2008; Indian Health Service [IHS] 2009a, 2009b). The average life expectancy for AIANs is 5.5 years less than the average U.S. population (IHS 2009b).

Studies show the vulnerability of AIANs to health conditions related to overnutrition, including obesity, diabetes, heart disease, and hypertension (Compher 2006; IHS 2009a, 2009b). Data reflect the relationship between morbidity and mortality among the IHS service population and socioeconomic and environmental conditions (Compher 2006; IHS 2009a, 2009b; UIHI 2008). For example, above average non-insulin-dependent diabetes mellitus rates in AIAN populations has been attributed to the increasing prevalence of obesity due to dietary constraints and food consumption patterns. The age of onset of diabetes is occurring at younger ages as obesity rates increase (IHS 2009a, 2009b).

Poverty limits access to healthful foods. Inexpensive items suitable for stretching a meal (e.g., potatoes and rice) are purchased more frequently than perishable fruits and vegetables (Halpern 2007). This results in limited dietary variation among reservation residents (Companion 2008; Compher 2006; Dillinger et al. 1999). These diets are dominated by simple carbohydrates and fats (Phillips and Finn 2000; Taylor, Keim, and Gilmore 2005; Taylor et al. 2006), such as potatoes, sugar, butter, lard, soda and canned fruit drink, processed meats, snack foods, white flour, and pasta.

Recent studies of urban AIAN health identify similar patterns. UIHI (2008) reports that urban AIANs have high rates of obesity and diabetes. IHS (2009a, 2009b) studies demonstrate that reservation physiological pathologies are migrating to urban areas along with the population. However, there have been no detailed discussions of the *cultural significance*, shaped by poverty, of consuming specific types of food, and the role of these forces as carriers of obesogenic patterns.

This is relevant because Feeding America's (2008) data show 57.4 percent of America's hungry live in urban areas. The updated census (2004) estimates that 62.3 percent of self-identified AIANs live off reservation, with 58 percent living in urban areas. Healthy People 2010 (2006) reports 23 percent of the AIAN population as food insecure. Not only does hunger exist coterminously with obesity and overweight among low-income AIANs (Egeland et al. 2010), but the risk of nutrition-related health problems, including Type 2 diabetes, is also high in this population.

The Food Environment

Food preferences and consumption habits are shaped by numerous factors. Hseih (2004:84) notes that food habits are influenced by the interaction between individuals and their social and physical environments, not simply by health knowledge. Frohlich et al. (2001) emphasize

collective lifestyles, which create and reinforce patterns of food consumption. Swinburn and Egger (2002) argue that these interactions shape the obesogenicity of an environment, defined as "the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations" (p. 290). Lake and Townshend (2006:263) expand this to include the physical design of an area (the built environment), the sociocultural rules that govern the environment, and the socioeconomic status of the environment.

The food environment is a critical component of obesogenicity. It includes availability and access, as well as advertising, marketing, and strategic proximity, such as locating fast food restaurants near schools. Social ecology models are useful, because they address the breadth of factors influencing choices and obstacles to healthier eating in the entire urban food environment (Companion 2010).

A significant constraint faced by low-income, inner-city residents is access to fresh produce at reasonable prices. Community mapping around neighborhoods where interviews were conducted for this study affirm the existence of "food deserts." While fast food restaurants, liquor stores, and shopettes could be found in abundance within a 1-to-2-mile radius, there were no full service grocery stores.

Hawkes (2008:666) notes the negative health implications of living in areas with few supermarkets. She finds a reduced quality of diet as a result of access constriction. Ard et al. (2007:367–368) find that the proximity of fast food restaurants, combined with the dearth of full service grocery stores and decreased disposable income, can lead to the displacement of fruits and vegetables from low-income diets. As cost per serving predicts the availability of produce in the home, they find that significantly lower retail prices for sugar, sweets, fat, and oils result in dietary displacement.

Another important component in the food environment is children. Studies (Chase et al. 2003; Damman et al. 2008; Foley 2005; Hargreaves, Schlundt, and Buchowski 2002; James 2004; Mueller et al. 2010; Raschke and Cheema 2007; Stevenson et al. 2007; Wiig and Smith 2008) find that children have a tremendous influence on food shopping and preparation patterns. Lake and Townshend (2006) note that marketing strategies aimed at children contribute to the obesogenic environment by enhancing "pester power" (p. 265). Lobstein and Dibb (2005:204) identify indirect effects of advertising that encourage obesity by normalizing the image of a particular diet. An example is McDonald's "I'm loving it!" campaign, which advocates a lifestyle component by depicting young, "hip," people having fun in outdoor, urban settings.

