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COMMUNITY BELONGING AND SEDENTARY BEHAVIOR AMONG FIRST NATIONS ADULTS IN CANADA: THE MODERATING ROLE OF INCOME

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Abstract: This study examined how income and community belonging may interact to influence leisure sedentary behavior among Indigenous adults. Data were obtained from 1,304 First Nations adults who completed the Canadian Community Health Survey in 2012. Among average-income earners, a strong sense of belonging to local community was associated with less sedentary behavior, a finding also documented in the general population. Among low-income earners, a strong sense of belonging to local community was associated with more sedentary behavior, a finding that is novel in the literature. These associations remained significant after adjustment for sociodemographic covariates and mental and physical health, suggesting other factors are influencing this correlation.

INTRODUCTION

Sedentary behavior (i.e., prolonged sitting) is a modifiable determinant of health that has been associated with an increased incidence of cardiovascular disease, diabetes, obesity, cancer, depression, and all-cause mortality (Proper, Singh, van Mechelen, & Chinapaw, 2011; Thorp, Owen, Neuhaus, & Dunstan, 2011). Despite this evidence, current research suggests that, on average, adults spend over half their waking hours sitting (Owen, Bauman, & Brown, 2009). While it may be difficult for some adults to choose nonsedentary activities during working hours, leisure time presents an important opportunity to choose nonsedentary pursuits. To date, we know little about the factors that underlie these choices, particularly in minority populations.

Data were collected from the three main Indigenous groups in Canada—First Nations, Métis, and Inuit. The present analysis is focused on First Nations adults in Canada, who represent more than 60% of the Indigenous population in the country (approximately 850,000 people). Pre-colonization, First Nations adults were actively engaged in hunting, gathering, fishing, and

farming pursuits (Statistics Canada, 2011). First Nations populations also traveled great distances to engage in trade and migrate with game. Colonization resulted in the forced sedentarization of First Nations peoples within small parcels of land termed reserves. The pass system instituted in some parts of Canada required government permission to leave these designated lands, which further restricted mobility, broke down traditional trade networks, and altered traditionally active lifestyles (Barron, 1988).

Currently, most First Nations peoples live outside Indigenous communities in Canada - typically in cities (Statistics Canada, 2013). In this milieu, First Nations peoples are a racial minority who experience high levels of discrimination and poverty; experiences that impact sense of belonging to local community in these urban spaces (Currie, Wild, Schopflocher, & Laing, 2015; Currie, Wild, Schopflocher, Laing, & Veugelers, 2012; Environics Institute, 2010).

Sense of belonging to local community is conceptually distinct from social support and is independently associated with self-reported health, health behavior, and health behavior change (Hystad & Carpiano, 2012; Ross, 2002). Previous research has shown that both household income and sense of belonging to local community are independently associated with sedentary behavior among adults in the general population (Anderson, Currie, & Copeland, 2016). According to the tenets of intersectionality theory, minority populations experience intersecting social identities that interact with each other to influence health and health behavior in a nonadditive way (Bauer, 2014). Framed by intersectionality theory, this study sought to examine the ways in which income (which is a predictor of social class) and sense of belonging to local community may interact to influence sedentary behavior among First Nations adults living in cities across Canada.

Given that little has been published about the determinants of sedentary behavior among Indigenous peoples generally around the world, we also sought to examine the ways in which behavioral variables that have been associated with sedentary behavior in other studies— including physical activity, smoking, and alcohol use—may correlate with sedentary behavior among First Nations adults.

METHODS

Study Design

Data were obtained from the 2012 Canadian Community Health Survey (CCHS). The CCHS is an annual nationwide survey conducted by Statistics Canada. This cross-sectional survey collects health information from Canadians ages 12 years or older. Those living in institutions, remote locations, military bases, or Indigenous communities are excluded from the survey. These exclusions did not hamper the goals of our analysis, given that our purpose was to examine sedentary behavior among First Nations adults living outside Indigenous communities. Data were collected using computer-assisted interviewing, both in person and by phone, between January 1 and December 31, 2012. The 2012 CCHS uses a multistage stratified cluster design to ensure samples collected are generalizable to the wider Canadian population. This design has been described in detail elsewhere (Statistics Canada, 2012).

At a national level, the overall response rate was 68.4% ($N = 61,707$) among participants ages 12 years and older (Statistics Canada, 2012). This study included only those participants who were ages 18 years and older and self-identified as First Nations. There were 1,304 individuals who met these criteria and provided valid responses related to the outcome of interest. This study was exempt from Institutional Review Board review, as data were obtained in deidentified form.

Outcome Variable

As part of the CCHS, respondents were asked to report average weekly leisure time (outside of school or work) spent in the following sedentary activities: (1) on a computer, including playing computer games and using the Internet; (2) playing video games such as Xbox, Nintendo, and PlayStation; (3) watching television or videos; and (4) reading.

Statistics Canada calculated total leisure sedentary behavior time and provided the data in 10 categories beginning at *< 5 hours per week*, and increasing by increments of 5 hours to a maximum of *≥ 45 hours per week*. This variable was used in the present analysis, with a focus on better understanding the determinants of low sedentary time in this sample.

Sociodemographic Variables

Sociodemographic characteristics were examined, including gender, age, education (i.e., less than secondary school graduate, secondary school graduate, and postsecondary graduate), household income as a proxy for social class (15 categories in total, ranging from $0 to $\geq \$150,000$), marital status (i.e., married/common-law, widowed/divorced/separated, or single/never married), and employment status (currently employed: yes or no).

Behavioral Variables

Data were collected on physical activity, and a derived variable of energy expenditure values of kcal/kg/day was created by Statistics Canada. Individuals were categorized into three groups: 1 = active (> 3 kcal/kg/day), 2 = moderately active (1.5-3 kcal/kg/day), or 3 = inactive (< 1.5 kcal/kg/day). Smoking behavior was examined by asking respondents if they smoked cigarettes: 1 = not at all, 2 = occasionally, or 3 = daily. Alcohol use was derived by calculating number of drinks reported per month, with participants stratified into three groups: 1 = regular drinkers (at least once per month), 2 = occasional drinkers (less than once per month), and 3 = did not drink in the last 12 months.

Sense of Community Belonging

Participants' sense of belonging to local community was examined by asking "how would you describe your sense of belonging to your local community?" on a scale of 1 to 4 (1 = *very strong*, 2 = *somewhat strong*, 3 = *somewhat weak*, and 4 = *very weak*). This single item is frequently used to measure this construct (Carpiano & Hystad, 2011; Shields, 2008). A longer survey instrument is also available for this variable (Hagerty & Patusky, 1995; Ma, 2003).

Statistical Analysis

The prevalence of sedentary behavior for each of television viewing, computer use, video game use, and reading were calculated and an overall prevalence estimate was calculated. Data for all analyses were weighted to represent the general household population of First Nations adults living outside of Indigenous communities in Canada; the creation of this weighting variable is described in detail elsewhere (Statistics Canada, 2012).

Four sets of linear regression models were used to examine associations between key exposure variables—namely, community belonging, smoking, alcohol consumption, and physical activity—and sedentary behavior with 95% confidence intervals. Associations between each exposure variable and sedentary behavior were first examined adjusting for age, followed by other sociodemographic confounders selected a priori based on existing literature (i.e., gender, marital status, income, education, and employment; Anderson et al., 2016; Clark et al., 2010; Shields & Tremblay, 2008). A third model included additional control for overall self-perceived health and mental health, as health can confound associations between the exposure variables we examined and sedentary behavior.

To examine the ways in which income and sense of belonging may interact to influence sedentary behavior, we stratified the sample into three household income groups: very low income for a household in Canada (< $20,000), low income for a household in Canada ($20,000-$80,000), and average income for a household in Canada (≥ $80,000). We then examined associations between community belonging and sedentary behavior for each income group.

The data were examined for multivariate outliers before conducting the analysis; none were found. Multicollinearity between exposure and confounding variables was examined using variance inflation factors (VIFs) before main effect models were derived. All VIFs were below 5. All confounders were examined for effect modification prior to entry into main effects models using lowess curves; none were found. All analyses were completed in 2014 and run using SPSS version 22.0.

RESULTS

Sample Description

Characteristics of the sample are outlined in Table 1. The sample ($N = 1,304$) was 47.6% male. The mean age range was 35-44 years. Most First Nations participants were married and employed, and had completed a post-secondary degree. Approximately 70% of the sample lived in households with incomes that fell below the national average of $80,000/year.

Table 1
Characteristics of Sample [a, b]

Characteristic	N = 1,304
Gender	
Male	47.6%
Female	52.4%
Age	
18–24	15.8%
25–34	21.8%
35–44	22.7%
45–54	19.2%
55–64	12.2%
≥ 65	8.3%
Marital Status	
Married/Common-law	54.6%
Widowed/Divorced/Separated	13.4%
Single	32.0%
Education	
Less than high school	12.4%
High school diploma	25.7%
University or college degree	61.9%
Household Income	
$0–$19,999	17.2%
$20,000–$39,999	22.1%
$40,000–$59,999	18.6%
$60,000–$79,999	11.3%
≥ $80,000	30.8%
Employed	
Yes	58.3%
No	41.7%

[a] Percentages are based on unweighted data. [b] Weighted percentages for the sample were not calculated, given that the data were weighted to match the characteristics of the First Nations population living outside Indigenous communities in Canada in 2011, which has been widely published across various reports.

Prevalence of Sedentary Behavior

On average, First Nations adults were sedentary 25-29 hours/week during leisure (range = 0 to ≥ 45 hours/week). Watching television/videos was the most frequent sedentary behavior (11-14 hours/week), followed by using a computer (3-5 hours/week), reading (3-5 hours/week), and playing video games (< 1 hour/week). When results were stratified by household income, the

very low- (< $20,000) and low- ($20,000-$80,000) income groups reported the highest sedentary behavior at 25-29 hours/week, while First Nations adults who most closely approximated the average Canadian household income (≥ $80,000) reported 20-24 hours/week.

Correlates of Sedentary Behavior

As shown in Table 2, First Nations females who were employed and not single were the least sedentary during leisure. Being female was associated with a 0.66-point decrease (3.3 hours/week) in sedentary time. Those with higher incomes were also less sedentary. Higher physical activity and not smoking were also associated with lower sedentary behavior. After adjustment for age, being a nonsmoker was associated with a 1.6-hour/week decrease in sedentary behavior. The size of this effect became very small, although still significant, once other sociodemographic confounders were controlled. Surprisingly, increased alcohol consumption was associated with less sedentary behavior. Every 1-point increase in alcohol consumption resulted in a 0.364-point decrease (1.8 hours) in sedentary behavior during leisure.

Table 2
Correlates of Sedentary Behavior: Multiple Linear Regression Models and 95% Confidence Intervals [a]

	Adjusted Model 1 [b]			Adjusted Model 2 [c]			Adjusted Model 3 [d]		
	B (95% CI) [e]	*SE*	B [f]	B (95% CI)	*SE*	β	B (95% CI)	*SE*	β
Community belonging	0.17 [0.16, 0.18]	0.005	0.06	0.07 [0.06, 0.08]	0.005	0.02	0.02 [0.01, 0.03]	0.005	0.01
Physical activity	0.33 [0.32, 0.34]	-0.005	0.11	0.34 [0.33, 0.35]	0.005	0.11	0.28 [0.27, 0.29]	0.005	0.09
Alcohol use	0.26 [0.25, 0.27]	0.005	0.08	0.36 [0.35, 0.37]	0.005	0.11	0.35 [0.34, 0.36]	0.005	0.11
Smoking	0.16 [0.17, 0.15]	0.004	0.06	0.06 [0.07, 0.05]	0.005	0.02	0.02 [0.03, 0.02]	0.005	0.01
Gender (female)				-0.66 [-0.68, -0.64]	0.008	-0.12			
Age				-0.01 [-0.01, -0.01]	0.001	-0.02			
Income				-0.05 [-0.05, -0.05]	0.001	-0.07			

Continued on next page

Table 2, Continued
Correlates of Sedentary Behavior: Multiple Linear Regression Models and 95% Confidence Intervals [a]

	Adjusted Model 1 [b]			Adjusted Model 2 [c]			Adjusted Model 3 [d]		
	B (95% CI) [e]	SE	B [f]	B (95% CI)	SE	β	B (95% CI)	SE	β
Education				0.06 [0.05, 0.08]	0.007	0.02			
Employed				-0.67 [-0.69, -0.66]	0.010	-0.13			
Currently unmarried				-0.06 [-0.09, -0.03]	0.013	-0.01			
Never married				0.90 [0.88, 0.92]	0.011	0.16			

[a] Higher beta values in this table correspond to lower sedentary time. [b] Model adjusted for age. [c] Model adjusted for age, gender, income, education, employment, marital status. [d] Model adjusted for all variables in Model 2, and overall physical and mental health. [e] Unstandardized beta coefficient. [f] Standardized beta coefficient.

Community Belonging, Income, and Sedentary Behavior

Before stratification by income, there was a weak association between sense of community belonging and sedentary behavior that became nonsignificant after adjustment for confounders. After stratifying the sample into three income groups we found that, among First Nations adults in average-income households, a strong sense of community belonging was associated with *less* sedentary behavior. In a fully adjusted model, the unstandardized beta coefficient indicates that every 1-point increase in community belonging resulted in a 0.47-point (2.3 hours/week) decrease in sedentary behavior (Table 3).

Table 3
Correlates of Sedentary Behavior: Multiple Linear Regression Models and 95% Confidence Intervals [d]

	Adjusted Model 1 [a]			Adjusted Model 2 [b]			Adjusted Model 3 [c]		
Income	B (95% CI) [e]	SE	B [f]	B (95% CI)	SE	β	B (95% CI)	SE	β
Average	0.63 [0.62, 0.65]	0.007	0.23	0.44 [0.43, 0.46]	0.007	0.17	0.47 [0.45, 0.48]	0.007	0.18
Low	-0.24 [-0.25, -0.22]	0.007	-0.07	-0.20 [-0.22, -0.19]	0.008	-0.06	-0.30 [-0.32, 0.029]	0.008	-0.09
Very low	0.21 [0.19, 0.22]	0.010	0.08	-0.06 [-0.08, -0.04]	0.011	-0.02	-0.17 [-0.20, -0.15]	0.011	-0.06

[a] Model is adjusted for age. [b] Model is adjusted for age, gender, marital status, education, household income, and employment status. [c] Model is adjusted for age, gender, marital status, education, household income, employment status, and overall mental and physical health. [d] Higher beta values in this table correspond to lower sedentary time. [e] Unstandardized beta coefficient. [f] Standardized beta coefficient.

