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### Authors

Lienemann, Brianna A
Cummins, Sharon E
Tedeschi, Gary J
et al.



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# American Indian/Alaska Native Smokers' Utilization of a Statewide Tobacco Quitline: Engagement and Quitting Behaviors from 2008-2018

Brianna A. Lienemann, PhD[1], Sharon E. Cummins, PhD[1], Gary J. Tedeschi, PhD[1], Shiushing Wong, PhD[1], Shu-Hong Zhu, PhD[1,2]

[1]Moores Cancer Center, University of California, San Diego
[2]Department of Family Medicine and Public Health, University of California, San Diego

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Address correspondence to:
Shu-Hong Zhu, Ph.D.
University of California, San Diego
Department of Family Medicine and Public Health
9500 Gilman Drive #0905
La Jolla, California, 92093-0905
Telephone: 858-300-1056.
Fax: 858-300-1099.
E-mail: szhu@ucsd.edu.

**Abstract**

**Introduction**. The objective of this study was to examine access, engagement, and quitting behaviors of American Indian/Alaska Native (AIAN) callers to the California Smokers' Helpline. Telephone counseling is the primary function of the quitline. The overarching theoretical framework for California's quitline is social cognitive theory, although it also utilizes motivational interviewing and cognitive behavioral strategies.

**Methods**. AIAN (*N* = 16,089) and White (*N* = 173,425) California quitline callers from 2009-2018 were compared on their characteristics, engagement, and quitting behaviors. Quitline callers responded to a telephone survey at intake. A random selection was called for evaluation seven months later (White *N* = 8,194, AIAN *N* = 764). Data from the 2009-2017 California Health Interview Survey (CHIS) were used as a reference point for AIANs (AIAN *N* = 1,373).

**Results.** The quitline and CHIS had similar proportions of AIANs (4.6% vs 4.3%, respectively). AIAN smokers were more likely than White smokers to report physical (53.6% vs. 44.9%) and mental (65.7% vs. 57.8%) health conditions at intake. AIANs were more likely to participate in counseling than White callers (67.1% vs. 65.7%). Among those who received counseling, AIANs had greater odds than White smokers of making a quit attempt (aOR = 1.39 [1.06, 1.81]) and similar odds of quitting for 180 days (aOR = 0.95 [0.69, 1.31]).

**Conclusions.** Rates of access, engagement, and quitting suggest that individualized quitline counseling was as effective with AIANs as it was with White smokers. Increasing efforts to refer AIANs to existing state quitlines can help more smokers quit.

## IMPLICATIONS

This study showed that AIAN smokers were well represented among California quitline callers, even without a targeted campaign. It also found that AIAN smokers engaged in quitline services and were as able to quit as their White counterparts were, even after adjusting for other baseline characteristics. One implication is that public health programs can promote quitlines using broad-based campaigns knowing that they will still motivate AIAN smokers to seek help. Another implication is that a standard, individualized counseling protocol delivered by culturally competent quitline staff can effectively help AIAN smokers to quit.

## INTRODUCTION

American Indians/Alaska Natives (AIAN) have the highest smoking prevalence rates among all ethnic groups in the U.S. In 2016, 20.6% of U.S. adults were current smokers. Nationally the rate among AIANs was 33.9% compared to 22.1% for Whites.[1] Tribes vary in their smoking rates, but the pattern is true in California as well, with AIANs having higher prevalence rates than Whites (17.8% and 11.2%, respectively).[2] In any case, AIAN smokers have higher smoking attributable mortality than White smokers and are considered a priority population for tobacco control.[3,4] AIANs have historically had less access to health care and lower rates of service utilization than other ethnic groups.[5] Various public health efforts have been made with the aim of increasing smoking cessation rate among AIAN smokers, statewide tobacco quitlines being one of them. Telephone quitlines have been proven to help smokers quit, particularly when they employ multiple, proactive follow-up counseling sessions.[6-8] In addition, quitlines are typically free, convenient to use, and easily accessible, thereby minimizing barriers to treatment access.[9,10] As such, they might be well positioned to help AIAN smokers quit.

There are questions, however, as to whether quitline services are suitable for priority populations such as AIAN smokers.[4,11,12] The questions are generally of two kinds. One is whether AIAN smokers will utilize quitlines, given that historically they have lower rates of using health care services.[5] The other is whether quitline counseling services are effective for this group.