Stevenson et al. (2007:426) note that food-related messages targeting youth foster an obesogenic environment because they associate pleasure with energy-dense food. They maintain that the social rewards of fast food consumption are increased through pop culture references to advertising ("Yo quiero Taco Bell") and the promotion of cultural images through the ads themselves. Their findings are supported by Larson and Story (2009) and Mueller et al.'s (2010) study of food-related behaviors in school contexts. Mueller et al. (2010) note that schools are bounded institutions that generate "adolescent peer cultures with specific values and codes. These school cultures can become influential to individual student behaviors, particularly when conformity helps adolescents gain social status among their peers" (p. 65).

Mueller et al.'s (2010) social comparison theory adds a dimension to social ecology models that is important for understanding nutrition transition among indigenous people. It is also relevant for understanding how obesogenic cultural environments are reinforced by children and parents. Social comparison is a process that occurs in a specific social context. "Social comparison generally leads individuals to feel pressured to conform to those with whom they compare themselves" (Mueller et al. 2010:66).

The desire to conspicuously consume brand name products and foods and to shun traditional foods is related to social comparison. Damman et al. (2008) find that indigenous youth associate traditional foods with shame, stigma, and backwardness. They attribute changes in preference to

an obesogenic environment that includes schools, which advance acculturation pressures at an institutional level, peer pressure at an individual level, and the media. They find that the media promotes "western images and ideals of the 'good life,' including food commercials" (Damman et al. 2008:147). Ads instruct children how to act and what to eat to succeed in "modern youth culture."

Social comparison theory is also relevant for understanding adult purchasing and food consumption patterns, and how these reinforce obesogenic environments. Hargreaves et al. (2002:133) find that social influences represent significant barriers to eating healthy. When and with whom food is eaten are significant components of socializing and leisure behaviors. In these situations, pressure to share certain dishes and consume certain types of foods overcome health messages and even health risks. Similarly, James (2004:349) notes that friends and relatives are often not supportive of dietary changes.

Method

A community center that serves the Native American population (hereafter, "Indian Center") in a low-income midwestern metropolitan area was randomly selected from a pool of 11 suitable sites as the starting point for this study. Centers under consideration had to be located in inner-city zones, have comparable population density, and have a food pantry. Key informant interviews located initial participants or "seeds" for the study.

Respondent-driven sampling (Heckathorn 1997, 2002), a social network referral method, identified the remaining participants. This methodology is designed to access individuals who might not participate in studies using other sampling methods. "Seeds" initiate a chain of referrals by recruiting a set number of peers (two), who are not immediate family, to participate. They recruit two others. According to Heckathorn (1997), once referral chains are sufficiently long (4–5 waves), the final sample will contain characteristics independent of the seeds. This methodology allowed for deeper penetration into the local AIAN population.

The final sample contains 37 AIAN men (11) and women (26) living in lower-income areas around the city. The sample is skewed toward female participants, as some men deferred to partners who were responsible for doing the shopping. Questions were posed in a semistructured format, focusing on food choices in the context of personal, behavioral, and environmental factors. Participants provided information on demographics, food access (use of food pantries, food stamps, types of stores frequented, mode of transportation), food context (exposure to traditional foods, participation in the Food Distribution Program on Indian Reservations [FDPIR], television-viewing habits, knowledge of nutritional information), and health-driven changes (shifts in patterns of consumption due to their own illness, someone else's, exposure to new information, etc.). A summary of participant characteristics can be found in Table 1.

Interviews were conducted and transcribed by the author. Interviews lasted anywhere from 90 to 120 minutes. A content analysis was performed on interview transcripts by the author. Key themes were identified using the inductive, grounded-theory approach suggested by Corbin and Strauss (2008).

Findings

A content analysis of the interview transcripts reveals several influences on food behaviors. These include local food access, television viewing and advertising familiarity, connections to reservations and other traditional influences, habits or learned patterns, and the influence of friends, family, or intimate others. These will be discussed according to their larger thematic elements comprising access to food, food preferences, forces of acculturation, and rejection of forces of acculturation.