In contrast, among First Nations adults living in low- and very low-income households, stronger sense of community belonging was associated with *more* sedentary behavior. In a fully adjusted model, every 1-point increase in community belonging was associated with a 0.30-point (1.5 hours/week) increase in sedentary behavior in the low-income group, and a 0.17-point (50 minutes/week) increase in sedentary behavior in the very low-income group.

DISCUSSION

Overall, First Nations adults reported mean levels of sedentary behavior during leisure that slightly exceeded the national average in Canada. High sedentary behavior during leisure is associated with lower household incomes in wealthy countries (Anderson et al., 2016; Clark et al., 2010; Shields & Tremblay, 2008), and this finding was repeated in this study. First Nations adults who reported household incomes that met or exceeded the national average engaged in the same amount of sedentary behavior as other Canadians (20-24 hours/week), suggesting that, if the majority of First Nations adults lived in average- rather than low-income households, we may not see elevated leisure sedentary behavior in this population. The findings from this study build on others to highlight the ways in which social inequities shape sedentary behavior among adults.

In keeping with the tenets of intersectionality theory, we found social class and sense of community belonging were social identities that interacted to influence sedentary behavior in a nonadditive way among First Nations adults. For average-income earners, a strong sense of belonging to local community was associated with *less* sedentary behavior during leisure, repeating findings in the general population (Anderson et al., 2016). Among low-income earners, a strong sense of belonging to local community was associated with *more* sedentary behavior during leisure, a finding that is novel in the literature. This association remained significant after adjustment for health, suggesting unique pathways beyond health may be influencing this correlation.

These findings, in both low- and average-income groups, may speak to the concept of *habitus*. Bourdieu (1990) coined this term to refer to the acquisition and clustering of habits among those occupying a similar social space in society. Applying the concept to this study, it may be that those who feel a stronger sense of belonging in their local community are more likely to engage in habits common within its social space. This would mean less sedentary

behavior among those who feel a strong sense of belonging within the average-income social space, and more sedentary behavior among those who feel a strong sense of belonging within the low-income social space. It would be interesting to test this hypothesis in a general population sample to determine whether these findings are replicated.

Behavioral Variables

Similar to studies within general populations, we found higher physical activity was associated with lower leisure sedentary behavior among First Nations adults (Hu et al., 2001; Jakes et al., 2003). Interestingly, we observed higher alcohol consumption was associated with less sedentary time in a model adjusted for sociodemographics and general health. Research has identified a similar association between alcohol consumption and TV viewing for women in the general population; however, studies on sitting behavior more generally have reported no association with alcohol (Rhodes, Mark, & Temmel, 2012). It may be that alcohol consumption among First Nations adults is associated with nonsedentary social activities, although this supposition would not extend to First Nations traditional cultural activities given that alcohol was not consumed by First Nations peoples pre-colonization and is banned at such events and ceremonies. Further research is needed to determine whether this association would be repeated in other studies.

Strengths and Limitations

This study was limited by the use of a cross-sectional design, which prevents inferences of causation and temporal sequence. Recall bias may have been introduced given that self-report measures were used. The sedentary behaviors examined were not exhaustive, neglecting transport and occupational sedentary behavior. Reporting of community belonging was obtained using one question; longer instruments are available to examine this construct. Residual confounding may be a concern, as factors not measured in this study may have influenced the results. The strengths of this study include a better understanding of sedentary behavior within an Indigenous population which has not yet been well described in the literature, the use of a large representative sample of First Nations adults living outside Indigenous communities in Canada,

consideration of the ways in which household income and sense of belonging may interact to influence health behavior, and control for the effects of important confounders on these associations.

CONCLUSION

Similar to general population studies, findings highlight household income as a key determinant of leisure sedentary behavior among First Nations adults. Unlike general population studies, 7 in 10 First Nations adults in this national study lived in low- and very low-income households, thus highlighting poverty as a particularly important determinant of sedentary behavior within this population, and the need for policies and programs that promote income equity. Once an average household income has been achieved, First Nations adults report the same level of leisure sedentary behavior as other Canadians. Findings highlight the importance of considering contextual factors like poverty when developing population health prevention strategies to reduce sedentary behavior among First Nations adults, particularly strategies that involve increasing community belonging.

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AN URBAN AMERICAN INDIAN HEALTH CLINIC'S RESPONSE TO A COMMUNITY NEEDS ASSESSMENT

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Abstract: Utilizing community-based methods, we assessed the behavioral and physical health needs of a Detroit metropolitan Indian health clinic. The project goal was to identify health service needs for urban American Indians/Alaska Natives and develop the infrastructure for culturally competent and integrative behavioral and physical health care. We conducted 38 semi-structured interviews and 12 focus groups with service providers and community members. Interview and focus group data indicated a need for 1) more culturally competent services and providers, 2) more specialized health services, and 3) more transportation options. We then report on the Indian health clinic's and community's accomplishments in response to the needs assessment.

Major difficulties exist when attempting to identify the health service needs of urban American Indians and Alaska Natives (AI/ANs) and develop the appropriate infrastructure for care delivery. Of the 2.9 million people who identify solely as AI and/or AN, 67% live outside of reservation or tribal lands (U.S. Census Bureau, 2012). Providing for the health service needs of urban AI/ANs is imperative, as, compared to the general population they struggle with disproportionate rates of obesity and chronic diseases and are more likely to smoke, less likely to visit a dentist, more likely to report their health as poor or fair, and less likely to use primary care services (Glasnapp, Butrick, Jamerson, & Spinoza, 2009; U.S. Commission on Civil Rights, 2004). Urban AI/ANs experience worse health outcomes than the general population as a result of racial and social inequities; high unemployment rates; cultural and historical trauma; and limited social, health, and cultural resources (Moy, Smith, Johansson, & Andrews, 2006; Weaver, 2012).

Urban programs also have the difficult task of providing culturally appropriate behavioral and physical health care for AI/ANs who represent multiple tribal backgrounds and have varying levels of knowledge regarding health care that utilizes traditional Native methods of healing (Urban Indian Health Institute [UIHI], Seattle Indian Health Board [SIHB], 2012b). Furthermore, urban AI/ANs have limited access to health care and fewer available health professionals. A U.S. Commission on Civil Rights report (2004) notes that there were 101 mental health professionals available per 100,000 AIs, compared to 173 per 100,000 Whites. The Detroit metropolitan area, where the clinic in this study is located, is a designated Health Provider Shortage Area with a score of 17 out of 20 (higher scores indicate more shortages), revealing the lack of providers throughout the health system (U.S. Department of Health and Human Services [USDHHS], 2014). Another common barrier to providing the highest quality of care lies in the significant gaps in behavioral health data for the AI/AN population. An analysis of the 2006 National Health Disparities report indicated that only 50% of the data for AI/ANs were available, data were unreliable, samples were too small to be statistically significant, and only two-thirds of the utilization data were usable.

DETROIT METROPOLITAN INDIAN HEALTH CLINIC

Services Provided by the Indian Health Clinic

American Indian Health and Family Services of Southeast Michigan, Inc. (AIHFS or "the center") is funded by Indian Health Service (IHS). Like many urban Indian health clinics, it receives little funding. For example, tribally run health services and IHS facilities received approximately 53% and 43% of the 2010 IHS budget respectively, while urban programs received only 1%, although the majority of AI/ANs reside in urban areas (USDHHS Fiscal Year 2010 Budget in Brief: IHS, as cited in UIHI, SIHB, 2012b.) AIHFS' service area is composed of seven counties in southeast Michigan where over 47,900 AI/AN people reside (U.S. Census Bureau, 2010). AIHFS' mission is to "empower and enhance the physical, spiritual, emotional, and mental wellbeing of American Indian families and other underserved populations in SE MI through culturally grounded health and family services" (AIHFS, 2014). AIHFS provides medical care, women's health care, maternal and child health care, diabetes management, dental referrals, behavioral health care, substance abuse counseling and prevention, tobacco cessation

programs, youth programming, parent support programming, fitness programs, and traditional healing ceremonies (e.g., sobriety lodge). AIHFS aspires to integrate traditional AI healing and spiritual practices with contemporary Western medicine in both treatment and prevention (AIHFS, 2014). AIHFS also hosts annual health fairs, celebrations, and other cultural events.

Indian Health Clinic Service Needs and Response

At the time of this study, AIHFS served 2,304 clients, approximately 10% of whom were receiving behavioral health services. Identifying and recruiting specialized providers (e.g., in behavioral health) who are AI/AN is challenging. The behavioral health program was not able to provide services to all of the clients in need of those services.

In response, AIHFS recognized that a needs assessment was necessary to increase organizational capacity and build an infrastructure that could better provide for the health care needs of the AI/AN population in its service area. A Substance Abuse and Mental Health Services Administration Circles of Care Infrastructure Development grant funded AIHFS to plan and perform an in-depth needs assessment of the systems of care impacting the physical and mental health and wellness of AI/AN children, youth, and their families. The specific purpose was to assess, plan, and design a culturally appropriate integrative system of behavioral and physical health care that incorporated traditional healing.

In this paper, we present needs assessment data from AIHFS' 2008-2011 community project entitled *Gda'shkitoomi* ("We are Able"). The data reported here were collected between April of 2008 and October of 2009. Additionally, we report on the AIHFS' and the community's response to the needs assessment data. This community-based project posed the following questions: 1) Are health services in general available, accessible, and appropriate? and 2) What are the culturally appropriate health services needed in the Detroit metropolitan area?

METHODS

Study Purpose

Between April of 2008 and October of 2009, the team conducted 38 semi-structured interviews with 27 community members and 11 service providers, and also conducted 12 focus groups, 10 with just community members and 2 with just service providers. We chose these

qualitative data methods as we felt they would elicit richer data. Data saturation, community and staff composition, and cost were considered when choosing the number of interviews and focus groups. The purpose was to collect information from a diverse group of people who could provide insight into the nature of the health issues (e.g., availability, accessibility, and appropriateness of treatment; cultural and spiritual relevance of services), recommend solutions, and provide guidance about integrating behavioral and physical health services. We determined that it was important to get the views of community members, as they receive the services and are aware of service improvement needs and preferences, and the views of service providers, as they were more knowledgeable about currently provided services.

Research Design

Study Team and Advisory Council

The study team was composed of the second author/evaluator, a research assistant, the project manager, and AIHFS staff members. The team collaboratively designed, developed, and conducted this community-based study. An advisory council was formed by recruiting community members via telephone calls, flyers posted at the center, notices in the center newsletter, and word of mouth. The advisory council met once a month (in the evening, to accommodate participants' work and school schedules). Attendance varied from 15 to 22 members. The council was composed of tribal elders and leaders, parents, youth, AIHFS staff members from various departments, and representatives from local organizations interested in developing programs to support the community. This group reviewed the study processes and offered oversight on cultural appropriateness and viability of the project. This study was approved by AIHFS and the University of Michigan Institutional Review Board.

Recruitment and Consent

Interview and focus group participants were recruited via face-to-face discussions, flyers posted at the center and at local community events, and at AIHFS. The interviews and talking circles occurred at AIHFS, at other Indian centers in the Detroit metropolitan area, and at community venues. All participants signed consent forms, and parental consent was obtained for youth under the age of 18 years.

Data Collection

We conducted both individual interviews and focus groups in order to tailor the venues toward the comfort of the participants, as we thought some might be more apt to share in a private setting and others might need group interactions to elicit detailed perspectives. The interviews were conducted in private areas of the venues and/or in interviewee homes. The focus groups took place in a private area of the center. Interviews and focus groups were digitally recorded and lasted between 45 and 75 minutes. Community member participants filled out a demographic survey and were provided transportation, child care, a meal, and a $20 gift card. Service provider participants filled out a different demographic survey (asking for less identifying information) that included questions on individual service provision, role, and length of time in this role at AIHFS and elsewhere.

Talking Circles

The focus groups were conducted as talking circles, a traditional method of group communication in Indian country (Becker, Affonso, & Blue Horse Beard, 2006; Montejo, 1994). In typical focus groups, the moderator plays an active role in eliciting information; in talking circles, the moderator defers to elders. If an elder is speaking, it is inappropriate for anyone to interrupt. The team began the talking circle by sharing a meal, and an elder (or other participant, if no elder was present) offered a brief prayer. Everyone sat in a circle and the moderator passed around a shell which a participant held while only he/she was talking. When the speaker was finished, he/she then passed it to another person; then, only that person could speak. Everyone was given the opportunity to talk, and no one was interrupted. If a person did not want to talk he/she passed the shell to the next participant. The shell was passed multiple times for each question to ensure that everyone was able to share his/her views.

Interview and Focus Group Questions

Three major topics were addressed: 1) availability of, access to, and appropriateness of treatment; 2) culturally and spiritually appropriate services; and 3) gaps or limitations in current services. The questions posed in both the interviews and the talking circles were: 1) What do you think about the way health care is provided for American Indians in general? 2) What do you think about the appropriateness (cultural and spiritual) of services for American Indians in our community? and 3) What do you think about the availability and accessibility of health services for American Indians in our community?

Analyses

The interview and talking circle data were transcribed verbatim and reviewed by the study team for accuracy. Then, the team utilized a content analysis approach whereby three project staff members became familiar with the data by reading through the transcripts (Tutty, Rothery, & Grinnell, 1996). We used this approach so we could analyze the text to define common themes in participants' views of community needs (Berg, 1989; 2004). During the first stage of coding, the staff members re-read the transcripts to define categories from repeating ideas. The team met to review the independently coded data, and then organized it into broad categories that highlighted the specific themes reported in this paper. Themes identified by participants were very consistent throughout the interviews, and were repeated in the talking circles. Therefore, themes from the interviews and talking circles were combined and subsequently catalogued using taxonomic method and arranged into a matrix format (Berg, 2004). All results were reported to the AIHFS advisory council at their meetings and to the AIHFS community at large community events. Dissemination methods included PowerPoint presentations, posters, and discussions.