A study that examined 1,220,171 call records from 45 state quitlines during 2011-2013 found that AIAN tobacco users actually had a relatively high rate of utilization compared to other ethnic groups. On average, 1.2% of all smokers and smokeless tobacco users living in these 45 states accessed quitline services each year. The utilization rate varied by racial/ethnic groups (from 0.5% to 2.0%). AIAN tobacco users had higher rates of quitline use than White tobacco users (2.0% vs. 1.2%, respectively).[13]

The question of effectiveness for AIAN is more difficult to answer. Ideally, a randomized controlled trial (RCT) specifically for AIAN smokers would resolve the issue. However, many RCTs have already shown telephone quitlines to be an effective intervention for smoking cessation,[7,8] with most of the U.S. trials including AIAN smokers in their study samples. Conducting another RCT specifically for AIAN smokers would require assigning callers to a control group without counseling, which would deprive them of an already proven treatment. Instead, researchers have chosen to compare the quit rates of AIAN smokers to those of White smokers who participated in ongoing state quitline services. These studies have shown mixed results. Some reported similar quit rates for AIAN and White smokers while others reported a lower quit rate for AIAN callers[11,14 15] These studies examined quitline data obtained over a 12 to 36 month period.

This study aims to extend the previous studies by examining 10 years of quitline data from the California Smokers' Helpline (the first state quitline in the U.S.), and compare the results for AIAN smokers with those of White smokers who called the Helpline. The study compares AIAN and White smokers on three measures (1) Quitline access, (2) Level of engagement in cessation services after contacting the quitline, and (3) Quitting success. The personal characteristics of callers such as physical and mental health conditions are examined to shed light on what might predict the difference in quitting success, if any, between AIAN and White smokers.

## METHODS

### Data Sources

***California Smokers' Helpline.*** Participants were adult callers (18 years and older) who completed an intake with the quitline and resided in California. The intake interview included questions on demographics, mental and physical health conditions, and smoking-related information (e.g., smoking history). In late 2008, the intake was modified to allow participants to indicate multiple ethnicities. The current study analyzed intake and

counseling engagement data from self-identified AIAN (monoethnic and multiethnic) and non-Hispanic White smokers that enrolled between October 2008 to December 2018 (intake: White $N$ = 173,425, AIAN $N$ = 16,089; counseling: White $N$ = 113,855, AIAN $N$ = 10,800). A random selection of clients was called for evaluation seven months after intake (White $N$ = 8,194, AIAN $N$ = 764) and assessed on smoking status, quit attempts, use of quit aids, and satisfaction with services.

Telephone counseling is the primary function of the quitline. The overarching theoretical framework for California's quitline is social cognitive theory.[16,17] On a day-to-day level, counselors incorporate principles of motivational interviewing for inducing behavior change and cognitive-behavioral strategies to help clients devise an individualized quitting and relapse prevention plan.[18-20] Counselors follow a semi-structured protocol that provides the minimal, acceptable content for a call.[21] The initial planning call focuses on motivation, planning, and setting a quit date. Follow-up calls emphasize behavior maintenance issues such as effective coping, relapse prevention, and adopting a nonsmoker self-image. Follow-up calls are attempted on a relapse-sensitive schedule, when the probability of relapse is greatest (i.e., the first week).[22] The counseling protocol is discussed in greater detail elsewhere.[21]

Counselors receive training in cultural competency to increase knowledge and sensitivity to group differences (e.g., LGBTQ, veterans, non-English speakers, smokers with behavioral health conditions, AIAN populations). For AIAN smokers, counselors are trained to be patient and mindful of "reflective pauses" and not to interrupt or "walk on words." They keep in mind within-group differences among AIAN smokers as well. For example, some AIAN smokers may use only commercial tobacco, only ceremonial tobacco, or both. Further, confidentiality, respect, and humility are paramount when working with this population.[23,24] Even so, the counseling protocol is not targeted to specific groups, but rather counselors tailor to the individual.

In addition to telephone counseling, quitline callers received self-help materials. During the study period, various initiatives allowed eligible smokers to receive nicotine patches sent directly from the quitline. Some of the eligibility criteria included Medicaid beneficiary status, residency in particular counties, the presence of children aged 0-5 in the home, and no medical contraindications (e.g., uncontrolled high blood pressure, recent heart attack or stroke, angina) without a doctor's approval.