Table1. Participant Characteristics and Response Summaries

	Respondent	
	Male (n = 11)	Female (n = 26)
Age range		
20–30	2	6
30–40	4	10
40–50	3	7
50–60	1	2
60–70	1	1
Currently employed FT	1	1
Currently employed PT	7	11
Mean number of years in city[a]	11.3	7.4
Receive government assistance[b]	2	17
Use of food pantry, other	2	23
Use of Indian Center pantry	6	26
Use of food stamps (SNAP)	5	25
Own a car	2	0
Access to full service grocery store	0	0
Participated in FDPIR	4	17
Exposed to tribal foods	6	20
Rate nutritional knowledge		
High	0	0
Medium	1	10
Low	7	14
None	3	2
Television-viewing habits/day		
Heavy (5+)	3	6
Medium high (4–5)	6	13
Medium (3–4)	2	7
Medium low (1–2)	0	0
Low (0–1)	0	0
Ever been to their reservation	9	22
Travel to reservation in past		
1 month	0	3
6 months	0	8
1 year	7	19
2 years	8	19

Note: FDPIR = Food Distribution Program on Indian Reservations; FT = Full time; PT = Part Time.
[a]Time spans are misleading as a large proportion of respondents lived in the city for a few years, returned to the reservation for a few years, then back again.
[b]This excludes participation in Supplemental Nutrition Assistance Program (SNAP).

Local Food Access

Wiig and Smith (2008) noted that food choices and shopping behavior are shaped by economic and environmental situations. Access to food sites and transportation is a central issue for this survey's participants too. None have direct access (walking distance or one bus route) to full service grocery stores; two have cars. Respondents are reliant on specialty stores or shopettes.

Female 12 states, "I don't like to waste my food stamps on the local places. They charge a lot. But, sometimes, I have no choice."

Many who ride the bus complain about the distance between routes, the time it takes to transfer across multiple routes, safety, spoilage, weather conditions, and the limitations on the quantity of food that they can carry. Others are able to go on a "big shop" once a month by getting rides from friends or church members. States Female 23, "My best friend's car is really on its last legs . . . I don't want to be left with nothing if I can't get to the store. I try to pile up as much food as I can afford per trip!"

Hawkes (2008:676) finds that lower socioeconomic status, combined with lack of mobility, has strong implications for diet. She noted, "The first dietary implication of this is that consumers are more likely to buy the foods that are perceived to be 'good value' relative to others . . . The second dietary implication is that consumers will buy more." All respondents echo this, stating that access limitations change their shopping strategies. They stock up on nonperishable, light, prepackaged foods, like instant noodles (e.g., Ramen) when they are walking and heavy canned goods, when they have access to rides. All items are selected with an eye to store discounts (e.g., "3 for $1.00").

Shoppers also focus on convenience and complete meal items. Female 5 notes, "I buy a lot of Spaghetti-Os. My kids can crack one of those open themselves . . . It's got meat and stuff in it, so they get everything they need in one can." Female 17 says,

> I don't have a lot of space . . . I've got my sister's kids as well as mine . . . I can make better use of out of what space I got by buying beefy soups and Beef-a-Roni and them. I just open a few cans of that, it's all together, and I can feed the lot!

Food Preferences

Spam and potted meats, like stew beef in gravy, are popular items. Meat emerges as a central ingredient in meals. Shoppers are concerned that they will run out mid-month and not be able to provide "real meals." Thus, when they are able to access cars, they stock up on meat-laden items. "I feel guilty if I don't have something substantial, you know? It's like I'm not giving them real food . . . I really feel like I failed if I can't come up with some meat," noted Female 11.

Because sociostructural factors compel shoppers to spend their food budget in one or two trips, all respondents report that food resources are stretched by the end of the month. Thirty-two respondents (86%) supplement their purchases with supplies from local food pantries or the Indian Center. Often, families use both. However, taste preferences play a significant role in determining which donated foods are taken home. Nineteen respondents (59%) admit to looking through their food bags and leaving things they don't want outside the building. "I know it's food and food is food, but I really don't like lima beans . . . you really couldn't pay me to eat 'em. I'd gag" (Male 7). "There's lots of corn, which is okay, but beets? I wish we'd get stuff we can really use like refried beans. Sometimes we get canned beans, but my kids won't eat them. They only like Taco Bell kinda beans" (Female 4).