RESULTS

Select Characteristics of the Participants

Interview Participants

Of the 27 community member interviewees, 18 were women; the age range was 12 to 82 years, and 25 were tribally affiliated (many urban AI/ANs identify as affiliated, but are not enrolled in a tribe). Of the 11 service provider interviewees, 6 were women; the age range was 26 to 70 years, and 5 were tribally affiliated. The services they provided were mental health ($n = 5$), physical health ($n = 2$), administrative ($n = 1$), and support ($n = 3$).

Talking Circle Participants

Twelve talking circles were conducted, 10 with community member participants and 2 with service provider participants. The groups were organized by gender or age. Some groups were composed solely of women or men, some of only youth, and some of elders of both genders. Of the 73 community members, 37 were women; the age range was 12 to 77 years, and

62 were tribally affiliated. Of the 10 service providers, 8 were women; the age range was 21 to 70 years, and 1 was tribally affiliated. The services they provided were behavioral health ($n = 6$), physical health ($n = 3$), and support ($n = 1$).

Participants shared feedback regarding the services that currently are provided in the Detroit metropolitan area. The themes that emerged were needs for 1) more culturally competent services and providers, 2) more specialized health services, and 3) more transportation options.

Need for More Culturally Competent Services and Providers

Community member participants requested more services tailored to their cultural needs: more traditional healing; more cultural programming; more marketing of provided services (especially traditional services); AI/AN and/or culturally competent providers, both at AIHFS and offsite; service integration so the whole body and mind could be served; and collaboration between providers and community members.

A community member interviewee (#26) stated, "I have more faith in Indigenous healing now than I have in any other." Another community member interviewee (#2) stated:

> I think [traditional healing] is better than [Western medicine] because they deal with the spirituality, they deal with the mind and the mind has a lot of control over the body, where the Western medicine they don't consider the mind, and it's just the physical but that's not what it is.

Talking circles where people can gather to share wisdom and knowledge, support one another, and experience the cultural components of prayer were important for participants. When a community member interviewee (#39) was asked what kind of mental health services she would like to see the center provide, the response was, "Talking circles...like bringing in more like Native teachers, like elders, community members that could like lead a talking circle or share a teaching." Another participant, in the male community member talking circle (#2), shared:

> You know, myself, sometimes I wish I had somebody to talk to. You know what I mean? I am 49 years old and sometimes I wish I just had somebody to open up to. A lot of people hold stress inside of them…A lot of people just do not know where to turn, you know. Or a lot of people do not trust people to talk to. You know. You have got to be around somebody that you can trust, somebody you can open up to.

Overwhelmingly, participants wanted AIHFS to provide both Western medicine and cultural and social programming that includes education and activities that teach language, culture, spirituality, and traditional ways of life. AIHFS does incorporate cultural activities into its programming, but this study highlighted the gap between what is offered and what the participants expressed as their cultural needs. Participants also noted that there are many AI/AN community members who want more traditional healing and cultural knowledge, but do not know what these might look like. Many times, the ceremonies and spiritual beliefs that the participants wanted were not passed down as a result of cultural trauma, family dysfunction, intermarriage, or shame. Many AI/AN children are being raised by non-AI/AN family members/caregivers who may need assistance to learn about AI/AN cultures and teach them to their children. Youth who receive cultural programming via AIHFS' after-school program, are aware of the need for their caregivers (both AI/AN and non-AI/AN) to be involved in cultural programming tailored to their needs. One youth talking circle participant (#2) observed: "But not just the children need to know, I think they should, you know? ... More Native parents should be involved in learning as well, not just the children." Youth revealed that they are struggling at home, struggling as adolescents, and struggling over school pressures. One youth (#1) remarked in a talking circle that, "For me, it's kind of hard to keep seeing my family like one unit… my dad is going through depression and he's using it through alcohol, and getting drunk, coming home at two o'clock in the morning." Many shared stories of challenging home environments and the benefit of connecting and sharing with others to alleviate their stress at events at the center (e.g., the Dreamseekers traditional youth after-school program).

Community awareness of services—or the lack of marketing of services—was a dominant theme throughout, appearing in all the interviews and talking circles. A community member interviewee (# 27) stated:

> Um, I wasn't aware there was a clinic here. You know, I have been without insurance for a long time, struggling, and, um, I didn't know that you guys offered any service, because I was not aware that the clinic was here. So it should be like more advertisement around our city.

The service providers also acknowledged their responsibility to the community and their shortcomings in providing information about available services. For example, a service provider interviewee (#6) stated, "…Just getting the word out is what we really need, as well as more

transparency where people [service providers] are open, honest, accountable, and communicate well." One service provider shared that AIHFS has AI staff, including behavioral and physical health specialists, paraprofessionals, and programming staff members; however, many of the participants were unaware of their existence (e.g., that AIHFS has an AI physician in the health clinic).

Community member and service provider participants discussed culturally competent service and practice as it relates to interactions with health care providers. Participants wanted both AI/AN physicians and service providers at the clinic, as well as service providers at non-IHS clinics who are not AI/AN affiliated, to be more culturally competent (AIHFS' employees, as well as its service population, are diverse in terms of tribal affiliation, and level of cultural competence). The desire for AI/AN service providers and for cultural competence reflects participants' need to be comfortable working with providers who understand that AI/ANs have had historical, cultural, geographical, and social experiences that may differ from those of the general population. An AI service provider (#8) shared in an interview: "I'm hoping that people will get comfortable with being a community and see me as a resource when they need me." Participants often found themselves educating the service providers in non-IHS clinics about their cultures. Participants stressed the need for building trust with their service providers, noting that providers can help by considering their patients' cultural needs. One service provider interviewee (#4) said that "building a network of traditional people who can be consultants or provide traditional services would increase the appropriateness of the services we offer."

Participants advocated for the integration of services as an effective way to meet community needs. One community member interviewee (#2) shared:

A lot of times with Native people they're not going to tell you they have needs, and by addressing both a counselor and a physical doctor at the same visit you might be able to find out more of what they need.

AIHFS attempts to provide services that treat the whole person, and includes spiritual and cultural aspects in services. Despite the existence of these services, the participants wanted more integration of Western medicine and traditional medicine. A male community member in a talking circle (#1) talked about what is important to him: "Reconnecting with tribal heritage… going back to tribal practices and healing along with Western medicine." The theme of culturally

competent services and providers also included collaboration between staff and community members. Collaboration is an AI/AN value and traditional way of interacting. A service provider interviewee (#7) noted the importance of collaboration:

> Having like really good communication about the changes, like with all the staff, and…involving the staff in like creating the...programs so that everybody knows how it's going to work….asking the community's opinion and feedback on it.

Need for More Specialized Health Services

Participants wanted more specialized services at AIHFS, as external providers were not receptive to, or knowledgeable about, AI/AN cultures. They suggested that offering specialized services in both the behavioral and medical health programs would help to build trust in AIHFS. A service provider interviewee (#26) stated:

> We provide here just a basic medical health…if they need any specialized services, we have to refer them out for those services…if they need an internist, a pulmonary specialist...any sort of specialist, we have to refer them out.

AIHFS provides a range of services, but some clients felt there were limitations that forced them to go to more than one clinic, some non-IHS, for their health needs, as shared by this service provider interviewee (#11):

> I had one patient yesterday that told me that she goes to the other county . . . for her women's health screening, but she came to us for family medicine and I was able to at least give her that information, that we are working on it . . . So I think that is going to have more of a central, kind of continuity of care, rather than breaking up women's health in their county and them coming here for family members.

There is a greater demand for services than AIHFS currently is able to meet financially, which leads to waiting lists and patients left with unmet health needs. Lack of onsite services results in referrals, often leaving the uninsured to maneuver through a great deal of paperwork and a 25- to 30-day wait for an appointment. Participants desired more mental health services (e.g., case management; support groups for loss, grief, and stress management), a psychologist or psychiatrist on staff, drug and alcohol treatment targeted at AI/AN populations, and more youth-tailored services. A community member talking circle participant (#1), who is a mother, shared

her experiences with the general mental health system and her wish that AIHFS could provide advocacy and guidance in helping families work with multiple providers and systems in the greater Detroit metropolitan area.

Need for More Transportation Options

Participants wanted more transportation options to be able to attend events. Given that services are provided to a seven-county metropolitan area, many of the participants, including one community member interviewee (#27), stated, "Transportation is one of the biggest challenges." Participants cited lack of public transportation and not having a vehicle as transportation barriers that prevented them from accessing services. AIHFS is located on the fringe of the Detroit metropolitan area, and there was a desire for it to be more centrally located or to have more locations, as some patients have to drive more than 60 miles for services. A community member interviewee (#30) shared:

> I think that if they're able to get here, it's a wonderful thing, because [patients]
> may not be located near it, some people decide not to come this far. I think that a
> lot of people don't know they can use these services.

Transportation in the Detroit metropolitan area is automotive-centric, so public transportation is underfunded, is nonexistent or sporadic in many areas, and does not connect the greater metropolitan area to the city. As a service provider interviewee (#1) stated, "With our programs they [clients] would get so much out of it, if we could just get them here…"

To offset the challenges posed by limited transportation, participants requested extended or evening hours of operation at AIHFS. In particular, participants who held traditional workday jobs asked AIHFS to provide health services on weekends and later in the evening to better accommodate travel time. One community member interviewee (#15) suggested, "Being able to come in an evening, seeing a therapist, for instance, that the kids go to school all day and the parent works, um, maybe even on the weekends." Another community member interviewee (#29) added, "You know, available times… in the evening hours after you work."

AIHFS' and the Community's Response to the Results of the Needs Assessment

AIHFS reviews service delivery and programming at the advisory council's monthly meetings. At these meetings, elder members receive updates, provide input, and also teach younger members traditional ways of praying, dancing, and singing. To facilitate youth input on programming and service needs, a monthly youth advisory council has also been formed. More creative, low-cost, and potentially high-impact solutions to the unmet mental, emotional, physical, and cultural needs of the local AI/AN community are being generated by management, providers, and staff and community members. Oral reports from the advisory council and community members, as well as increased community participation in events (measured by sign-in sheets) have been positive.

Overall, participants were satisfied with the quality of services provided at AIHFS, but wanted even more culturally appropriate services to be available both offsite site with other providers, and onsite at AIHFS.

Need for More Culturally Competent Services and Providers' Response

In response to the needs assessment, AIHFS has provided more traditional healing, culturally competent programming, marketing, AI/AN or ally providers; and service integration. AIHFS has a made a concerted effort to increase the use of traditional healers and elders practiced in traditional healing methods (e.g., use of medicinal plants and herbs) to conduct teaching and ceremonies. AIHFS has launched a weekly Native-specific women's Wellbriety group and more regularly scheduled peer-led men's and women's talking circles that include traditional activities. It has also initiated a nutrition program where members learn how to cook healthy Native foods, more regular sweat lodges, and naming ceremonies. These activities require only space and minimal funds.

To increase its marketing efforts and reach more community members, especially youth, AIHFS updated its website with available programs and links to social media accounts, made its newsletter accessible on the website, and developed a listserv for weekly emails. Finally, a marketing committee was formed to increase visibility and membership with videos, brochures, flyers, and signs posted on the website and distributed at community venues around the Detroit metropolitan area.

The participants asked for AI/AN health providers and staff members, of which there are now several at AIHFS, working in the health, youth, parenting, suicide prevention, and substance abuse programs, as well as in the facilities and administrative departments. AIHFS' increased marketing efforts and infrastructure development enabled it to recruit and support these AI/AN staff members, as well as local university interns, many of whom are AI/AN. AIHFS continues to have an AI physician as well.

AIHFS services are being integrated. For example, a behavioral health provider was relocated to the physical health clinic for quick onsite assessments and referrals for behavioral health. More services that involve a holistic, traditional healing approach are being introduced and also are being integrated with Western medicine. For example, the newly hired AI/AN staff members are professionally trained in the Western model, but have backgrounds in AI/AN cultures.

Need for More Specialized Health Services Response

Due to funding restrictions, more specialized services are difficult to access at AIHFS. However, AIHFS' response has been to increase collaboration with providers and community members, internally and externally, particularly in the behavioral health program. Via a grant-funded project, Detroit metropolitan service providers are working to integrate AIHFS into Detroit Wayne Mental Health Authority's system of care management team, and the agencies involved are participating in training that infuses more cultural programming with an emphasis on AI/AN cultures. At AIHFS, more substance abuse and mental health programming is being developed. The center has received funding for a suicide prevention project that provides gatekeeper trainings, which teach those who are positioned to recognize and refer someone at risk of suicide (e.g., parents, friends, neighbors, teachers, coaches, caseworkers, police officers) about the warning signs of a suicide crisis and appropriate responses (Suicide Prevention Resource Center, n.d.). Suicide screenings and referrals for ongoing mental health services also are provided. To increase behavioral and physical health staffing numbers in specialized areas (addictions, children and youth mental health, innovative behavioral interventions) AIHFS has formed internship programs with local universities and has accessed grant funding for suicide

prevention and addictions programming. Finally, the center is applying for accreditation, which can lead to an increase in reimbursements from regulators, thus generating more income for specialized services.

To develop more cultural activities and programs, AIHFS, tribal organizations, tribal communities in Michigan, and First Nations people in nearby Canada are doing more networking. As part of this effort, AIHFS and two local Native agencies formed a coalition to collaborate in services, funding, and events. Each site is working to decrease redundancy in services and maximize participation in funded programs. AIHFS and one of the agencies have jointly sponsored a powwow. Together, the three coalition partners are conducting more cross-agency behavioral and physical health trainings and events to share funding and increase collaboration and participation among staff and community members.

Additionally, AIHFS staff and community members are involved in accessing funds for capital improvements, capacity building, mental health, substance abuse, and medical services. The advisory councils and staff members collaborate on grant applications, and, when funds are awarded, they collaborate on the implementation of programs. Community input is frequently obtained for projects, especially those involving youth.