***California Health Interview Survey.*** The California Health Interview Survey (CHIS) is a large statewide representative telephone survey of adults (18 years and older). CHIS has been conducted every other year since 2001 and then annually after 2011.[25] The survey assesses demographic information including self-identified ethnicity and health-related behaviors such as tobacco use, and a number of other health-related factors.[25] The current study analyzed data from years 2009-2017 (the survey was not conducted in 2010 and the 2018 survey data have not been released for public use yet) for those who self-identified as AIAN (N=1,373).

**Measures**

***Ethnicity***. In both the CHIS survey and the quitline intake, participants were able to indicate multiple ethnicities. Those who indicated only AIAN as their ethnic background were categorized as monoethnic AIAN; otherwise, they were categorized as multiethnic AIAN. Individuals who selected Hispanic were not excluded from analysis; if they selected Hispanic and AIAN, they were categorized as AIAN multiethnic.

***Smoking status***. Smoking in CHIS was defined as "having smoked at least 100 cigarettes in one's lifetime" and currently smoked every day or some days.

***Physical and Mental Health Conditions***. During the quitline intake, participants reported on whether they had ever had high blood pressure (hypertension), diabetes, a heart attack, or a stroke. Those who endorsed at least one were categorized as having a *physical health condition*. Additionally, participants reported whether they have an anxiety

disorder, depression disorder, bipolar disorder, schizophrenia, or alcohol or drug abuse and were categorized as having a *mental health condition* if they had at least one.

***Clinical Records.*** Clinical records included counseling received and quitting aids sent. For counseling, the primary measure of quitline counseling received was whether the participant completed the initial, comprehensive planning call. Secondary measures, for those who completed the initial call, included the mean number of follow up calls and the proportion who received three or more counseling calls in total. For quitting aids, the quitline recorded whether participants received free nicotine patches in the clinical record. Information about the use of nicotine patches and other quitting aids was also obtained from participants who completed the evaluation protocol.

***Evaluation records.*** California's quitline routinely conducts seven-month evaluations on a randomly selected sample of callers to the quitline. The evaluation assessed the use of quitting aids, satisfaction with the services, and quitting outcomes. For quitting aids, participants were asked if they "used any quitting aids such as the nicotine patch, gum, Zyban, Chantix, or e-cigarettes to help you quit?" Those who said yes were asked which ones they used. Responses were categorized in two ways: (1) use of NRT (*patch, gum, lozenge*) and (2) use of any quitting aid (*patch, gum, lozenge, Zyban [bupropion], Chantix [varenicline], other*). For satisfaction evaluation participants were asked, "Overall, how satisfied were you with the services you received?" Responses to the four-point scale were dichotomized into *Very/Mostly* satisfied and *Somewhat/Not at all* satisfied.

***Quitting Behavior****.* Quitting behavior was assessed using two measures, quit attempt and sustained quitting. A quit attempt was defined as having intentionally quit for at least 24 hours since their enrollment in the quitline. Sustained quitting was defined as having been quit for 180 days, allowing occasions of slip for no more than one day. If a quitter slipped on two consecutive days, they were considered to have relapsed.[26]

**Analysis**

The multiple years of the CHIS survey data were concatenated to obtain overall estimates for AIAN smokers. The 10-year quitline data were also combined. The analysis compared the proportion of AIANs among quitline smokers with that of AIAN smokers among the general smoking population, obtained from CHIS. Then, the analysis focused on examining the rate of engagement in quitline service, the quit attempt, and 180-day success rates among AIAN and White smokers. Multiple logistic regression was applied to examine the predictors of quitting success, comparing AIAN to White callers. All analyses were conducted with SAS 9.4 software.[27]

**RESULTS**

Figure 1 shows that 4.2% (95% CI [3.0, 5.5]) of all smokers in California identified themselves as AIAN. A similar proportion, 4.6% (95% CI [4.5, 4.7]), of all quitline smokers identified themselves as AIAN. Furthermore, CHIS data show that there were more multiethnic AIANs than monoethnic AIANs, 3.2% compared to 1.0%. The quitline data show a similar pattern, more multiethnic AIANs than monoethnic AIANs, 2.9% vs. 1.7%.

