Original investigation

Feasibility of Implementing the All Nations Breath of Life Culturally Tailored Smoking Cessation Program for American Indians in Multi-Tribal Urban Communities

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Abstract

Introduction: Prevalence of cigarette smoking is highest among American Indians, yet few culturally appropriate smoking cessation programs have yet been developed and tested for multi-tribal American Indian adult populations. This study examined implementation of the All Nations Breath of Life culturally tailored smoking cessation program in multi-tribal urban and suburban American Indian communities in seven locations across five states ($N = 312$).

Methods: This single-arm study used community-based participatory research to conduct a 12-week intervention whose primary purpose was to curb commercial tobacco use among American Indians. Participants were followed through month 6 in person and month 12 via telephone. The primary outcome was continuous abstinence from recreational cigarette smoking at 6 months post-baseline, verified through voluntary provision of salivary cotinine levels.

Results: At program completion (12 weeks post-baseline), 53.3% of program completers remained abstinent; labeling those lost to follow-up as smokers resulted in a 41.4% quit rate. At 6 months post-baseline (primary endpoint), 31.1% of retained participants quit smoking ($p < .0001$ compared to the highest quit rates among multi-tribal populations reported in the literature, 7%); final quit rate was 22.1% labeling those lost to follow-up as smokers ($p = .002$). Retention rate at endpoint was 71.2%. 12-month follow-up was attempted with all participants and had a retention rate of 49.0%. Of those participants reached, 34.0% were smoke-free.

Conclusions: All Nations Breath of Life shows promise as a smoking cessation program for multi-tribal urban American Indian communities. It can be successfully implemented in a variety of urban settings.

Implications: This is the first large feasibility study of a culturally tailored smoking cessation program for American Indians with good cessation and retention rates in a multi-tribal urban American

Indian population. It shows that All Nations Breath of Life can be implemented in multiple urban settings across five states. To our knowledge, this is the first program of its kind to be implemented across multiple heterogeneous urban locations and to include salivary cotinine testing for verification of self-report data across these locations.

Introduction

American Indians (AI) have the highest cigarette smoking rates of any racial or ethnic group in the United States, at 38.9% compared with whites (23.3%) and blacks (20.9%). In addition, unlike any other racial or ethnic group in the United States, smoking prevalence rates among AI have shown a small, though not statistically significant, increase between 2002–2005 and 2010–2013. Among AI men, prevalence of smoking increased from 39.3% to 40.8%; among AI women prevalence increased from 35.2% to 37.3%.¹ This trend towards increasing prevalence rates is opposite that of all other racial or ethnic groups who have shown decreasing rates. AI smokers also have more difficulty quitting compared to other racial or ethnic groups and are among the least successful in maintaining long-term abstinence.² Consequently, the mortality rate due to tobacco among AI is double that of others in the United States.^{2,3} Two out of every five AI and one out of every two AI smokers die from tobacco-related diseases.⁴ Among these tobacco-related diseases are the two leading causes of death among AI, heart disease and cancer (specifically lung cancer). Heart disease accounts for 18.3% of deaths among AI.⁵ Cancer accounts for 17.5% of all deaths among AI.⁵ Lung cancer is the leading cause of cancer death for AI, with a rate of 67.5 deaths per 100 000 people, compared to 67 deaths per 100 000 for whites. This is an overall mortality rate for AI; however, when examined regionally, a very different picture appears. In the Northern and Southern Plains, the mortality rates from lung cancer for AI are 113.4 per 100 000 and 102.1 per 100 000 respectively.³ This disparity in mortality correlates with regional differences in cigarette smoking prevalence.⁶ The current study took place primarily in Kansas and Missouri, with additional sites in Colorado, Texas, and Michigan, areas with high mortality from lung cancer and high smoking rates.