Need for More Transportation Response

Understanding these challenges related to transportation has allowed AIHFS to brainstorm solutions and apply for funding to alleviate this burden for its community members. AIHFS has acquired two additional vehicles (for a total of 4) since these data were collected, and additional staff members have been trained as qualified drivers. Furthermore, in order to accommodate patient work schedules and travel time to the center, AIHFS has added evening hours and walk-in days.

DISCUSSION

This study identified the following needs: more culturally competent services and providers, more specialized services, and improved transportation options. The participants' desire for culturally competent services is not unique to AIHFS. For example, in a study in the

Chicago metropolitan area, AI/AN participants indicated a need for culturally relevant services that utilize traditional medicine or spiritual healing (West, Williams, Suzukovich, Strangeman, & Novins, 2012).

Many AI/AN elders and adults experienced assimilation strategies imposed by the federal government, including forced attendance at boarding schools and the Indian Relocation Act of 1956. In particular, relocation created a chronically disenfranchised and traumatized urban Indian population (Nebelkopf & King, 2003). These assimilation practices estranged AI/AN adults from their traditions and increased their need for programming to reclaim culture for themselves and their children.

There are challenges to providing culturally competent programming, including the diversity of tribes and cultural practices within an urban setting, which prevents a one-size-fits-all approach. Further, few providers know about AI/AN cultures; most need to be educated about the cultural and historical contexts that influence the diagnoses and treatments providers can offer. Traditional healers can help to bridge this gap, but they are few in number and often must travel far to provide services. In order to tackle these obstacles, funding is needed to improve the quantity and quality of culturally competent services at urban Indian health clinics and positively impact health outcomes in the community.

Another interesting result of the needs assessment is the desire for more onsite specialized services, especially mental health services. A 2012 Urban Indian Health Institute report shows that, among AI/AN adults residing in urban areas, 15.1% reported at least 14 poor mental health days within the last month, compared with 9.9% of the all races population (UIHI, SIHB, 2012a). The mental and physical health of AI/AN people are affected by the traumas associated with historical events. These traumas often are not understood, recognized, or discussed in the current U.S. health care system (UIHI, SIHB, 2012a).

Even with an increase in funds for more comprehensive culturally competent services and providers, and the provision of more onsite specialized services, many AI/ANs in the Detroit metropolitan area are unable to get to the center. The effects of insufficient transportation on AI/ANs' ability to access health care in Michigan is noted in the 2009 Bemidji area urban Indian needs assessment. Among 389 respondents, a lack of insurance (23.3%), and then a lack of

transportation (13.9%) were the major reasons for not being able to access health care (UIHI, 2009). These findings reaffirm that urban Indian health clinics need more funds to be able to provide transportation as well as cultural and specialized services.

For this study, the following limitations should be noted. The results of the study from one urban AI/AN health center cannot be generalized beyond this specific sample. While the sample in the study represents community member and service provider perspectives, the sample size was small and purposive, and the results may not reflect the needs of AI/ANs in the entire Detroit metropolitan area. Additional research would be needed to develop a more comprehensive understanding of the health needs of urban AI/AN populations.

CONCLUSION

As a result of this study, AIHFS' staff and community members, service providers, and external service providers have enhanced and expanded physical and mental health programs, as well as integrated more culturally competent programming into their present services. Community members, staff members, service providers, regional AI/AN centers, and Detroit metropolitan area social service agencies need to continue to collaborate in order to provide services effectively and reduce health disparities for this urban Indian population.

"We need to stand together as a whole Nation…We need to lift each other up, you know, to keep us strong. We need to be strong" (Community member interviewee #28).

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IDENTIFYING AND UNDERSTANDING INDIGENOUS WAYS OF EVALUATING PHYSICAL ACTIVITY PROGRAMS

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Abstract: Indigenous evaluation frameworks have not been investigated in the context of American Indian and Alaska Native (AI/AN) physical activity programs, an important area given the relationship between effective physical activity programs and quality of life among these populations. To address this gap, staff members of AI/AN physical activity programs were interviewed to explore their understanding of and experiences with evaluation. Findings suggest that Indigenous evaluation is perceived as narrative and holistic, Indigenous knowledge is used in program decision making, though it is not always acknowledged as evaluation, and there is not a universally desired way to evaluate AI/AN physical activity programs.

INTRODUCTION

Indigenous and tribal evaluation models have been created based on traditional ways in which Indigenous peoples assign merit or worth to activities or programs of importance to them (LaFrance & Nichols, 2009). These models have been designed to build the capacity of American Indian and Alaska Native (AI/AN) communities and external evaluators to implement culturally responsive evaluation methods that recognize and value Indigenous knowledge, respect tribal sovereignty, and recognize the historical misuse and imposition of research and evaluation conducted *on* and not *with* AI/AN communities (Kawakami, Aton, Cram, Lai, & Porima, 2007; LaFrance, 2004; Tribal Evaluation Workgroup, 2013). However, Indigenous evaluation approaches have rarely been assessed within the context of physical activity programs, and the types and sources of capacity necessary to implement these methods have not been identified.

Physical Activity among AI/ANs

An analysis of the 2000-2010 Behavioral Risk Factor Surveillance System data found that, when compared to their White counterparts, AI/AN males reported higher rates of obesity (33.9% vs. 23.3%, respectively) and diabetes (15.1% vs. 7.3%, respectively); AI/AN females also reported higher rates of obesity (35.5% vs. 21%, respectively) and diabetes (14.3% vs. 5.8%, respectively; Cobb, Espey, & King, 2014). Physical activity has been found to protect against type 2 diabetes, reduce the prevalence of obesity and its associated indicators (e.g., body mass index [BMI], percentage of body fat) and complications, and improve perceived quality of life among these populations (Coble & Rhodes, 2006; Foulds, Warburton, & Bredin, 2013; Kriska et al., 2003; Poltavaski, Holm, Vogeltanz-Holm, & McDonald, 2010). In addition, AI/ANs have reported a greater number of mentally unhealthy days when compared to all other racial and ethnical groups, and a 2010 study found that regular physical activity was associated with fewer days of poor mental health among this population (Poltavaski et al., 2010).

Recently, there has been an increase in funding to support the design and implementation of interventions directed at promoting an active lifestyle and addressing the rates of chronic disease among AI/ANs (Teufel-Shone, Fitzgerald, Teufel-Shone, & Gamber, 2009). Federal agencies such as the Indian Health Service (IHS), the Centers for Disease Control and Prevention, and the Executive Office of the President have launched physical activity-promoting initiatives for AI/ANs, including the Special Diabetes Program for Indians, Healthy Weight for Life, and Let's Move in Indian Country. Additionally, nongovernment and philanthropic organizations such as the Notah Begay III Foundation and the Nike N7 Fund have supported similar programs. However, meaningful program evaluation is lacking at the local level to inform program improvement and sustainability, measure effectiveness, and communicate impact to the communities being served (Fleischhacker, Roberts, Camplain, Evenson, & Gittelsohn, 2015; Foulds et al., 2013; Teufel-Shone et al., 2009).

Teufel-Shone and colleagues' (2009) systematic review of peer-reviewed articles and the grey literature identified 64 physical activity programs being implemented across Indian Country, and found that only 42% measured impact. Another recent systematic review of the peer-reviewed literature indicated that only 8 of 19 interventions focusing on physical activity among AI/AN youth described the use of formative assessment, and only 8 included process or outcome evaluation (Fleischhacker et al., 2015).

This lack of evaluation is significant, given that evaluation not only can lead to program improvement and better health outcomes, but also is linked to program sustainability, as many grant mechanisms require evaluation and reporting during the funding period (i.e., tribal organizations must demonstrate success to ensure continued funding), particularly where funding mechanisms are limited (Teufel-Shone et al., 2009). In addition, funding entities often require standardized evaluation methods that provide comparable data across grantees, but do not attend to the unique, local differences among AI/AN communities, and they assume that there can be a universal way to evaluate programming. However, it also is important to identify and evaluate factors valued by local AI/AN communities (Grover, 2010). Therefore, evaluation that is localized and based on the values of AI/AN communities as well as funding agencies and other scientific entities is paramount to ensuring true success and effectiveness of programs for improving health and well-being.

Indigenous Knowledge

Indigenous knowledge (or epistemology) is, in its most basic form, the ways in which Indigenous peoples (e.g., AI/ANs; First Nations and Aboriginal peoples) come to know the world. This knowledge is created uniquely within each Indigenous community; however, the following three processes often transcend communities: empirical knowledge, traditional knowledge, and revealed knowledge (Barnhardt & Kawagley, 2005; Lavallee, 2009). Empirical knowledge is representative of observations taken from different vantage points over time in real-life settings (LaFrance & Nichols, 2009; Lavallee, 2009). Traditional knowledge is based on the history and experiences of the community and is passed down through generations (LaFrance & Nichols, 2009; Lavallee, 2009). Revealed knowledge is discovered through dreams, visions, and spiritual practices (LaFrance & Nichols, 2009; Lavallee, 2009). In addition, scholars have identified other characteristics of Indigenous ways of knowing that are common across communities. For example, Indigenous knowledge often is identified as favoring holistic thinking, subjectivity, and social betterment, in contrast to Western science-based practice that values linear and hierarchical thinking, and privileges objectivity (a distance between the evaluator/researcher and the participant) and improving the individual participant (Cavino, 2013; LaFrance, 2004; LaFrance, Kirkhart, & Nichols, 2015; LaFrance & Nichols, 2010; Tribal Evaluation Workgroup, 2013). Further, Western science often utilizes standardized quantitative

instruments that emphasize validity and reliability, as compared to qualitative methods, which are generally more accepted and more meaningful to AI/ANs, given their oral traditions (Chouinard & Cousins, 2007; LaFrance, 2004). In the context of program evaluation, Indigenous knowledge can be used when examining the merit or worth of a program (LaFrance & Nichols, 2009).

Existing Indigenous Evaluation Models

To increase and promote the inclusion of Indigenous knowledge in evaluation, as well as to address the history of exploitative, intrusive, and invasive evaluation imposed upon Native populations, Indigenous evaluation frameworks and models have been created (Cavino, 2013; Hodge, 2012; LaFrance & Nichols, 2010; Tribal Evaluation Workgroup, 2013). In 2012, the U.S. Department of Health and Human Services, Administration for Children and Families, Children's Bureau convened a Tribal Evaluation Workgroup, composed of staff members of tribal child welfare programs, university researchers that have worked with AI/AN communities, technical assistance providers, and others with expertise in evaluation, to create a tool that improves AI/AN evaluation capacity through the incorporation of Indigenous knowledge, culture, and tradition: the *Roadmap for Collaborative and Effective Evaluation in Tribal Communities* (Tribal Evaluation Workgroup, 2013). Within the context of tribal child welfare programs, the purpose of the roadmap was to guide the development and implementation of evaluation with external partners, serve as a reference in grant applications, assist in training future researchers and evaluators at Tribal Colleges and Universities (TCUs), inform evaluation requirements established by federal and state funders, and improve Tribal Institutional Research Review Boards' guidelines (Tribal Evaluation Workgroup, 2013). The workgroup agreed that the roadmap should serve to establish a "new narrative" for evaluation that empowered AI/ANs to "move beyond fear and distrust of evaluation" and build relationships with various stakeholders that support meaningful and culturally inclusive knowledge exchange (Tribal Evaluation Workgroup, 2013, p. 6).

The circular shape of the roadmap represents the cyclical process of improving programming through evaluation (Figure 1; Tribal Evaluation Workgroup, 2013, p. 7). The overarching concepts of 'relationship building' and 'knowledge and skill building' overlap to reflect their interdependence and equal importance, with the goal of 'building a new narrative'

symbolically in the center as the central focus of the roadmap. These concepts are encompassed by 'values' of Indigenous communities, and further underpinned by 'historical context', which shapes existing and future practices with this population. Embedded within the roadmap are the names of various types of stakeholders that play significant roles in the process of evaluation with AI/ANs (Tribal Evaluation Workgroup, 2013).