Table 1 compares the baseline measures of AIAN quitline smokers to those of White smokers. AIANs (62.5%) were more likely than Whites (57.2%) to identify as female; they were slightly less likely than Whites (49.6% vs. 51.2%) to have completed some education beyond high school; they were more likely to be Medicaid beneficiaries (72.7% vs. 63.3%) and less likely to have private insurance (8.1% vs. 13.3%).

Table 1 also shows that more AIAN (53.6%) than White (44.9%) callers reported at least one of the following physical health conditions: hypertension, diabetes, a heart attack, or a stroke. AIANs were also more likely than Whites to have each condition: hypertension (43.3% vs. 37.2%), diabetes (16.2% vs. 11.3%), a heart attack (8.9% vs. 6.3%), and a stroke (9.8% vs. 5.6%).

AIAN smokers were also more likely than White smokers to report having at least one of the following mental health conditions: anxiety, depression, bipolar depression, schizophrenia, or drug or alcohol abuse (65.7% vs. 57.8%). In fact, they were more likely than Whites to have each condition: anxiety (46.2% vs. 39.2%), depression (48.3% vs. 41.4%), bipolar depression (23.8% vs. 18.6%), schizophrenia (11.0% vs. 6.9%), drug or alcohol abuse (14.0% vs. 12.3%).

Table 2 reports the service utilization of AIAN smokers, compared to White smokers who called the quitline. For counseling, AIAN callers were more likely than White callers to have received at least one counseling session (67.1% vs. 65.7%). The mean number of counseling sessions was slightly but significantly higher for AIAN ($M$ = 3.10) than for White ($M$ = 3.01) smokers. The rate of those who received at least two follow up counseling sessions after the initial session was also slightly but significantly greater for AIAN than for White callers (46.6% vs. 45.1%).

Table 2 also shows that slightly but significantly fewer AIAN than White callers met eligibility criteria for receiving nicotine patches directly from the quitline (27.1% vs. 28.3%). However, most quitline callers went to obtain NRT themselves, as shown by the much higher rates among those who reported using NRT at their 7-month evaluation (the fifth column of Table 2). Among those who were sampled for evaluation, there was no significant difference between AIAN and White smokers on use of NRT (nicotine patch, nicotine gum, nicotine lozenge), 51.3% and 53.5% for AIANs and Whites, respectively. There was also no significant difference in the total rate of quitting aid use (i.e., NRT, bupropion, varenicline, or other; 59.0% for AIANs vs. 63.0% for Whites).

Among those who were randomly sampled for follow-up evaluation, 74.0% (95% CI [70.9, 77.2]) of AIAN callers indicated that they were very or mostly satisfied with quitline’s services. The rate among White callers was 76.7% (95% CI [75.8, 77.7], which was not significantly different (Data not shown).

Table 3 shows the rates of quit attempts and sustained abstinence of AIAN and White callers. For each rate, a 95% Confidence Interval using univariate analysis is presented. In addition, the adjusted Odds Ratios are presented. The adjusted odds ratios was obtained with multiple logistic regressions in which gender, age, education, insurance, physical health, and mental health were used as a covariates in the comparison of the rates of quitting between AIAN and White smokers. The upper portion contains the results of the analyses of all participants who were evaluated. The lower portion contains the results of just those evaluated participants who received quitline counseling.

The top half of the table shows that AIAN and White callers have similar quit attempt rates, 73.6% vs. 71.4%. Both the confidence intervals based on univariate analysis and aOR (1.23, 95% CI [0.99, 1.53]) based on multiple logical regression show there is no significant difference. AIAN and White smokers also had a similar rate of quitting for at least 180 days, aOR = 0.89, 95% CI [0.66, 1.19].

The patterns for participants who received counseling was the same. However, the difference between AIAN and White callers in quit attempt, 76.9% vs. 74.4%, reached a statistical difference in the multiple logical regression, aOR = 1.39, 95% CI [1.06, 1.81]. In terms of the 180-day abstinence rate, however, the difference was again not statistically significant, both in terms of univariate analysis or multiple logical regression analysis, aOR = 0.95, 95% CI [0.69, 1.31].

## DISCUSSION

The 10 years of data from California's statewide quitline revealed that AIAN smokers were well represented among quitline callers, their pattern of service utilization was similar to White smokers, they had a similar high rate of satisfaction with the quitline service as White callers, and they were as likely as White smokers to succeed in quitting smoking.