Few smoking cessation programs designed for a multi-tribal AI population exist, and even fewer have shown efficacy or effectiveness. Limited programs at the tribal level^{7,8} have proven effective and a few untested programs have been developed for diverse groups. Among those programs that have been tested, the most successful quit rate in a multi-tribal population is from a trial of a culturally-appropriate version of Doctors Helping Smokers, which had a 7-day point prevalence abstinence at 12 months of 6.7% in the intervention arm and 6.8% in the control; this was not statistically significant.^{9,10} The program “Second Wind” (developed by Muscogee Nation in Oklahoma for multi-tribal populations) was developed and disseminated, but no data on its efficacy or effectiveness are published. Tribe-specific programs have had more success, but efficacy data are still lacking. A single-arm observational study that modified existing programs with culturally appropriate content for the Fond du Lac Reservation in Minnesota achieved a 7-day point prevalence abstinence of 31.9% and a 90-day quit rate of 21.8%.^{7,11} However, the program used a convenience sample, self-report quit rates, and a 90-day follow-up period.¹¹ A randomized trial of a culturally tailored cessation program for Menominee Nation in Minnesota ($N = 103$) found no significant differences found between control (22.6%) and intervention (20%) arms.⁸ We have developed^{12–15} and formally

tested¹⁶ our own All Nations Breath of Life (ANBL) in multiple populations. Our reservation-based efficacy trial had cessation rates of 27.9% at program completion (12 weeks post-baseline, compared to 17.4% in the control, $p = .028$) and 20.1% at 6 months post-baseline (compared to 12.0% in the control, $p = .029$).¹⁶ Here, we report on our feasibility trial of ANBL in multi-tribal urban populations.

It is likely that some cessation programs used with AI are unsuccessful because of a lack of cultural appropriateness.¹⁴ Along with such plants as sage, cedar, and sweet grass, tobacco has long been a sacred plant for many, though not all, AI.^{14,17} Tobacco was not native to all areas of the United States and a number of tribes did not use it historically for spiritual purposes. However, early use of tobacco in pipe smoking, gift-giving, and for medicinal purposes is well-documented, particularly among tribes from the East and Great Plains (eg, Iroquois¹⁸, Lakota¹⁹). Many AI believe tobacco connects them to the spirit world through prayer (eg, Lenape^{20,21}) and use it at ceremonies, such as a sweat lodge or “Yuwipi” (eg, Lakota²²). Traditional tobacco use has diffused to many AI who did not historically use it.²³ Cessation programs must acknowledge the diversity of traditional use of tobacco, the difference between traditional use and recreational smoking, and the fact that conventional control messages portraying tobacco entirely negatively may be ineffective and offensive.¹⁴ Use of traditional tobacco may even have a protective effect for AI smokers attempting to quit, as shown by a significant increase in successful quitters at 12 months among those who use traditional tobacco compared to those who do not.¹⁷

Despite high prevalence rates of cigarette smoking, disproportionate morbidity and mortality from tobacco related health sequelae, and low quit rates, few cessation programs have been developed and tested for AI and none have proved effective for heterogeneous, multi-tribal urban populations. This study reports results from a feasibility trial of the ANBL smoking cessation program in multi-tribal urban AI communities.

Methods

ANBL was developed, implemented, and tested using a community-based participatory research (CBPR) approach in which community members are involved in all phases of the research. CBPR has been successfully used with AI for many health outcomes^{24–33} and many researchers use CBPR with AI because many AI communities prefer or, in some cases, mandate its use.^{34–41} Development of ANBL began in 2003 when AI smokers at a health clinic in Kansas requested a cessation program that was culturally appropriate for them. The Director of the health clinic approached smoking cessation researchers at the University of Kansas Medical Center, who began the collaborative process with the requesting smokers. Initial formative work began with focus groups^{12,14} and progressed to development and pilot testing of the program in both urban and reservation communities^{15,42} and a formal test for efficacy in reservation communities.¹⁶ Adherence to the principles of CBPR continued throughout the present study.