Figure 1
Roadmap for Co-creating Collaborative and Effective Evaluation to Improve Tribal Child Welfare Programs
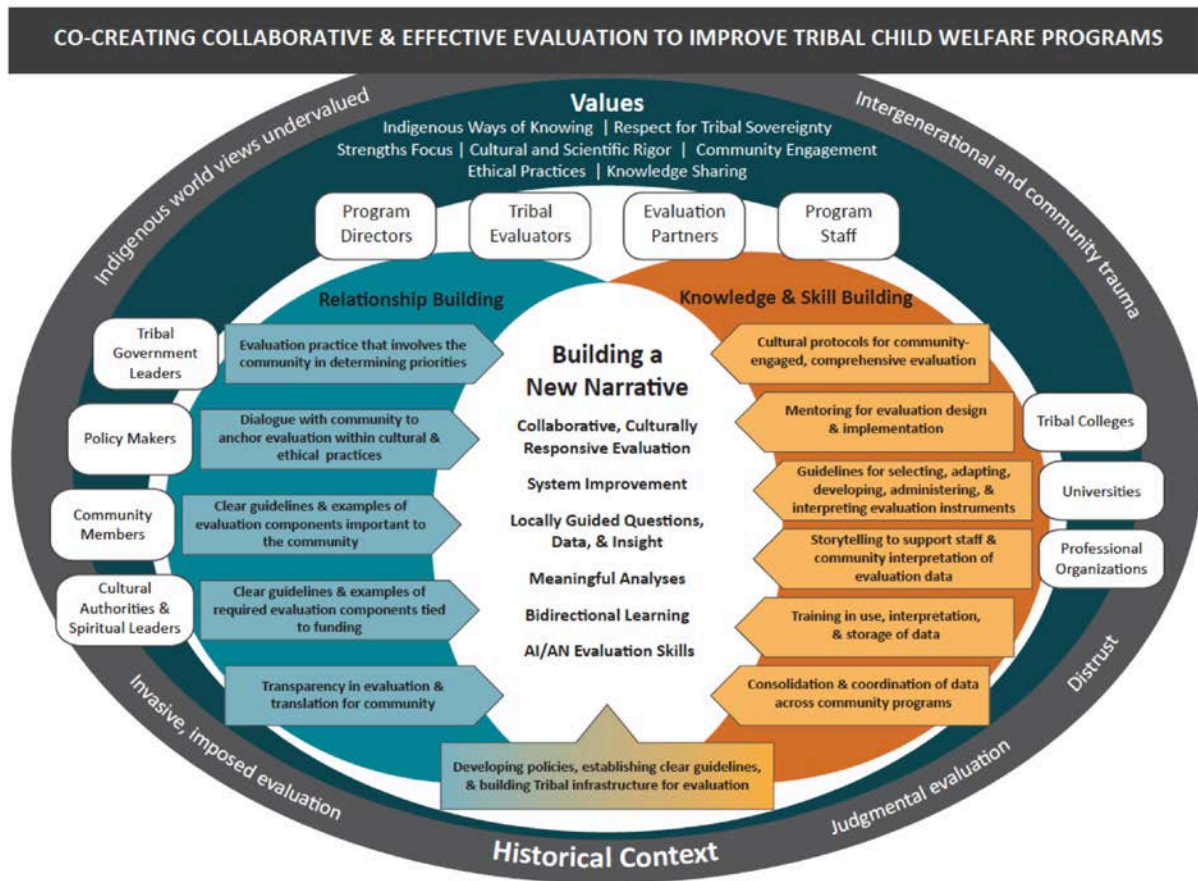
Another approach created to support and promote sound evaluation in AI/AN communities is the Indigenous Evaluation Framework (IEF; LaFrance et al., 2015). This framework was developed by the American Indian Higher Education Consortium (AIHEC) and was informed by the knowledge and wisdom of over 100 AI/AN Elders, cultural experts, scientists, and educators (LaFrance & Nichols, 2009). The AIHEC convened these individuals over the course of four 1-day focus group sessions during which they discussed ideas and goals

for evaluation within the context of Indigenous ways of knowing (LaFrance & Nichols, 2009). The result was the IEF, which identifies four core values integral to implementing evaluation with AI/ANs: being a people of place, recognizing gifts, honoring family and community, and respecting sovereignty (LaFrance & Nichols, 2010). Based on these values, the framework suggests that evaluation with AI/AN programs should not focus on generalizability; should utilize a strength-based approach to assess achievement; should emphasize the role of the community throughout the entire process; and should include and respect traditional, empirical, and revealed knowledge (LaFrance & Nichols, 2010). The ideas underpinning the framework were pilot tested at seven TCUs and one elementary school, as the framework was focused on educational evaluation (LaFrance & Nichols, 2009).

The aforementioned frameworks attend to the call from scholars for a decolonization of evaluation. Decolonization is an approach that serves to counter colonization and the privileging of Western knowledge over Indigenous knowledge (Smith, 2012). It can privilege Indigenous knowledge, voices, and experiences, and "re-write and re-right [the Indigenous] position" in society (Denzin & Lincoln, 2008; Lavallee, 2009; Smith, 2012, p. 29). In the current social context, the continued view of Western knowledge as the only means of generating logical ideas perpetuates imperialism, colonialism, and power differentials between Western and Indigenous peoples (Smith, 2012). In the domain of health, scholars suggest that colonization "occurs when majority society…assumptions about health and disease are applied to develop programs to alleviate poor health of Indigenous peoples caused by colonization" (Bartlett, Iwasaki, Gottlieb, Hall, & Mannell, 2007, p. 5). In relation to research and evaluation, Western science is identified and regarded as superior and is widely taught and practiced, and, while it may seek to include Indigenous perspectives in the data, findings are often used to change the lives of Indigenous peoples based on Western assumptions and standards of what is progress or what is good/bad and right/wrong (Bartlett et al., 2007; Smith, 2012).

While these frameworks provide guidance for conducting culturally sensitive, culturally driven, and decolonized evaluation with AI/ANs, they are not specific to the evaluation of any certain type of program or intervention (e.g., nutrition, physical activity). Further, scholars have not explored how AI/AN organizations conducting evaluations understand the components of these frameworks. Moreover, to date, these frameworks have not been investigated in the context of physical activity. To explore how Indigenous evaluation models and knowledge can be

applied to AI/AN physical activity programs and identify a best practice for evaluating AI/AN physical activity programs, the first author, a doctoral candidate, conducted an exploratory qualitative study to answer the following research questions: (1) How do AI/AN organizations define and describe Indigenous knowledge-based evaluation in the context of physical activity programs? (2) How interested are AI/AN organizations in using Indigenous knowledge-based evaluation to evaluate their AI/AN physical activity programs? (3) What organizational capacity is necessary for conducting evaluation grounded in Indigenous knowledge? and (4) What barriers do AI/AN organizations face in implementing Indigenous knowledge-based evaluation to evaluate their physical activity programs? This paper presents the findings and discusses what program evaluation looks like for AI/AN organizations implementing grant-funded physical activity programs.

METHODS

The first author, who self-identifies as a White and AI female and was a doctoral candidate at the time this work was done, conducted this study for her dissertation research, which was based on her experiences as an evaluator for AI/AN public health programs. In her role as an evaluator, she noticed the challenges faced in implementing meaningful and useful evaluation for tribal communities and wanted to contribute to the scholarship and practice of culturally responsive and Indigenous evaluation with and for AI/ANs. Aligned with the practice of reflexivity (Krefting, 1999), the first author identified her assumptions going into the study: first, that individuals working on the evaluation of grant-funded AI/AN physical activity programs desired to use Indigenous evaluation, could recognize Indigenous evaluation, and would chose Indigenous evaluation over Western science-based evaluation; and second, that the evaluations required by the programs' funding agencies might influence how individuals perceived or understood Indigenous and Western science-based evaluation.

Study Design

To explore Indigenous evaluation in the context of AI/AN physical activity programs, the research team conducted an exploratory qualitative study grounded in a decolonizing framework (i.e., an approach that emphasizes the use of culturally based, iterative, and process-oriented

methods whereby knowledge is gathered through respectful listening, the study participants are involved in the review of data and interpretations, and bidirectional learning and empowerment occur; Bartlett et al., 2007). The research team included the first author, a graduate research assistant, and the first author's academic advisors. The study was approved by the University of Maryland's Institutional Review Board, and informed consent was obtained from all participants.

Sample

The research team conducted in-depth interviews with individuals working at AI/AN organizations implementing externally funded physical activity programs ($n = 17$). When conducting decolonizing research, it is recommended that a diverse sample of participants be recruited to ensure the viewpoints of many within the community are heard (Bartlett et al., 2007). Therefore, we purposefully sampled AI/AN organizations conducting physical activity programs based on their funding source (e.g., federal grant, state grant), geographic location (e.g., IHS area), and type of community (e.g., urban, rural). From these organizations, we targeted individuals working most closely on the evaluation of the physical activity program as prospective participants.

The research team chose to include non-AI/AN participants in the study, given that no literature has suggested that only AI/ANs can practice Indigenous evaluation and because Indigenous evaluation has been described as an approach that is "practiced by evaluators who value building strong relationships with those involved in the evaluation" (LaFrance, 2004, p.43). This definition does not require that Indigenous evaluators be Indigenous; rather, they should have an understanding of and appreciation for the tribal context and base their evaluative decisions on the relationships they have built with those involved.

Participants were staff members at 17 different AI/AN organizations. Their physical activity programs were located in the following 9 IHS areas: Alaska, Albuquerque, Bemidji, California, Great Plains, Nashville, Navajo, Oklahoma City, and Phoenix. Most programs were implemented in reservation communities ($n = 11$), with the remaining in rural nonreservation areas ($n = 4$), urban areas ($n = 1$), and both reservation and urban communities ($n = 1$). The majority reported the source of their physical activity grants as federal agencies ($n = 14$); other grants came from nonprofit organizations ($n = 6$), and/or the state ($n = 3$). Some programs ($n = 6$) were funded by multiple sources. Participants identified a wide range of physical activity

interventions implemented through their programs, reaching both AI/AN youth and adults and spanning from environmental or policy change to community-wide health promotion to individual behavior change. These interventions included community events (e.g., hosting 5k runs/walks, health fairs; *n* = 12); partnership with a fitness center or gym (*n* = 9), youth after-school programs, in-school physical education, summer camps, and/or sports leagues (*n* = 7); group exercise classes (*n* = 5); and personal training or individual case management (*n* = 5; see Table 1).

Table 1
Program Characteristics

	Number (17)	Percentage
Program Locale		
AI/AN Reservation	11	64.7%
Rural nonreservation	4	23.5%
Urban	1	5.9%
Both urban and reservation	1	5.9%
Grant Mechanism[a]		
Federal agency	14	82.4%
Nonprofit organization	6	35.3%
State agency	3	17.6%
Intervention Type[b]		
Hosts community events	12	70.6%
Provides fitness/gym space	9	53%
Coordinates youth physical activity programs	7	41.2%
Provides group exercise classes	5	29.4%
Provides personal training/case management	5	29.4%

[a] Six participants identified more than one funding source; therefore, the percentages do not add to 100%. [b] Participants noted that their interventions have many of the identified components; therefore, the percentages do not add to 100%.

The 17 interviews included 18 individuals (2 individuals participated in an interview together). Of those 18 participants, 17 provided additional demographic information (see Table 2). These participants held many (often multiple) roles and/or job titles within their organizations, including Program/Project Director (*n* = 9), Program Coordinator (*n* = 6), Health Educator (*n* = 3), and Personal Trainer (*n* = 2). Approximately half of the participants had worked at their organizations for less than 5 years, and most (*n* = 15) reported at least some training in evaluation. Nearly half of the participants (*n* = 8) self-identified as AI, AN, or Native Hawaiian. In addition, participants came from a variety of backgrounds, including development, exercise science, nursing, fitness training, accounting, and physical therapy.

Table 2
Participant Characteristics

	Number (17)[a]	Percentage
Role/Job Title[b]		
Program/Project Director	9	52.9%
Program Coordinator	6	35.3%
Health Educator	3	17.7%
Personal Trainer	2	11.8%
Evaluation Training		
Yes	15	88.2%
No	2	11.8%
Years at Organization		
1-5 years	8	47.1%
6-10 years	4	23.5%
11+ years	5	29.4%
Self-identified Race		
American Indian/Alaska Native/Native Hawaiian	8	47.1%
Non-Native[c]	9	52.9%

[a] Of the 18 individuals who participated in the 17 interviews, 17 provided demographic information. [b] 20 job title are identified for 17 participants because one participant held 2 job titles, and 1 participant held 3 job titles. [c] Non-Natives self-identified as White (*n* = 7), Spanish and Asian (*n* =1), and unspecified (*n* = 1).

Data Collection

The research team developed a semi-structured interview guide based on the research questions above that included 13 questions under the following four themes: program information, identifying success and Indigenous evaluation methods, evaluation experiences, and capacity and barriers. In line with decolonizing research methods, the initial questions in the in-depth interview guide did not mention the Western terms *evaluation*, *reporting*, or *data*, with the express notion that the use of these terms may elicit responses aligned with Western culture rather than based on Indigenous knowledge (Bartlett et al., 2007). The guide was pilot tested with three AI/AN public health practitioners, during which they were asked to provide feedback on the appropriateness, intrusiveness, completeness, understandability, and respondent burden of the questions. The guide was revised based on the feedback. The telephone interviews were conducted by the first author and were digitally recorded.

As a standard for identifying a sufficient qualitative sample size, saturation is defined as "the point at which all questions have been thoroughly explored in detail and no new concepts or themes emerge in subsequent interviews" (Trotter, 2012, p. 399). In this study, saturation was reached at 17 participants; after that point, no additional interviews were conducted (Trotter,

2012). Researchers have identified a sample size of 15 participants as appropriate and sufficient for qualitative research in the field of public health using expert sampling designs (Trotter, 2012), and qualitative decolonizing research with Indigenous peoples has been conducted with 16 participants (Lavallee, 2009); thus, we decided this sample size was sufficient. Participants were given a $20 Amazon gift card in appreciation for their time and insight.

Data Analysis

Thematic analysis was used to analyze the qualitative data. The study included member checking and ongoing reflexivity (described below) throughout the research process to further the bidirectional learning emphasized in decolonizing research (Bartlett et al., 2007). A graduate research assistant transcribed all interviews verbatim, and the first author reviewed the transcripts for quality assurance by comparing them to the recordings for accuracy and revising as needed. Identifiable (e.g., personal and tribal) information was removed from all transcripts and, as a form of member checking, transcripts were sent to the associated interview participants for their voluntary review. Member checking is a method used in decolonizing research that serves to improve the credibility of qualitative research; it involves matching the researcher's data and analysis with the study participant's interpretations (Bartlett et al., 2007; Krefting, 1999). For the 17 interviews, nine participants confirmed that they reviewed their transcripts. Of those, seven approved the transcript as it was and two provided edits. One participant's edits were minor and involved changing a word that was misunderstood on the recording. A second participant perceived the member check as an opportunity to revisit the responses and make changes and requested more involved edits, which the first author felt altered the authenticity of the initial response. After discussions about the purpose of the member check, the first author and participant agreed on a version of the transcript that was mostly true to the original version, but included some edits where the participant completed a thought or comment that was not completed during the interview, and where the participant's first response did not make sense. Transcripts were imported into NVivo qualitative software to facilitate organization and coding.

As a first step of the thematic analysis, the first author created a codebook based on the research questions and themes that emerged during the interviews (Braun & Clarke, 2006; DeCuir-Gunby, Marshall, & McCulloch, 2010). To assess the reliability of the codebook through a group-consensus approach (without quantification), the graduate research assistant and first author:

- coded 2 transcripts (selected based on their medium length)
- met with a faculty researcher experienced in qualitative research to review and discuss the codebook and its application,
- reviewed and discussed any inconsistencies in coding, and
- decided together on appropriate revisions (DeCuir-Gunby et al., 2010).