The quitline data showed that there were more multi-ethnic AIANs than mono-ethnic AIANs among its callers. This reflects a similar difference among the smoking population at large. Among all AIAN smokers in California, as shown in CHIS data in Figure 1, more of them were multi-ethnic than mono-ethnic. Both groups were well represented among the quitline callers. Overall, 4.7% of quitline callers over the 10-year period were AIAN smokers, compared to 4.3% in the general smoking population.

AIANs are a priority population in tobacco control due to their high smoking prevalence, and are often underserved by existing prevention and cessation programs.[1,5,28] The present study suggests that the quitlines may be a good way to increase AIAN smokers' access to evidence-based cessation services. Although the reduction of disparities may require sustained overrepresentation in treatment settings, it is encouraging that AIAN smokers called quitlines at the same or even higher rates than White smokers.[13] Interestingly, similar results were found for African American smokers, another underserved population. Several studies have reported that African American smokers participated in state quitline services at the same or higher rates than White smokers.[29,30] It is possible that the convenience and a certain level of anonymity associated with telephone service may have overcome some of the barriers that have made it harder for certain ethnic groups to use face-to-face cessation services.[31]

It is also possible that the media promotion of state quitlines and the outreach efforts of individual quitlines may have been personally relevant for AIAN smokers, even without a targeted approach. The statewide media promotion for the California Smokers' Helpline during the study period was mostly targeted at the general smoking population, instead of specifically focusing on AIAN smokers.[32,33] The strong representation of AIAN callers under such conditions suggests that AIAN smokers are responsive to the general promotional efforts of quitlines, similar to what was found for African American smokers.[29,30]

The study found that AIAN smokers not only called the quitline but also actively enrolled in counseling services, as has been found in other studies.[14] In fact, the present study found that they enrolled in quitline counseling at a slightly higher rate than White smokers.

Perhaps the most important result is that AIAN smokers who used the quitline were able to quit smoking at rates equal to their White counterparts, whereas research generally shows mixed results of lower or similar quit rates among AIAN smokers.[34,35] This is encouraging especially given the fact that AIAN smokers had a higher rate of self-reported mental health conditions (Table 1). One possible explanation for the equivalence of quit rates in this study is that AIAN callers were more likely than White callers to receive quitline counseling and to receive more counseling sessions, although the differences were modest. AIAN smokers were also more likely to make a quit attempt than White smokers, at least among those who received counseling. Rather than using different counseling protocols based on ethnic background, during this study period counselors used the standard California quitline protocol.[21] The standard protocol allows counselors to tailor the intervention to the individual while accounting for culture, mental health, smoking and quitting history, and other factors that can impact cessation outcomes. For example, the counselors are trained to distinguish between the use of commercial and ceremonial tobacco and to become culturally sensitive to AIAN traditions. It is encouraging that AIAN callers who received the standard quitline counseling were both equally satisfied with the service and as able to quit smoking as White study participants were.

Despite these encouraging results, there is more work to be done. The current study found that smokers with mental health conditions were significantly less likely to quit, which is consistent with previous studies.[36] It also found that AIAN smokers were more likely than White smokers to report that they have at least one mental health condition. One strategy for making counseling more effective for smokers with mental health conditions would be to increase the intensity of both behavioral (e.g. increased number of

counseling sessions) and pharmacological treatment (e.g., longer duration of NRT use, increased barrier-free access to NRT).

Many state quitlines routinely provide free NRT to smokers who call.[9] However, California's ability to provide NRT is limited by grant specifications and county-specific funding. Counselors work with callers who are not eligible for NRT through the quitline to find alternative sources to procure quitting aids. Smokers who are Medicaid beneficiaries are told about the process they need to follow to receive free NRT through their insurance. During the study period, AIAN participants were slightly less likely than Whites to receive free nicotine patches sent from the quitline, but rates were low for both groups (27.1% and 28.3%). Yet, half of all participants ended up using NRT or other quitting aids, suggesting that motivation to quit was high and, despite the barriers, many smokers are willing to put in the effort needed to obtain them. Barrier-free access to quitting aids would likely increase rates of use even more, and perhaps lead to higher rates of quitting.

**Limitations**

The current study was conducted in California, which might limit the generalizability of the findings to other states. The individualized counseling protocol and staff training may differ from other state quitlines. In addition, the way the California AIAN population differs from AIAN persons in other parts of the U.S. might have influenced the findings. Further, data elements were based on self-report and the quitting outcomes were derived from a randomly selected subset of participants. Another limitation of the study is that the analysis compared groups in the aggregate; the AIAN group included individuals with varying tobacco traditions that were not explored in the study. However, the use of ceremonial tobacco might be expected to make it harder for the AIAN group as a whole to quit, and therefore, would not have changed the conclusions of the study.