This study was approved and monitored at all sites by the institutional review board at the University of Kansas Medical Center. All smoking cessation groups taking place at urban AI centers were approved by committees or boards at the centers. All study procedures and protocols were developed and monitored through collaboration among academic and community researchers in the AI Health Research and Education Alliance, an alliance of organizations dedicated to improving health in AI communities using quality participatory research and education.

Study Participants

Participants in ANBL ($N = 312$) self-selected into the study after personal communication with a staff member between May 2009 and December 2012. Recruitment was done by AI members of the research team at community events or locations, through community listservs, and through personal communication. Participants were located in Kansas City, Kansas and Missouri (10 groups, $n = 75$), Lawrence, Kansas (5 groups, $n = 28$), Wichita, Kansas (1 group, $n = 7$), Jefferson City, Missouri (23 groups, $n = 169$), Denver, Colorado (4 groups, $n = 21$), Dallas, Texas (1 group, $n = 8$), and Detroit, Michigan (1 group, $n = 4$). Inclusion criteria included the following: self-identified AI descent (Certificate of Degree of Indian Blood or tribal enrollment card were not required), age 18 or over, current smoker (smoke at least one cigarette per day), self-expressed interest in quitting smoking in the next 30 days, a primary address in one of the urban areas in which the study was taking place or a surrounding suburban area, and some type of transportation to group locations (personal or public). Exclusion criteria included the following: use of smoking cessation pharmacotherapy in the previous 6 months (to maintain a homogenous sample with respect to current or recent use of pharmacotherapy), moving out of the area within the next 6 months (to ensure they could complete the study to the 6-month primary endpoint), and not having stable access to a phone (to ensure program facilitators could reach them via phone as this was part of the intervention). We did not have any participants who were excluded for these reasons.

Study Design

After pilot testing ANBL, the research team selected a single-arm feasibility study in multi-tribal urban and suburban locations at the request of community members who believed it was inappropriate to place any participants in the non-culturally appropriate programs available in study locations at the time of study design. In conjunction with our community partners, we decided to compare our results for this study with what was available in the literature. Initial study design was to hold groups only in Kansas and Missouri; however, as community members in other cities requested the program, the design was modified to include additional sites. This was done for inclusiveness and to continue the CBPR approach, listening to what community members wanted.

Theoretical Framework

ANBL was designed using Critical Medical Anthropology (CMA) as an overarching organizing perspective.⁴³ CMA recognizes four levels of analysis as important for any holistic perspective (individual level, micro-social level, intermediate level, and macro-social level). CMA has been used to study tobacco since the late 1980s, calling for the integrated study of the political-economic framework and the cultural meaning of tobacco.⁴⁴ From this perspective, individual behavior is one part of a whole that is influenced by all four levels.⁴³

Protection Motivation Theory (PMT) is added to the individual level for a more complete understanding of behavior.⁴⁵ The ANBL theoretical framework is described more fully elsewhere.¹⁴

Intervention

ANBL has five primary components, as follows:

Group Support Sessions

The primary component of ANBL is a series of 7 weekly group-based support sessions, led by an AI facilitator (see Figure 1 for session progression), with additional group sessions at week 12 and month 6. We selected the term “facilitator” carefully with our community partners. We did not wish to use the term “counselor” due to some negative connotations about Western-trained counselors not understanding AI cultures and values. Further, we wanted participants to understand that the individual leading the group was there to help them, not necessarily to be completely in charge. Prior to group sessions there is one in-person individual meeting with the facilitator for program explanation, consent process, baseline measures, and pharmacotherapy screening for those participants who would like to take it. All group sessions begin with team building and discussion among members about things they are experiencing in their lives, both those related directly to smoking and other things that help or hinder quit attempts. The first group session is the quit date for all participants to ensure they go through the quitting process together. Participants who choose to take medication are provided weekly supplies.