The codebook was revised, and the first author and graduate research assistant coded two new transcripts, met to discuss discrepancies, and collaboratively finalized the codebook. From there, the first author coded all 17 transcripts, and the graduate research assistant coded a random sample of 30% of the transcripts ($n = 5$) to assess the validity of the coding. Instances of Indigenous knowledge collection were identified through the coding process. To capture participants' use of traditional knowledge to help evaluate their physical activity programs, the first author coded instances when participants identified gathering information through relationships, experiences, interpretations, Native teachings, and community learning. To identify when participants used empirical knowledge to help evaluate their programs, the first author coded instances when participants identified collecting information and/or obtaining knowledge through their observations of the program participants that occurred over time. All coding was agreed upon, and the codebook was used to guide a deductive approach to data analysis while allowing for inductive analysis to take place as codes emerged (Braun & Clarke, 2006).

Through an examination of the coded text, concepts were generated to represent the various dimensions of each theme, recognizing the continuity and variability of each theme within and across the interviews (Daly, 2007; Ryan & Bernard, 2003). Based on these concepts, a narrative was created, representative of the preliminary findings and written as a journal entry from an individual evaluating an AI/AN physical activity program. This narrative was sent to all

participants as the second member check, and 7 confirmed that they read the narrative, approved its content, and reported that it represented their interviews well. The remaining 10 participants did not confirm receipt or provide feedback on the narrative.

Preliminary findings also were summarized for dissemination to an expert panel, as a form of peer examination (Krefting, 1999). Individuals were asked to serve as members of the expert panel based on their professional expertise in AI/AN public health research. Two expert panelists and one academic mentor experienced in qualitative research with minority populations reviewed the preliminary findings and provided feedback, identifying areas for further deconstruction.

RESULTS

Although the participants were recruited based on their employment at AI/AN organizations, they were not speaking on behalf of their organizations; thus, the results reflect their individual perceptions and not necessarily the views of their organizations. Three themes arose: 1) Indigenous approaches to evaluating AI/AN physical activity programs are perceived as narrative and holistic, 2) Indigenous knowledge is used in AI/AN physical activity program decision making, but sometimes is not acknowledged as evaluation, and 3) there is not a universally desired way to evaluate AI/AN physical activity programs.

Theme 1: Indigenous Approaches to Evaluating AI/AN Physical Activity Programs are Perceived as Narrative and Holistic

When participants described how they broadly understood "Indigenous evaluation" or "Indigenous approaches to evaluation," the most common perception was that these approaches are holistic and narrative in nature. Four described Indigenous evaluation as holistic (i.e., focused on the impact of the program on the person or the community as a whole). Language such as "the whole gestalt of the experience" and "how it made them feel" was used to convey their understanding of this approach to evaluation. Participants supported this understanding by saying: "[Indigenous knowledge-based evaluation includes] more qualitative measures like spiritual health, or...patient happiness, satisfaction..." and

[Indigenous knowledge-based evaluation is] being able to tell their story. So it's not a hard physical, "Oh we saw somebody's nutrition knowledge improve." So much as, "We hear there's someone [that told] a story about something that they did or something that improved in their life."

Six individuals identified Indigenous knowledge as being narrative or oral in nature, which, to them, generally referred to storytelling. These participants conceptualized Indigenous evaluation using language like "their voices," "their stories about that work," "subjective," and "telling you how they felt during the time they were there" to explain how they understood the process and components of Indigenous evaluation.

According to participants, approaches to evaluation that included narrative and oral methods were perceived as being culturally appropriate and well received by AI/ANs ($n = 10$), and they included these methods when describing their understanding of "Indigenous evaluation." For example, one participant explained perceptions of Indigenous evaluation and how narrative methodology fit the AI/AN context by saying:

I feel like the diversity in Indian Country is so much that you can't really...like things are so different from community to community that you need that sort of human voice, and those sort of unique stories to kind of get a grasp of the character and the difficulties associated with like a particular community in Indian Country. And that storytelling sort of helps you capture that uniqueness or not capture it but at least get a feel for it. And, in a lot of ways inspire you to work with it rather than to sort of just implement a curriculum or a program that you feel like you know works and for some reason it may not work with that particular community. So storytelling allows you to sort of discern what those differences may be and take them into account when you actually implement a plan.

Additionally, when explaining why narrative and oral methods may be well received, a participant said:

> Well, I think that us as Native people, you know, have been so used to filling out forms and applying for this, and applying for that, and that check boxes somewhat feel like that and to them I think it's a huge turn off. And I even think that maybe, you know, not asking people to write, but to document what they say is gonna be a better approach.

To capture how participants experienced Indigenous evaluation in the context of their physical activity programs, the first author coded instances when they identified using a method of evaluation that they felt was Indigenous and/or shared the qualities of Indigenous evaluation. Such approaches included focus groups ($n = 3$), talking circles ($n = 3$), interviews ($n = 3$), storytelling ($n = 1$), digital storytelling ($n = 1$), and a pictorial survey ($n = 1$). Two additional participants noted the use of talking circles in their organizations, but to evaluate behavioral health initiatives, not physical activity programs. Participants described the use of these methods for all levels of evaluation (i.e., formative, process, outcome), identifying how they had used focus groups, interviews, and talking circles to capture information about community needs, how existing programs could be improved, and how programs have impacted people's lives. Digital storytelling was described as a way to disseminate information about programmatic success to community members. One participant described hosting talking circles during group bike rides, saying "Usually on our bike rides we'll talk. When I get a big group, a big group will talk about you know a lot of things. 'Okay, what is it you wanna do?'" Another participant described using storytelling:

> Yes we have [used storytelling to look at how well our program is doing]. I got a nice letter from like a lady who lost 150 pounds over, and you know, really praised the trainers and the facility in making her feel comfortable. Actually I've gotten a couple of those real success stories, and I've asked if we can share them, and I've done that.

Theme 2: Indigenous Knowledge is Used in AI/AN Physical Activity Program Decision Making but Sometimes is Not Acknowledged as Evaluation

In line with the IEF, the majority of participants ($n = 14$) discussed the inclusion of Indigenous knowledge (e.g., traditional, empirical) in their evaluation. Participants ($n = 12$) identified instances where knowledge collection occurred naturally (i.e., through the traditional

or common ways of knowing for the community) due to the dynamic of the culture (e.g., close-knit, oral), during which program attendees shared success stories, positive program outcomes, or program feedback. Many participants (n = 10) also noted that, in small, close-knit communities, the knowledge held by program staff members allowed them to evaluate their programs through observation. These naturally occurring approaches, grounded in Indigenous ways of knowing, were used for formative, process, and outcome evaluation. One participant described capturing personal stories, saying:

> Our community is you know, we pretty much know (laughs) one another. So it's a little easier for us to know who's been in our programs and who hasn't. And you know we're so tight together that we know, I shouldn't say 'know', but we see kinda what the behaviors are. So, in that way we're able to kind of give ideas of who we feel would, you know, we could possibly interview. And then just community members that are just, you know, they're always sharing their stories already with us.

However, when asked how they evaluated their program, 5 of the 14 participants who referenced traditional and empirical knowledge collection did not explicitly identify it as a method of evaluation. Rather, it arose informally during the interview as a way they knew how to improve their program. For example, one participant's organization had not done a lot of evaluation for its exercise classes, but the participant noted a way in which staff members collect feedback about the classes—suggesting that this knowledge collection was not vieed as evaluation:

> We haven't really done a whole lot of evaluation for our exercise classes. I know it tends to be like a lot of people that are attending - they like to tell us you know what times might work for them, or this class might be good for them... Um, that's just mainly word of mouth...more just a conversation piece...

Another participant described using traditional and empirical knowledge about the community to make a modification to the program, but did not identify this process as evaluation:

> We've opened [our program] up to have a buddy system, because for example, maybe one of our Indian Health Service beneficiaries lives alone and doesn't have transportation, but her non-Native neighbor is her support person. Well, we've invited those buddies to come in and participate so that we can continue to

support the health choices of our beneficiary participants. [Interviewer: How did you come up with that?] It was just knowing who our people were that we were serving, and trying to reduce the barriers to their access.

Theme 3: There is Not a Universally Desired Way to Evaluate AI/AN Physical Activity Programs

Participants provided a variety of responses when describing their ideal or desired way to evaluate their physical activity programs. They reported interest in collecting success stories ($n = 3$), using apps or other systems to track physical activity levels over time ($n = 2$), collecting baseline data on measures of health status ($n = 2$), conducting audits of electronic health record data ($n = 2$), collecting digital stories ($n = 1$), measuring health indicators ($n = 1$), using a tool like the Fitness Gram to assess physical fitness at one discrete timepoint ($n = 1$), using social media ($n = 1$), conducting a self-assessment survey or a survey to track physical activity over time ($n = 2$), using a " robust check-in process" (to collect data beyond a sign-in sheet) ($n = 1$), and using evidence-based practices that are culturally relevant ($n = 1$). For example, one participant explained an ideal method of evaluation:

I think we would, if money and resources weren't an issue, we would have a very well-established and engineered infrastructure for basically creating profiles for each one of our participants, that sort of tracked their physical activity throughout the year.

Participants also identified a wide range of outcomes that they would like to measure, including program satisfaction ($n = 3$), program participants' physical activity levels ($n = 3$), BMI ($n = 3$), hemoglobin A1C ($n = 2$), blood pressure ($n = 2$), cholesterol ($n = 2$), program attendance ($n = 2$), feedback on the program in general ($n = 2$), program reach ($n = 1$), program retention ($n = 1$), blood sugar ($n = 1$), connectivity with other AI/ANs ($n = 1$), participants' perceived impact of the program ($n = 1$), intermediate steps of behavior change related to physical activity and health outcomes ($n = 1$), engagement in traditional AI/AN physical activity ($n = 1$), exercise capacity ($n = 1$), physical fitness levels ($n = 1$), and wellness ($n = 1$). These responses include both Western science-based outcomes (e.g., BMI, exercise capacity) and Indigenous knowledge-based outcomes (e.g., connectivity with AI/ANs, wellness). One participant reported wishing to collect the following information for program evaluation:

When we established the leagues themselves, it was more to provide two different things—one, physical activity for the youth, that was number one. And number two, provide that connectivity with other Native youth in the area. What we found is that the Native youth especially like in some of our more remote reservations— the only thing that they know is, you know, experience and exposure on those reservations. So when we actually do games and activities, those kids have to come to other reservations and get exposure to what reservation life is like for the ones [in] that the location they're going to. So that's kind of what we would hope to do. Now, have we done any type of an assessment and know whether or not we're actually, you know, connecting with those two points—the answer unfortunately is no at this point.

DISCUSSION

This study's findings contribute to the recent focus on enhancing Indigenous and culturally responsive evaluation (Bledsoe & Donaldson, 2015; LaFrance & Nichols, 2010; Tribal Evaluation Workgroup, 2013) but investigate evaluation in the context of physical activity programming, which had not been explored previously. Findings highlight how evaluation interests include Indigenous methods, but specifics vary across AI/AN organizations implementing physical activity programs. Results also stress the importance of attending to these unique local interests when establishing evaluation plans and requirements.

This study found that AI/AN physical activity program staff members felt that narrative and oral evaluation methods were culturally appropriate for evaluating physical activity programs, given the ways in which Indigenous peoples know and understand the world, and considering the negative history of research and evaluation among AI/ANs. These findings support the Roadmap for Collaborative and Effective Evaluation in Tribal Communities, which stresses the importance of valuing oral tradition and respecting historical context when evaluating programs in Indian Country (Tribal Evaluation Workgroup, 2013). These findings also align with the IEF (LaFrance & Nichols, 2010), which acknowledges that the traditional AI/AN core value of community may lead program staff members to look beyond individual achievement to the more holistic outcomes of community health and well-being. As the

Roadmap was created in the context of tribal child welfare programs, and the IEF was developed with a focus on educational evaluation (LaFrance & Nichols, 2010; Tribal Evaluation Workgroup, 2013), this study extends to AI/AN evaluation of physical activity programs.

In congruence with the cultural traditions of AI/ANs, participants used a variety of narrative and oral methods to evaluate their physical activity programs, including talking circles, interviews, and digital storytelling. While other studies have noted the lack of scientifically rigorous evaluation for AI/AN physical activity programs (Teufel-Shone et al., 2009), this study is the first to identify the use of culturally appropriate and valuable evaluation methods to capture the impact of physical activity programs.

Findings from this study suggest that evaluation training provided to staff members at AI/AN activity programs could be improved by including Indigenous ways of knowing as valuable methods of data collection. Although knowledge gathered through Indigenous ways of knowing informs decision making and the perceptions of effectiveness of AI/AN physical activity programs, participants shared that these ways of knowing often are not recognized as evaluation. This finding may be due to the participants' training in evaluation, which likely was grounded in Western science and did not consider these methods to be scientifically rigorous. While it was not surprising that narrative and oral ways of knowing were being used, this study highlights the need to make evaluators and funding agencies aware of their use and importance in evaluation and reporting.

Because valuable program data can be collected through narrative and oral methods, it is important that these ways of knowing are understood and valued by funding agencies, as they may reveal important information that is not detectable through Western science-based approaches. For example, Cochran et al. (2008) describe an instance when Inuit whalers identified the presence of whales by "listening for the sound of their breathing," which was distinctly different from the counting method used by the International Whaling Commission (p. 24). The Inuits' method was criticized as inaccurate because their estimates did not match the Commission's; however, they were later "verified by successive aerial surveys" (Cochran et al., 2008, p. 24). In addition, this study's identification of traditional and empirical data gathering, which may or may not be systematic, highlights the need for defining when evaluation occurs. The Roadmap identifies the *evaluative culture* of AI/ANs, noting that these populations have always used traditional ways of knowing to determine what is and is not working, and share

these decisions using oral traditions (Tribal Evaluation Workgroup, 2013). The Roadmap recommends that evaluators acknowledge these ways of knowing and include them in rigorous evaluation designs, suggesting that they would then be considered evaluation (Tribal Evaluation Workgroup, 2013). Therefore, we suggest that it would be beneficial for funding agencies to increase their understanding of Indigenous ways of knowing and to acknowledge, include, encourage, and accept the systematic application of these processes in evaluation designs and reporting for physical activity programs.