Thus, even when resources are tight, people reject food due to personal and family taste preferences, supporting studies that demonstrate these impacts on shopping patterns (Chase et al. 2003; Foley 2005; James 2004; Wiig and Smith 2008). Says Female 12,

> My kids are real picky eaters. They just won't touch some of the things in there . . . And . . . there's some stuff I don't know what to do with. How do you serve okra? My kid just looked at the can and started making faces . . . It could be the best thing on the planet, but I can't get 'em past the look.

Only Female 4 re-donated the items that her family wouldn't eat.

> Oh, I always take everything home. Even if we don't eat it, you know someone will . . . I take it to church with me and donate it there. It makes me feel like I'm contributing. I hate feeling like I'm the only one that never gives anything when they have the food drives.

Forces of Acculturation

Taste preferences are influenced by the pressure to acculturate, as promoted through television and advertising messages, the amount of movement between the city and reservation, and cooking habits. Participants report that television advertising shapes their food preferences and the pressure that children put on them. This contributes to social comparisons and fosters and reinforces an obesogenic environment. "Really, who doesn't want to fit in? There are so many negative images of us out there: crazies, drunks. Sometimes it is just easier to do small stuff to kinda blend" (Male 5).

The interviews demonstrate the centrality of fast food in urban AIAN diets. All report buying something twice a week. Seventeen (46%) report making purchases four times a week or more.

> I'm not embarrassed to be Indian. I just don't like to call attention to it. I just want to be myself. Sometimes, if wearing the right clothes or carrying around fast food stuff makes it easier, okay. It's worth the extra money to not always stand out. (Female 7)

These factors are heavily mediated by friends and family. Influential peer groups for school-aged children are strong predictors of the acceptance of traditional Indian foods and the adoption of new foods into the diet. Twenty-six respondents (70%) specifically mentioned their children's concerns over how they appeared to school peers. "My kids don't want rice and beans. They get embarrassed at school when people's talking about what they had last night" (Female 23).

Fast food is often mentioned as the key identifier of status in school meals.

> I can buy them each a breakfast bun at Mickey's [McDonald's breakfast sandwich] for a buck and some change. Then, they can go to school with the bag. It helps them fit in. They don't want to stand out because they eat stuff that the other kids think is gross! (Female 14)

Because of its elevated cultural status, 27 respondents (70%) also report using fast food as a bribe.

> I've really tried to get my son to focus better in school. Each week, we get a homework report. I've told him that if he does okay, we can all go and eat at the restaurant. So, my other kids really get on him to keep up. (Female 10)

Additional acculturation factors impact nutritional transition. Eleven respondents (30%) report no exposure to tribal traditional foods. Although older respondents stated more preferences for such food, age is not a consistent predictor of exposure. Says Male 10,

> I grew up here. My parents came in the relo program in the 50s . . . My father wanted to get away from the rez and have a shot at being normal. So, we never ate any of that stuff. He never brought us out to rez either. I guess he just wanted to distance himself from that life. So I never developed a taste for it. I like McDonalds and the Colonel [Kentucky Fried Chicken].

It is important to note that historical factors and public policy influence dietary intake as well. Larson and Story (2009) believe that "cultural food patterns influence food consumption in several ways: they dictate what food is eaten, when it is eaten, and how it is prepared" (p. S65). Frohlich, Curin, and Potvin (2001) reinforce this in their discussion of collective lifestyles, noting that it is the interplay of norms, values, kinship, and social ties that shape food preferences. When applied to the nutrition transition in native communities, Foley (2005) finds that colonial foods morphed into new traditional foods over time.

In this study, 21 former reservation residents grew up eating commodity food items provided through FDPIR. Their notions of "traditional foods" are skewed toward family dishes made from commodity provisions.

> You know, we got the commodities. I liked making stuff with that cheese. It melted real well on everything. I always try to get blocks of Velveeta 'cause it is similar. My kids won't touch a vegetable without cheese sauce! (Female 23)

Female 2 buys Spam even when she has the resources to buy better meats because of the sense of connection that it provides. "My mom was real creative. She taught me a million different ways to cook up Spam. I buy a lot of it. It makes me feel close to her."

Interaction with coworkers and peers increases the willingness to try new foods.

> We went and had dinner with this woman I work with. She's got kids that go to school with my kids . . . She made this casserole and my kids really loved it . . . now I make it too. (Female 12)

Fourteen female respondents (54%) echo this, noting that the supportive presence of peers was a major factor in their children's willingness to try something new.