Individual Telephone Counseling

Between groups, facilitators call participants to see how they are doing and if they are having side effects to medication, to discuss personal issues, and to remind them of the next group. During these calls, facilitators use Motivational Interviewing (MI), which has been found to be effective among AI,⁴⁶ is designed to enhance motivation for change, and is based on the assumption that many individuals with addictions are not in an advanced state of readiness to change. The goal is to increase motivation to change by developing a discrepancy between current behavior and goals or values. The culturally sensitive semi-structured MI counseling scripts designed for ANBL allow facilitators to conduct telephone sessions exploring positive and negative aspects of cigarette smoking, participants’ ambivalence about and motivation and confidence for quitting recreational smoking, the pros and cons of behavior change, and plans for change. Participants also identify their key values and explore connections between smoking and their ability to live out these values.

Educational Curriculum

The ANBL curriculum includes 11 booklets (see Figure 1) which are given to participants throughout the program during group sessions. The curriculum combines current smoking cessation information with culturally specific elements. Materials were created by the research team, with input from pilot participants and community advisory board members. All materials were sent to an AI graphic artist for final layout.⁴⁷

Pharmacotherapy

ANBL includes a choice of pharmacotherapy: varenicline, bupropion, nicotine replacement therapy (patches, gum, or lozenges), or a combination of the latter two. Results from numerous clinical trials have established the efficacy of pharmacotherapeutic agents,

Figure 1. Progression of group sessions.

including varenicline,⁴⁸⁻⁵¹ bupropion,⁵²⁻⁵⁴ nicotine patch,^{55,56} nicotine gum,⁵⁷⁻⁵⁹ and nicotine lozenges.⁶⁰ Variability in methods, however, preclude direct comparisons of efficacy across studies. ANBL

participants can also choose not to take medication. This choice was extremely important to our AI team members and pilot participants during program development.

Participant Incentives

Incentives were designed or selected by AI research team members, pilot participants, and community advisors. Participants received a weekly “quit kit” (hard candy, gum, flavored toothpicks, stress balls, etc.) to help avoid smoking.^{61,62} Participants also received culturally appropriate items, such as AI flute music recorded specifically for the research study for stress reduction, AI aerobic dance videos to help with weight management, and information about the diversity of traditional tobacco use.

Measures and Assessments

Participants were asked to fill out surveys at baseline and each group, in-person session through the 6 month post-baseline primary endpoint. At 12 months post-baseline, participants were called by their group facilitator and structured interviewing via telephone was used to collect self-reported data.

Demographics

Demographic information collected included age, marital status, educational level, income, occupation, other health insurance coverage, tribal affiliation, and where the participant grew up (urban vs. reservation).

Tobacco Use

The primary endpoint was salivary cotinine verified continuous abstinence at 6 months.⁶³ Participants were asked to self-report smoking status, “Since your quit date in ANBL, have you ever smoked at least part of a cigarette?” Those participants answering “no” to this question were asked to provide saliva for cotinine verification. Provision of cotinine was voluntary because community members requested that it be due to historical concerns surrounding provision of biological samples for research. Cotinine, using the cut-point of 15 ng/ml, was selected for sensitivity and specificity in conjunction with community advisors.⁶⁴ Analysis was done at KUMC’s gas chromatography lab using standard techniques.⁶⁵ Self-reported smoking status was collected using cigarette smoking questions from the National Health Interview Survey, which have been standardized since 1997,⁶⁶ at all sessions. Self-reported information about use of traditional tobacco was also collected at all sessions; questions about traditional use were developed by our team and focused on type of use and frequency.¹⁷ At baseline, tobacco history, for example, years of smoking/traditional use, age at initiation, cigarettes per day, other recreational tobacco use, and lifetime quit attempts were collected using standardized questions from the National Health Interview Survey⁶⁶ or our own traditional use questions.¹⁷

Nicotine Dependence

Nicotine dependence was measured using the Fagerstrom Test of Nicotine Dependence (FTND) at baseline, 12 weeks, and 6 months.⁶⁷ FTND scores range from 1 to 10 and the following scoring ranges were combined to interpret nicotine dependence level: 1–4 (low dependence), ≥ 5 (moderate to high dependence).