Finally, given that funding agencies often require standardized measurement and evaluation across grantees, we sought to identify a best practice for evaluating AI/AN physical activity programs that was culturally appropriate and also could be useful for funding agencies. However, the findings indicate that there is no universally desired approach. Participants identified more than 10 different methods for collecting evaluation data (e.g., electronic tracking, surveys, digital storytelling), and nearly 20 different physical activity-related outcomes. These findings speak to the diversity of AI/AN communities, and consequently their programs, programmatic goals, and ways of knowing. The IEF supports this finding, recognizing that AI/ANs are "people of a place," and, as such, what is appropriate in one community may not be easily translated to another (LaFrance & Nichols, 2010). It is recommended that evaluators and funding agencies seek to understand the cultural differences among AI/AN communities, recognize the contextual differences of their physical activity programs and evaluation capacity, and attend to these differences in evaluation designs and requirements (Chouinard & Cousins, 2007; LaFrance & Nichols, 2010).

To further improve the practice of AI/AN physical activity program evaluation and build upon the findings presented, future research is needed to examine use in Indian Country of the evaluation methods and physical activity-related outcomes of interest to study participants, and to validate these measures and methods with AI/AN populations when appropriate. In addition, future research should explore whether systematically collecting traditional and empirical knowledge to evaluate physical activity programs would weaken the cultural appropriateness of the evaluation, through the perspectives of the AI/AN community members and evaluators.

Limitations

This study is unique in its exploration of culturally responsive evaluation of AI/AN physical activity programs, and contributes to the growing dialogue about the inclusion of cultural context in evaluation practice (Bledsoe & Donaldson, 2015). However, it is not without limitations. The in-depth interviews were conducted by telephone, which may have impacted the participants' feelings of comfort and willingness to share. To address this limitation, the first author recruited participants through her professional network with the hope that, if the contact "approved" of her and the study, the prospective participant would feel more comfortable participating. Face-to-face interviews in future research could address this limitation.

CONCLUSION

Both building from and contributing to the research on program evaluation in AI/AN communities, this study identifies perceptions of Indigenous evaluation, use of Indigenous evaluation for physical activity programs, and the approaches to evaluating physical activity programs desired by program staff members. Aligned with the recommendations of the Roadmap for Collaborative and Effective Evaluation in Tribal Communities, and based on the findings from this study, we recommend bidirectional learning related to physical activity program evaluation, whereby AI/AN program staff members receive training on systematic approaches to evaluation that are culturally appropriate and validated among AI/ANs, and outside entities (e.g., universities, funding agencies) learn about Indigenous ways of knowing specific to individual communities (Tribal Evaluation Workgroup, 2013). The findings from this study suggest that universal or standardized evaluation across many unique AI/AN physical activity programs may not be appropriate, as desired ways of capturing programmatic success varied among participants. Future research should seek to expand these findings across the broader population of AI/AN communities conducting physical activity programs, and should continue to examine culturally responsive methods for evaluating AI/AN physical activity programs that are rigorous and systematic, and incorporate Indigenous ways of knowing.

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NATIVE GENERATIONS: A CAMPAIGN ADDRESSING INFANT MORTALITY AMONG AMERICAN INDIANS AND ALASKA NATIVES IN URBAN AREAS

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Abstract: This study describes the development and evaluation of Native Generations*, a campaign addressing high rates of infant mortality (IM) among American Indians and Alaska Natives (AI/ANs) in urban areas. Campaign development included reviews of literature and previous campaigns, an advisory council, and focus groups. Campaign messages are strength-based, encouraging AI/AN caregivers to utilize available Native-specific resources, including health care, support services, and programming as IM protective factors. The primary campaign material is an 11-minute video. Pilot survey data indicate the video may help increase awareness of IM and Native-specific resources, and increase connection to Native identity, culture, and community.*

INTRODUCTION

In November 2012, a national health communication campaign entitled *Native Generations* was piloted to address disparities in rates of infant mortality (IM) among American Indians and Alaska Natives (AI/ANs) living in urban areas compared to the general population. The campaign was developed, conducted, and evaluated by an urban AI/AN epidemiology center in close partnership with urban AI/AN communities, and included a review of literature and of previous campaigns targeted to AI/AN audiences, recommendations from an advisory council, focus groups for message development, communication strategies, and material testing. Based on the findings from this formative research, the campaign messages promote IM protective factors for urban AI/ANs, such as increased utilization of Native-specific resources, including health care, support services, and programs; and connection to Native identity, culture, and community. The campaign materials include an 11-minute video, companion guides for sharing the video, and a campaign webpage to host these and other resources for AI/AN families. We conducted an

evaluation to assess the implementation of the pilot and whether intended outcomes were achieved with the video, as well as to inform recommendations for future upscaling of the campaign.

BACKGROUND

In 2009, the Urban Indian Health Institute (UIHI), a division of the Seattle Indian Health Board serving as a national epidemiology center for urban AI/ANs, was provided funding by the U.S. Department of Health and Human Services (US DHHS) Office of Minority Health to develop and pilot a national communication campaign to address high rates of IM among urban AI/ANs. We present here a brief description of data on the urban AI/AN population, IM rates, and causes of IM among AI/AN populations to outline the need for our campaign.

The Urban AI/AN Population

Seventy-one percent of the over 5.2 million AI/ANs (AI/AN alone or in combination with other races) live in urban areas (U.S. Census Bureau, 2010). Urban AI/ANs include members, or descendants of members, of many different tribes that may or may not be federally or state recognized. Individuals may or may not have ties to their tribal communities. Urban AI/ANs are generally spread out within urban centers instead of localized within one or two neighborhoods and thus are often not seen or recognized by the wider population (Lobo, 2003).

Striking disparities exist between AI/ANs and the general population in urban areas with regard to socioeconomic, maternal and child health, and morbidity and mortality indicators—many at least twofold (Castor et al., 2006). The socioeconomic disparities include high rates of unemployment, poverty, single-parent households, and disability, and low levels of education (Castor et al., 2006). In a recent analysis of national data, the all-cause death rate for AI/AN persons was 46% more than that for Whites, with deaths due to diabetes, chronic liver disease, and homicide occurring at as much as five times the rates for Whites; deaths due to nearly all other causes also exceeded those of Whites (Espey et al., 2014).

Infant Mortality among Urban AI/ANs

The IM rate among AI/ANs in urban areas is significantly higher than the rate for non-Hispanic (NH) Whites in urban areas (7.4 and 4.6 per 1,000 live births, respectively); variations exist by geographic area, with some areas as high as 14.5 per 1,000 live births among AI/ANs (U.S. National Center for Health Statistics [US NCHS], 2006-2010). The true rate of IM for AI/ANs is likely greater due to racial misclassification of death records (Epstein, Moreno, & Bacchetti, 1997).

The five most common causes of IM for AI/ANs in urban areas are: 1) birth defects, 2) Sudden Infant Death Syndrome, 3) preterm and low birth weight, 4) unintentional injuries, and 5) maternal pregnancy complications (US NCHS, 2001-2010). The rates of death for each of these causes are significantly higher among AI/ANs compared with NH Whites in urban areas (US NCHS, 2001-2010).

This article expands the literature on IM specific to urban AI/ANs by outlining disparities in rates of and risk factors for IM, the need for tailored communication campaigns on this topic, and promising communication strategies for this population to reduce IM.

METHODS

To guide development of the *Native Generations* campaign, we used the social marketing process described in *Making Health Communication Programs Work* (National Cancer Institute [NCI], 2002). The process includes four primary steps: 1) planning and strategy development; 2) creation and testing of concepts, messages, and materials; 3) program implementation; and 4) assessing effectiveness/making refinements. Our planning and strategy development drew on a review of literature and of previous campaigns targeted to AI/AN audiences, as well as recommendations from an advisory council. Concepts, message development, and material formats were informed by focus groups and tested in follow-up focus groups. The campaign pilot was implemented through online distribution, and the primary campaign material, an 11-minute video, was evaluated at in-person screening events. Methods and brief findings are presented for each campaign development stage and for the evaluation of the *Native Generations* video. The Indian Health Service (IHS) National Institutional Review Board deemed the project exempt from oversight.

Campaign Planning and Strategy Development

Advisory Council

A national advisory council convened by the UIHI guided the initial planning and strategy of the campaign, including project methods, interpretation of findings, and potential implications of the project for AI/AN communities nationwide. Co-authors of this article were also advisory council members. Sixty percent of the 10 council members were AI/AN. Members included invited leaders from grassroots community groups; maternal and child health care; and urban Indian health care, including technical experts in obstetrics and gynecology, epidemiology, infant and child mortality, pediatric oral health care, and injury. The council met quarterly via webinar, and contributed their guidance without financial compensation.

Review of Literature

The review of literature revealed the unique risk factors experienced by urban AI/ANs, especially prenatal and maternal populations. The full results of this review have been reported elsewhere; key findings are described here briefly (UIHI, 2011b). Urban AI/ANs experience significant disparities in risk factors for poor birth outcomes and IM compared to NH Whites in the same areas, including the rate of births to: mothers less than 18 years old (5% and 1%, respectively), unmarried women (68% and 21%, respectively), women who received late or no prenatal care (9% and 3%, respectively), and women who smoked while pregnant (11% and 6%, respectively; US NCHS, 2007-2011). Additionally, urban AI/ANs have higher rates of unintended and mistimed (i.e., mother wanted the pregnancy later) pregnancies than NH Whites (UIHI, 2010).

Low relative socioeconomic status, as is experienced among the urban AI/AN population, often is related to having low levels of social support and increased rates of risk behaviors, stress, and depression (Williams, 2005). Further, travel to urban areas means leaving tribal social networks, often resulting in poor social support, high stress, and diminished cultural ties, all of which may be linked to poor health outcomes among urban AI/ANs (Burhansstipanov, 2000; Fuchs & Bashshur, 1975; Hodge, Fredericks, & Kipnis, 1996; Pearce & Davey Smith, 2003; Rhoades, Manson, Noonan, & Buchwald, 2005). Also, historical trauma from colonialism and federal policies resulting in cultural genocide have a continuing negative impact on AI/AN families, passing from generation to generation (Brave Heart & DeBruyn, 1998; Henry-Tanner & Tanner, 2005).

AI/AN mothers also experience a disproportionate number of stressful life events during pregnancy, particularly as related to traumatic stressors (substance or physical abuse, incarceration, and homelessness; Lu & Chen, 2004). Exposure to stressful life circumstances (and related hormonal response) over the course of a woman's life increases the cumulative allostatic load (i.e., physiological consequences) hypothesized to impact birth outcomes (Lu & Halfon, 2003).

Barriers to health care in general and maternal and child health services in particular among urban AI/ANs also increase risk for poor birth outcomes (James, Schwartz, & Berndt, 2009; UIHI, 2009). Documented barriers include cultural differences creating communication challenges with providers, intentional or unintentional discrimination, perceptions of bias and mistrust, lack of confidence in ability to get health care, dissatisfaction with care, and differences in beliefs and attitudes about health care (Browne et al., 2011; Call et al., 2006; Daley et al., 2012; Johansson, Jacobsen, & Buchwald, 2006; Johnson, Carlson, & Hearst, 2010; Urban Indian Health Commission [UIHC], 2007; UIHI, 2009, 2012).

While lower levels of social support, more stressful life events, and barriers to care contribute to risk for IM, identification with Native culture may be a protective factor. One model of Native women's health describes how cultural factors such as community, traditional healing practices, and Native identity function as buffers against stressors (Walters, Simoni, & Evans-Campbell, 2002). There are multiple and varied factors of resilience among traditional and modern AI/ANs, including passing down of traditional wisdom through oral history, storytelling, and folklore (Long & Curry, 1998). Traditional teachings about pregnancy and childbirth passed on by mothers and grandmothers include recognizing pregnancy as a normal and natural process, and caring for the infant during pregnancy by caring for one's physical and emotional health (Long & Curry, 1998).

Review of Previous Campaigns

We also examined data on national health communication campaigns targeted at AI/ANs in published and grey literature from 11 databases and online search engines to support campaign development and inform the key concepts and messages that would resonate with our audience. The review indicated a lack of previous campaigns specific to urban AI/ANs. While there were limited data available on campaigns for AI/ANs, findings highlighted the importance of incorporating AI/AN cultural concepts and practices in a way that features the strengths of the

community. An emphasis on strength-based concepts, such as political and cultural sovereignty, self-determination, and spirituality, is an effective way to counteract the historical trauma and cultural degradation that impact AI/AN communities (National Healthy Marriage Resource Center, 2010). While differences among communities exist, AI/AN values and beliefs can still be incorporated effectively into programs through practices common across many tribes, such as oral teachings and learning by observing and through experience (Becker, 1998).

Previously published findings on the development of materials for AI/ANs report a strong preference by AI/ANs for materials relevant to their specific tribe or culture (Roubideaux et al., 2000). As a result, development of materials for AI/ANs in urban areas that represent a variety of tribes and cultures can pose a challenge. This background information confirmed the need to conduct formative research with urban AI/ANs to ensure that message content and communication channels would be acceptable and applicable to the audience.

Creation and Testing of Concepts, Messages, and Materials

The UIHI worked with Urban Indian Health Organizations (UIHOs) in Detroit, Michigan; Sacramento, California; Salt Lake City, Utah; and Seattle, Washington to host focus groups that would inform concept and message creation. Funded in part by the IHS, UIHOs are independent, nonprofit centers that serve AI/ANs and others in select cities across the country with a range of health and social services, from outreach and referral to full ambulatory care. UIHOs provide traditional health care services, cultural activities, and a culturally appropriate place for urban AI/ANs to receive care (UIHC, 2007). Additionally, UIHOs often serve as community centers for AI/ANs who are dispersed around urban centers to come together. The involved UIHOs represent geographically diverse areas, with distinct communities served and services provided. Three included UIHOs are in states with some of the largest AI/AN populations in the U.S (California, Washington, and Michigan). A coordinator from each UIHO reviewed and disseminated/implemented the project materials, including a flyer, a screening form, a consent form, and topic question guides developed by the UIHI with guidance from the Advisory Council.