Rejection of Acculturation

While acculturation pulls some respondents toward the American mainstream, others frame their taste preferences as an explicit rejection of that process and a reaffirmation of indigenous identity. As with James' (2004) study, certain food consumption patterns are perceived by some as conforming to the dominant culture and giving up their heritage.

> I don't want to lose all of who I am, you know? I want my kids to at least have some kinda sense that they are special and not like everyone else here. So, I cook up fry bread instead of donuts on the weekends. (Female 8)

Consumption patterns are also a form of cultural capital. They are identity markers that help draw boundaries that maintain a sense of shared identity and connection to that larger group. Male 3 states,

> My kids tease me about Spam. They don't want it. It's too low [class] for them. I make them eat it anyway. For one, it tastes good and it's cheap. For two, I don't want to get sucked up into those frou-frou ways of eating. I grew up eating real food, hearty food. That's traditional food. I mean, real Indians don't eat bean sprouts!

Twenty-seven respondents (73%) use the cultural capital frame in describing influences on their cooking styles. Certain recipes help them maintain connections to their personal histories and Native identity. Female 18 says,

Fry bread is important for me and [boyfriend]. The smell of it keeps us happy . . . It makes me think about my moms and how she'd cook that up every morning. [Boyfriend] used to dance in the powwow circuit, so it also reminds of us being young and kicking our heels up.

The prevalence of commodities programs, combined with strong migration patterns between the city and reservations, reinforces eating patterns and preferences. Each family has their own recipes for preparing FDPIR items in different ways. Respondents who visit the reservation frequently (70.3%) report being pressured to maintain their old eating patterns.

I wouldn't dare turn my nose up to Spam! When I first came home after being away for a while, I told my mom I didn't want to eat like that anymore . . . She accused me of being citified and being too good for everyone else. She was *real* insulted. She said Spam was all they got and if that was good enough for them, it ought to be good enough for me! (Male 4)

Friends and family also influence the repetition of recipes. All shoppers report only purchasing foods that they already know how to make. With limited budgets, all expressed a fear of wasting resources. "We can't afford to throw away food. We are barely making it now!" (Female 4).

For all respondents, financial constraints reinforce meal redundancy, mirroring studies on purchasing influences in low-income families (Foley 2005; James 2004; Wiig and Smith 2008). Twenty-three women (88%) expressed frustration with the repetition in their diets and consistently reference obesogenic behaviors such as snacking to alleviate food boredom.

I can't afford to experiment, no matter how much it is on sale for! I'm bored. I'd love to try new things but my kids are the real problem. And my boyfriend. They don't want to try new stuff. They like what they like. If I try something new, they won't even taste it and we waste the food. Maybe that is why I buy so many different kinds of chips! I need some variety! (Female 24)

Discussion

This study finds competing pressures toward and away from acculturation. Aspects of acculturation hasten nutrition transition and foster an obesogenic environment. Acculturation is manifested through and mitigated by habits or learned patterns of food preparation, cultural perceptions of the centrality of certain foods to a meal, and emotional attachments to specific foods. It is mediated by the frequency of movement to and from the reservation, maintaining connections to traditional influences, and mass media exposure.

It is also hastened by the physical environment. Social ecology models become particularly relevant for demonstrating the interaction of structural constraints (e.g., location of grocery stores, fast food chains, access to transportation) and larger social and economic forces. These models contribute to understanding how these forces shape shopping behaviors, food consumption patterns, and nutrition transition.

This study supports the application of social comparison theory by revealing how the larger obesogenic environment of food consumption messages and other structural constraints shape the culture of eating among low-income urban AIANs. Respondents consistently report image and social-status consciousness and the centrality of peer opinions influencing their decision-making process. They also highlight the importance of comparisons made by their children to their school peers in shaping shopping and food budget allocation choices. Family, particularly

children, intimate others, and friends are identified as the most significant barriers to change and forces of acculturation, supporting previous findings (Chase et al. 2003; Delormier et al. 2009; Foley 2005; James 2004; Wiig and Smith 2008).