Motivation and Confidence

Motivation and confidence to quit were assessed on a 10-point scale, with 1 being least motivation or confidence and 10 being most.

Statistical Analysis

A sample of 312 AI adult smokers were enrolled to detect a cessation difference of 25% compared to 7% at 6-months follow-up. The comparison of 7% was selected based on currently reported quit

rates for multi-tribal urban AI communities at the start of the intervention.⁹ All analyses were performed using SAS statistical software version 9.3 (Copyright (c) 2002–2010 by SAS Institute Inc., Cary, NC. All Rights Reserved). Categorical variables are described using frequency and percentage. Means and standard deviations are used for quantitative variables. Chi-square tests were performed on categorical variables in both the conservative and per-protocol analyses. All tests of statistical significance were two-sided and all *p*-values less than .05 were considered statistically significant. A multi-variable logistic regression was conducted to determine predictors of cessation at study endpoint (6 months post-baseline).

Results

Participant Characteristics

A total of 312 participants began the program; 222 completed the program through the 6-month follow-up (retention rate 71.2%). Baseline demographic information and smoking characteristics are presented in [Table 1](#). Participants were more likely to be female (59.0%), have some college education or higher (71.5%), have a partner or spouse (59.5%) who also smokes (57.7% of those with a partner or spouse), and have restrictions on smoking in the home (39.5%) or workplace (86.7%). Most participants were moderate-to-heavy smokers (average FTND score = 5.22) and less than half used tobacco for traditional purposes (40.8%). Participants placed importance on quitting tobacco (8.93 on a scale of 1–10) and were confident that they could quit (7.93 on a scale of 1–10). The number of participants retained at program intervals is reported in [Figure 2](#).

Smoking Abstinence

Our primary outcome was smoking abstinence at 6 months post-baseline. At our primary endpoint, 31.1% of participants who came to the 6 month in-person session self-reported abstinence. Of these 69 participants who reported abstinence, 94.2% (*N* = 65) were willing to provide saliva for cotinine testing. Of the 65 individuals who provided a saliva sample, 31 (47.7%) provided a viable sample that we were able to use for cotinine verification. Using a conservative approach to analysis, we labeled all those lost to follow-up as smokers to determine our final quit rate at primary outcome of 22.1% using self-reported abstinence, 19.6% after cotinine verification. Results from this single-arm study were compared to the highest reported quit rate for multi-tribal urban AI reported in the literature (approximately 7.0%, from the multi-tribal culturally appropriate version of Doctors Helping Smokers, described in the Introduction^{9,10}). When compared, ANBL showed a significantly higher quit rate for participants who completed the study at primary endpoint using both self-report data (*p* < .0001) and cotinine-verified data (*p* = .0002). When labeling those lost to follow-up as smokers, significance decreases, but remains for both self-report (*p* = .002) and cotinine verified rates (*p* = .008).

We used self-reported abstinence at 6 months to examine quit rates across sites. Quit rates ranged from 0% to 50.0%. Three sites (Dallas, Denver, and Detroit) had no participants who reported abstinence at study endpoint. Kansas City had the highest quit rate at 50%, followed by Jefferson City (37.4%), Wichita (33.3%), and Lawrence (9.7%). We also examined factors associated with abstinence and found three significant factors, including site, first cigarette smoked more than 30 minutes after waking, and no smoking allowed in the home (see [Table 2](#)). Abstinence was also associated with a slightly higher attendance rate for group sessions (9.9 sessions