Brief focus group methods are provided here, and are described in detail elsewhere (UIHI, 2011a). UIHOs held four group discussions with AI/AN mothers, and one group discussion and four interviews with young fathers (total $N = 39$), led by AI/AN and Māori

facilitators with experience working in the local AI/AN community. The topics were barriers and facilitators to keeping their infants healthy and safe, and preferred communication strategies on these topics. Because parents may not be the primary caregivers in many multigenerational AI/AN families, we asked focus group and interview respondents about the audience segments they viewed as priority for the campaign. Discussions were structured around a set of predetermined open-ended questions (available upon request), with probing to ensure topics were addressed in sufficient depth.

UIHI staff members entered discussion transcripts into Atlas.ti software, and coded the transcripts into themes that aligned with the discussion questions, with subthemes for topics participants discussed in more depth. Other overarching themes emerged outside the topics in the discussion guide. Site coordinators reviewed the thematic coding structure and preliminary results for approval, clarification, and agreement on interpretation, with additional consultation by discussion facilitators as needed.

Findings on message content are provided briefly here; detailed findings, including communication strategies, are described elsewhere (UIHI, 2011a). Our initial focus group findings indicated more similarities than differences between responses and perspectives of fathers and mothers, as well as across sites; therefore, findings are presented in aggregate. Parents reported that a stable environment for their infants was critical to ensuring their health and safety. Parents discussed negative patterns, such as alcohol and tobacco use, teen parenting, and violence, as challenges to creating a healthy environment. Other specific barriers to infant health and safety practices were a lack of money, housing, transportation, and child care; social isolation; and stress, especially for teen parents. Parents identified facilitators for keeping their infants healthy and safe and breaking unhealthy patterns, including a strong Native identity; Native-specific resources, such as those offered at UIHOs; control over their own environment, such as determining who is allowed around their infant and having consistent housing; shared values among caregivers; and social support.

Parents described topics specific to life for urban AI/ANs, noting the importance of diversity in tribal, geographic, family structure, and multiracial images in the campaign materials; the sense of invisibility of the urban AI/AN population among the general population;

and limitations in accessing health care and other resources. Parents also commented on the role of AI/AN men and fathers in keeping infants healthy and safe, remarking that being present, a role model, and a provider were all primary.

Based on this formative research, the *Native Generations* campaign was designed to highlight the strength-based message of connection to Native identity, culture, and community, and encourages urban AI/AN families to access Native-specific resources, including health care, support services, and programs at UIHOs to help prevent risks for IM. We pre-tested an initial draft of the campaign video with community members at two of the four involved UIHOs, and incorporated edits accordingly before implementing the pilot.

Implementation of the Campaign Pilot

We describe below the objectives, materials, and piloting of the *Native Generations* campaign. The audience for the campaign pilot was urban AI/ANs, including primarily parents, other family members, and other child care providers. The overall objectives of the campaign were to: 1) increase awareness of rates of, and risks and protective factors for, IM; 2) increase awareness of UIHOs as Native-specific resources for health care, support services, programs, and community; 3) increase utilization of Native-specific resources; and 4) increase connection to Native identity, culture, and community.

The primary campaign material is an 11-minute video, which is hosted on a *Native Generations* campaign webpage. The video shares the stories of urban AI/AN parents who are staying connected to their Native identity, culture, and community; reveals challenges to infant health and to safety practices, as well as other health risks; and highlights examples of innovative and vital programs at UIHOs for AI/AN families in two cities.

The video was formatted for web deployment, including on social networks, and also was posted on YouTube. Companion materials for the video also were made available on the webpage, including a guide with information on IM and prevention steps for the top causes of death, online health education and support resources for AI/AN families, and a variety of tools for organizations to promote the video and to plan and facilitate video screenings.

The *Native Generations* campaign pilot was released to a wide national audience using online avenues, listservs, and outreach to media. A campaign kit, including a DVD and the companion materials, was sent to UIHOs and nationwide partners, as well as to key experts and personnel in the health care and maternal and child health fields.

Evaluation of the Campaign Pilot

To assess the effectiveness of the primary campaign material, each of the four UIHOs hosted in-person screening events for the *Native Generations* video. Screening events were planned in conjunction with other events at those sites to draw a broad community audience. Project staff at each of the four UIHOs recruited video screening audiences via flyers, word of mouth, and other communication avenues available to the sites. The campaign was intended for release to a wide audience; therefore, all community members were invited to participate in screening events and complete a survey. The survey elicited opinions about the video and used dichotomous agreement measures to assess campaign objectives, such as whether the video made respondents want to connect more with the services, programs, and support available for AI/ANs in their area; whether the video made AI/AN respondents feel proud to be AI/AN; and whether the video increased respondents' awareness of risks for IM among AI/ANs. There was no age limit, race restriction, or restriction to parents; however, new parents and child care providers were encouraged to attend.

A total of 144 in-person screening attendees across the four UIHOs responded to the evaluation survey and were given a tote bag; of these, 97 (67%) were AI/AN. Data presented here are from AI/AN respondents only. These data were examined separately by study site and as a whole; no significant differences within the AI/AN sample were seen among sites using Fisher's exact tests. UIHI staff members used Microsoft Excel software to examine qualitative survey data (i.e., respondents' comments on why they liked or did not like the video). The lead UIHI project staff member grouped comments into common patterns, and selected example quotations from each theme. Themes and example quotations were reviewed and agreed upon by a separate UIHI project staff member.

AI/AN respondents ranged from 18 years to 88 years old, and a large majority were female (80%). A majority of respondents (60%) had children, with one third of these children being under the age of 5 years; and approximately about half of respondents (51%) had children

of childbearing age themselves (i.e., 16 years or older). All survey respondents (100%) reported that they liked the video. Respondents also offered comments as to why they liked the video (Table 1). The majority of comments focused on the information in the video about available health services, AI/ANs in urban areas, and culture. Respondents described the video as "realistic" and "relatable." There also was a positive response to the diversity of regions represented; the inclusion of fathers; and the balance among urban, modern, and traditional images presented in the video (Table 1).

Table 1
Themes on Opinions of Campaign Video from Qualitative Data[a]

Theme	Example comments
Information	• It lets us know that there are resources and that we are not alone just because we are not where we came from. • It had enough information to make me want to look further into the subject. • It somewhat gave me insight for when I do plan on having kids of my own and resources. • It made me aware of health opportunities in the urban area.
Culture	• It showed me to look into my heritage. I didn't even know this was around. • Liked how they explained the Native American practices they offered here at the clinic, did not know they offered that.
Realistic and relatable	• I can relate to some of their stories. • It told it like it is. • It was incredibly real.
Regional diversity	• It shows people from all over/different tribes. • It was nice to see different communities woven together. • I thought it was cool to see the perspectives of people from two different Native centers side by side and their connection with their culture.
Urban and traditional balance	• I liked how the video incorporated different urban settings through the music, scenery, and people. Yet they still had traditional stuff in it too. • I liked it because it was new and current with today's issues.
Fathers	• I liked that fatherhood was a focus in the movie as well as mothers. • I thought it was beautiful that the father sang his tribal song to his baby daughter.

[a] Data Source: Native Generations Campaign Video Pilot Evaluation Survey

Several respondents commented on aspects of the video that they felt could be improved, although none said they did not like it. One respondent asked for more tribes to be represented, while others requested specific tribes/regions be included. Other comments described the need

for more focus on prevention steps for IM. For example, respondents noted, "[The video] did not compare [statistics] by race or explain prevention," "Could be more concrete action/or more clear ways to impact those [statistics] in the film," and "Need more depth."

The results of the pilot evaluation are promising (Table 2). Even the item with the lowest number of responses was positive, with 76% indicating that the video increased their awareness of ways to prevent IM. Analysis of survey items indicated that the campaign objectives were achieved, with a vast majority of respondents reporting increased awareness of IM rates and risks (80%), and nearly all respondents reporting increased awareness of services and support in urban areas (91%) and increased desire to connect with these services (92%). Additionally, a great proportion of respondents reported the video made them feel proud to be AI/AN (95%), and most reported a desire to connect more with the AI/AN community (94%).

Table 2
Outcomes from Native Generations Campaign Video Pilot Evaluation: AI/AN Data[a]

Objective	Measure	Number [b]	Percentage
Increase awareness of rates of and risks and protective factors for infant mortality	Increased awareness of infant mortality rates	74	80.4
	Increased awareness of risks for infant mortality	74	80.4
	Increased awareness of ways to prevent infant mortality	69	75.8
Increase awareness of Urban Indian Health Organizations as a Native-specific resource for health care, support services, programs, and community	Increased awareness of services, programs and support	82	91.1
Increase utilization of Native-specific resources	Increased desire to connect more with services, programs and support	83	92.2
Increase connection to Native identity, culture, and community	Increased pride in AI/AN identity	90	94.7
	Increased desire to connect more with AI/AN community	88	93.6

[a] Data Source: Native Generations Campaign Video Pilot Evaluation Survey. [b] Total *N*= 97. Number represents total respondents for each measure, and may reflect missing responses.

DISCUSSION

This study of a national health communication campaign pilot encompasses the four primary steps in the social marketing process outlined in the guide *Making Health Communication Programs Work*: planning and strategy development, concept creating and materials testing, implementation, and evaluation of the campaign (NCI, 2002). Pilot evaluation data describe a positive response to the campaign video and the strong potential of the *Native Generations* campaign to achieve its objectives with urban AI/ANs and broad audiences beyond the pilot. A large majority of respondents reported increased awareness of IM rates, risks, and prevention; and of Native-specific resources available to AI/ANs in urban areas. Most respondents reported the video increased their desire to connect to these resources and to AI/ANs in their community. Connection with Native identity and culture serves as a vital protective factor, which could intervene against increased risk for IM among AI/AN communities (Galliher, Jones, & Dahl, 2011; Weaver, 1999).

Our evaluation survey sample consisted of community members recruited from each of the participating sites and their contacts; therefore, the results may not be representative of the greater urban AI/AN population. Although 83% (*n* = 79) of AI/AN respondents had received services before at the UIHO where they were surveyed, over 90% stated that the video did increase their awareness of and desire to connect more with these services, programs, and support. Respondents already connected to health care and services represent a lower-risk population than those who may not already be connected to these services. Future expansion of the campaign should secure resources to broaden outreach methods that engage more AI/ANs, and a wider audience who are not connected to services. Although 76% of respondents indicated that the video increased their awareness of ways to prevent IM, this proportion was the lowest of all the measured objectives, and also mirrors qualitative comments, which called for more concrete action. This finding may suggest the need for a more explicit description about the relationship between IM prevention and utilization of Native-specific resources, including health care, support services, and programs, and connection to Native identity, culture, and community.

When asked whether they liked the video, none of the respondents stated that they did not. Despite the anonymous nature of the survey, these results may reflect response biases, including acquiescence bias (the tendency to agree with survey statements) and/or social acceptability bias (the tendency to provide a response that will be viewed favorably by others or

that respondents feel is the "correct" answer). The overwhelming acceptance of the video reinforces the importance of conducting formative research in partnership with priority communities.

The survey questions used to measure intended outcomes represent an approximation of effect based on the self-reported impact of the video on respondents' emotions, not their behavioral changes. For example, while increased connection to Native-specific resources is one of our campaign objectives, the survey captures a self-reported increased "desire" to connect more to these resources after watching the video. Future studies should measure mid-term outcomes, such as changes in utilization of Native-specific resources, community engagement, and knowledge of risk and protective factors, including baseline knowledge. Resources to measure effects more directly (e.g., through video screenings and promotion beyond the study sites), as well as evaluation of perceived effectiveness and recall of campaign messages over time, would provide needed information to support the full-scale implementation of this promising campaign.

Although health communication can be a powerful strategy for reaching large numbers of people, changes in outcomes typically require long-term and sustained efforts (Institute of Medicine, 2002). Our campaign pilot is unique in its focus on the urban AI/AN audience, and because there is very little evaluation data available from other campaigns for this audience, we are limited in our ability to make specific comparisons. Local program providers and community leaders are most closely acquainted with the needs of their specific communities, and should be included in development and tailoring of materials to fit the mores and customs of the populations they serve, as well as to help ensure sustainability of the efforts.

Long-term behavioral change induced by campaign messages alone is unlikely to succeed; therefore, other supportive interventions at the individual and community levels are essential to help reduce IM (McGuire, 1984). Culturally competent IM prevention efforts should be undertaken within the social-environmental-political context, which impacts individuals' and communities' ability to implement positive change (Bronheim & Sockalingam, 2003). Aspects of the context that may affect infant health and safety efforts for urban AI/AN families include scenarios articulated by participants in our formative research, such as shared housing exposing

infants to commercial cigarette smoke and violence, the ability to afford or create safe infant sleep environments, time away from work and child care to attend health care appointments, and lack of transportation that limits consistent use of a car seat.

Health communication campaigns have the greatest, most lasting impact when conducted in conjunction with health and social service systems that provide access to essential services while reinforcing educational messages (NCI, 2002). Despite the fact that the vast majority of AI/ANs live in urban areas, the IHS allocates only 1% of its budget to the urban programs, challenging the capacity of these programs to focus on improving perinatal outcomes and infant health (Grossman et al., 2002; US DHHS, 2016). Funds should be designated to support health care for urban AI/ANs and to engage the network of UIHOs as vested stakeholders in reducing the risk of IM in their communities.

CONCLUSION

The *Native Generations* campaign, which promotes utilization of Native-specific resources, including health care, support services, and programs, and connection to Native identity, culture, and community to prevent IM among AI/ANs in urban areas, is unique in both its message and audience. The campaign pilot responded to a critical need for materials that address the crisis of IM among an often-overlooked population and creates opportunities for expansion of the message to AI/ANs nationwide. An expanded campaign implementation would also provide increased opportunities to assess impact.

The *Native Generations* campaign holds promise, especially when coupled with policies, systems, and environmental changes that support urban AI/AN communities in preventing IM. The positive response from the pilot audience indicates that an expanded *Native Generations* campaign that incorporates community action steps would be well received and could increase IM protective factors, such as utilization of Native-specific resources, including health care, support services, and programs, and connection to Native identity, culture, and community.

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