In addition to challenges that impact all low-income urban households, cultural obstacles to healthier eating that are unique to this subpopulation have been identified. Of particular relevance for nutritional status is a history of FDPIR dependence. This has shaped personal ideas of what constitute "traditional foods." Cooking styles (how are foods prepared, what ingredients are used to flavor foods), recipes, and notions of what constitute a meal are related to the limited number of foods available in the commodities packages. As Delormier et al. (2010) noted, family feeding practices develop and are reinforced by networks of social relationships. In this case, the association of new "traditional" foods with family, a specific cultural identity, and the rejection of an imposed identity not only facilitates the development of a food culture but also creates a barrier to change.

Opportunities for Intervention

Respondents were asked what role their local Indian Centers could play in empowering them to make sustainable, positive changes. Seventeen respondents (46%) suggested workshops on label reading or healthier foods. Thirty-two respondents (86%) aren't sure what to be looking for nutritionally.

> I know we all need to eat healthy. The TV news is always talking about how we is so fat. But all that stuff about sodium and the tranies [trans fats] . . . well, that's all Cherokee to me! (Male 8)

They want to enter stores already knowledgeable about what is healthier and still conforms to their budgetary constraints.

> It is really tough in the store. I don't have the time to look at everything. I've got my kids nagging me and pulling me around. If I take too long anywhere, they start dumping stuff into the cart. I want to get in and get out with as little hassle as possible. (Female 9)

Female 4 states,

> I really don't have much time when I'm shopping. I got to rely on other folks for my ride, so I need to hustle when I'm there. I don't want to hold them up or they may not take me again.

Demonstrations and tastings are also recommended. Twenty-nine respondents (78%) believe that learning how to use flavorings or spices to reduce salt and fat intake would be helpful to them.

> I hear all the time how bad salt is and how bad cooking with lard is, but those things get the flavors going! I don't know a lot about spices . . . If we could have classes where we made some foods in different ways and then could taste them, that might help. (Female 16)

All respondents worry about the cost and acceptability to family members of changing their food habits too radically. Thirty-one respondents (84%) expressed a reluctance to experiment.

> I know we got to eat healthy . . . but I can't afford to experiment with foods 'cause we barely have enough to go around now. If we could see how stuff is made and have everyone in the family try it first, I'd be willing to make some changes. (Female 13)

Having entire families participate in demonstrations and tastings can provide a forum for exposure to new foods or different recipes without the economic impact of waste.

Demonstrations and tastings can increase the social rewards of healthy food (Stevenson et al. 2007) and potentially mitigate the impact of the larger obesogenic environment.

> I'm sure I could get my kids to eat some different stuff once in a while if they saw other people trying it too. Maybe at the community dinners or something. We could have a spotlight dish that is easy to make and cheap. Then they could try it. If they'll eat it there, I'd probably try it at home. (Female 24)

Finally, thirty-three respondents (89%) want recipes included in the food pantry bags to help them think of new ways to cook the same sets of ingredients. As noted above, repetition and boredom with meals contribute to snacking on chips and the desire for fast food treats. Food pantry users might also be less likely to abandon foods if they knew what to do with them. For example, the Center once received bags of textured vegetable protein. Pantry staff were not familiar with this item and were reluctant to distribute it. "I think people are just going to pitch it," said one staff member. "I really don't want to give this to my friends . . . You hand people a baggie of tan pebbly stuff and they are going to look at you like you are nuts," said another. Food demonstrations and tastings, along with recipes or serving ideas, could help address situations like these.

Conclusion

This study addresses gaps in social research literature by identifying some culturally specific barriers to healthier food consumption among low-income, urban AIANs. To mitigate the impacts of the larger obesogenic environment, programming initiatives should seek to empower individuals to make positive changes in culturally sensitive ways. Urban Indian Centers can provide a focal point for programming initiatives that can reach the target population.

These findings have strong implications for health and political policy makers. Funding expansion of Indian Centers so that they can support a demonstration kitchen and creating targeted development grants to provide food and cookware for such programs can expand nutritional information outreach to an underserved community. In addition, channeling health initiative partnerships through Centers has the potential to increase community awareness of risk factors and increase cultural health capital (Shim 2010).

While this study represents a critical first step, there is still much work to be done. The sample size of this study is small and only represents residents in one community. Additional research needs to be conducted within the urban AIAN population to expand these findings and identify other barriers to improving long-term health outcomes. Future research should focus on the development of nutritional pilot programs in collaboration with Indian Center staff members. These programs should include components that address the needs of primary shoppers and food preparers. Program development should also specifically focus on children and adolescents to help mitigate the impacts of obesogenic cultural drift.

Declaration of Conflicting Interests

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