Table 1. Demographic Information and Smoking Characteristics of Baseline Sample

		N (%) ^a
Age (mean+/- std, range)		41.4 (12.04, 18–71)
Age groups	18–30	65 (22.0%)
	31–40	76 (25.8%)
	41–50	79 (26.8%)
	≥51	75 (25.4%)
Gender	Male	126 (41.0)
	Female	181 (59.0)
Education	High school or less	85 (28.5)
	Any college or higher	213 (71.5)
Children in house	Yes	130 (47.3)
	No	145 (52.7)
Partner/Spouse smoking status	No partner/spouse	124 (40.5)
	Never smoked	39 (21.4)
	Former smoker	38 (20.9)
	Current smoker	105 (57.7)
Home smoking rules	No smoking allowed	121 (39.5)
	Smoking allowed in some areas/ everywhere	185 (60.5)
Workplace smoking rules	No smoking anywhere	235 (86.7)
	Smoking allowed in some areas/ everywhere	36 (13.3)
Cigarettes per day	10 or less	70 (23.0)
	11–20	105 (34.5)
	≥21	129 (42.4)
Years of smoking	10 or less	189 (62.6)
	11–20	69 (22.8)
	≥21	44 (14.6)
Length of time after waking up to smoke first cigarette	0–30 minutes	243 (80.0)
	≥31 minutes	61 (20.1)
Fagerstrom Test of Nicotine Dependence (FTND)	5 or higher	182 (59.3)
	<5	125 (40.7)
Other recreational tobacco use	Yes	48 (15.8)
	No	254 (84.1)
Traditional use of tobacco	Yes	120 (40.8)
	No	174 (59.2)
Importance of being quit	<8	46 (15.1)
	8 or higher	259 (84.9)
Confidence in quitting	<7	43 (14.2)
	7 or higher	260 (85.8)

^aUnless otherwise specified. Numbers and percentages do not add up to 312 and 100% respectively due to rounding and missing data.

± 0.41 vs. 9.4 sessions ± 1.41, $p < .0001$); participation ranged from 0 to 10, with a mean of 8.29.

Because the intense part of the program with weekly to bi-weekly in-person group sessions only lasted 12 weeks, we also examined abstinence at 12 weeks. Self-reported quit rate among those who attended the 12-week in-person session was 53.3%; 89.2% of individuals reporting abstinence were willing to provide saliva for cotinine analysis, with 61.7% ($N = 71$) providing a viable sample. Final quit rate at 12 weeks post-baseline using the most conservative approach was 41.4% using self-report data and 26.6% with cotinine verification.

To determine long-term abstinence, we attempted follow-up at 12 months by telephone with a retention rate of 49.0%.

Figure 2. Retention of participants.**Table 2.** Logistic Regression: Factors Associated With Self-Reported Quit (Completers Only) at 6 Months

Baseline variables	Odds ratio (95% CI)	<i>p</i>
Site (Jefferson City vs. all others)	7.13 (2.24–22.69)	.0009
Time to first cigarette (≥30 minutes vs. within 30 minutes of waking up)	3.27 (1.06–10.10)	.04
Smoking rules at home (No smoking allowed vs. allowed)	2.38 (1.27–4.45)	.007
Traditional tobacco use (No vs. yes)	1.47 (0.77–2.81)	.25

Numbers in this table are adjusted for the variables listed in the table.

No participants refused participation in 12-month follow-up; those who did not respond after 5 attempts to contact them were considered lost to follow-up. Of those participants reached, 34.0% self-reported abstinence. Labeling all those lost to follow-up as smokers left us with a 16.7% quit rate at 12 months post-baseline. Salivary cotinine was not collected at 12-month follow-up. Table 3 provides full quit rates across time points in the study.

Use of Pharmacotherapy

Participants in ANBL had a choice of pharmacotherapy. The majority (69.2%) of our participants chose to take varenicline; 13.0% chose some type of nicotine replacement therapy; 1.7% chose bupropion; 4.0% chose bupropion plus nicotine replacement therapy; and 9.0% chose no pharmacotherapy. Medication choice did not predict ability to quit; therefore, abstinence rates are reported across all possible use of pharmacotherapy or no pharmacotherapy together.

Conclusions

ANBL has proven efficacious in reservation communities with a limited number of tribes represented.¹⁶ Here, we examined feasibility of the program for use in multi-tribal urban populations. Quit rates in this single-arm study were slightly higher than those in the

Table 3. Quit Rates of Participants

	Self-report		Cotinine verified	
	Completers	All participants ^a	Completers	All participants ^a
12 weeks (End of treatment)	129/242 (53.3%) ($p < .0001$)	129/312 (41.4%) ($p < .0001$)	83/248 (33.5%) ($p < .0001$)	83/312 (26.6%) ($p = .0002$)
6 months (Primary endpoint)	69/222 (31.1%) ($p < .0001$)	69/312 (22.1%) ($p = .002$)	61/225 (27.1%) ($p = .0002$)	61/312 (19.6%) ($p = .008$)
12 months (Secondary endpoint)	52/153 (34%) ($p < .0001$)	52/312 (16.7%) ($p = .03$)		

^aAll Participants refers to all participants who consented into the study, including both completers of the program and non-completers. Non-completers are imputed as smokers in the analysis.

intervention arm of the randomized trial conducted on reservations (22.1% in this study versus 20.1% in the intervention arm of the randomized trial at 6 months using self-reported abstinence data labeling all those lost to follow-up as smokers). Retention rates at study endpoint were likewise higher in this study than for the intervention arm of the randomized trial (71.2% vs. 57.6% at 6 months). Therefore, we believe ANBL shows promise as a culturally tailored smoking cessation program for multi-tribal urban populations of AI, in addition to reservation populations. Additional research is needed to directly compare efficacy in urban versus reservation populations.

Through this large feasibility study, we learned that this program could be implemented in multi-tribal urban locations in five states with varying success. Our greatest success was in locations close to us who ran multiple groups (ie, Kansas City, 10 groups, 50% quit rate, and Jefferson City, 23 groups, 37.4% quit rate). Our research team is located in Kansas City; Jefferson City is approximately 2.5 hours from us by car. We believe higher quit rates in these locations were due to (1) the ability of the facilitators to learn the program and become more effective at facilitation over multiple groups, and (2) our ability to monitor the groups more closely. Sites that were further from us and/or ran fewer groups had lower quit rates (eg, Dallas and Denver, one group per location, 0% quit rate). We do not know why these locations had lower quit rates, but can speculate that running more groups in those locations may change the quit rate. We did not run additional groups in these locations because the study was coming to a close. We believed it was important to include the sites in our analysis because community members in those sites requested the program and requested inclusion in the study. We believed this was particularly important given the fact that AI are not often included in research and there are large historical mistrust issues.⁶⁸ A future study should determine if the program can be effectively implemented across sites given more similar conditions.

Our use of CBPR was instrumental in our ability to carry out this project, particularly to enhancing our retention rate and obtaining saliva samples for cotinine verification. Our retention rate of 71.2% at 6 months is the highest reported in the literature for AI participating in smoking cessation programs. Nearly all of our participants were willing to provide saliva samples. Anecdotally, participants have told us that our ties to the community made them more likely to stay in the program and more willing to provide a sample. It is possible that this trust is another reason why groups held closer to our location had better quit rates. Participants in these locations knew about our research team and were familiar with our activities; this impacted their retention in the groups and may have impacted their ability to quit. These individuals have also said that they believed the saliva samples would be handled with respect and disposed of properly based on their trust of our research team. This study adds to the growing body of literature that supports the use of CBPR with AI and other underserved communities.

A limitation to this study was that it was a single arm effectiveness trial, not a randomized trial. Therefore, comparisons can only be made to programs reported in the literature. However, this was a necessary step requested by community partners prior to a randomized study in this population. Given the high rates of smoking and related health outcomes in this population, a successful cessation program could have high impact if successfully implemented across multiple states. ANBL was implemented at seven urban locations in five states. This is a highly promising program that has the potential to significantly reduce smoking rates among urban AI.

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Declaration of Interests

None declared.

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