## PUBLIC HEALTH IMPLICATIONS

AIANs have the highest national smoking prevalence rates of any ethnic group.[1] Quitlines provide free, evidence-based cessation interventions. They have the potential to serve large numbers of smokers, including AIAN smokers who are considered a priority population for tobacco control. This study showed that AIAN smokers were well represented among California quitline callers, even without targeted promotional campaigns. It also found that AIAN smokers engaged in quitline services and, adjusting for other baseline characteristics, were as able to quit as their White counterparts. One implication is that public health programs can promote quitlines using broad-based campaigns knowing that they will still activate AIAN smokers to seek help. Another implication is that a standard, individualized counseling protocol delivered by quitline staff who have received competency training and who deliver an intervention with culture in mind, can effectively help AIAN smokers to quit. While an AIAN-specific counseling protocol may not be necessary, the study suggests that a protocol with additional clinical components to help smokers with mental health conditions may be warranted.

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**DECLARATION OF INTERESTS**

The authors do not have any conflicts of interest.

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**Table 1.** Baseline Measures of California's Quitline Callers at the Intake (2008-2018)

| | | White<br>*N* = 173,425 | AIAN<br>*N* = 16,089 |
|---|---|---|---|
| Variable | | % (95% CI) | % (95% CI) |
| Sex | Male | 42.8 (42.6, 43.0) | 37.5 (36.8, 38.3) |
| | Female | 57.2 (57.0, 57.4) | 62.5 (61.7, 63.2)* |
| Age | 18-24 | 6.0 (5.8, 6.1) | 5.4 (5.0, 5.7)* |
| | 25-44 | 33.2 (33.0, 33.5) | 33.0 (32.3, 33.7) |
| | 45-64 | 51.9 (51.7, 52.2) | 53.9 (53.1, 54.7)* |
| | >64 | 8.9 (8.8, 9.0) | 7.7 (7.3, 8.1)* |
| Education | <HSD/GED | 19.0 (18.8, 19.2) | 25.6 (24.9, 26.3)* |
| | HSD/GED | 29.8 (29.6, 30.1) | 24.8 (24.1, 25.4)* |
| | >HSD/GED | 51.2 (50.9, 51.4) | 49.6 (48.8, 50.4)* |
| Insurance | Government | 10.8 (10.7, 11.0) | 9.6 (9.1, 10.0)* |
| | Private | 13.3 (13.1, 13.4) | 8.1 (7.6, 8.5)* |
| | Medicaid | 63.3 (63.1, 63.5) | 72.7 (72.0, 73.4)* |
| | None | 12.6 (12.4, 12.8) | 9.7 (9.3, 10.2)* |
| Physical Health | Hypertension | 37.2 (37.0, 37.4) | 43.3 (42.5, 44.1)* |
| | Diabetes | 11.3 (11.2, 11.5) | 16.2 (15.6, 16.8)* |
| | Heart Attack | 6.3 (6.1, 6.4) | 8.9 (8.4, 9.3)* |
| | Stroke | 5.6 (5.5, 5.7) | 9.8 (9.3, 10.2)* |
| | Any | 44.9 (44.7, 45.2) | 53.6 (52.8, 54.4)* |
| Mental Health | Anxiety | 39.2 (38.9, 39.5) | 46.2 (45.3, 47.2)* |
| | Depression | 41.4 (41.1, 41.7) | 48.3 (47.5, 49.4)* |
| | Bipolar | 18.6 (18.4, 18.8) | 23.8 (23.1, 24.6)* |
| | Schizophrenia | 6.9 (6.8, 7.0) | 11.0 (10.4, 11.6)* |
| | Drug/Alcohol Abuse | 12.3 (12.1, 12.5) | 14.0 (13.3, 14.6)* |
| | Any | 57.8 (57.5, 58.1) | 65.7 (64.9, 66.6)* |

*Note*. AIAN = combines American Indian/Alaska Native monoethnic and multiethnic. HSD/GED = high school diploma/General Education Development. * = significantly different from White.

**Table 2**. Services Received among California's Quitline Clients (2008-2018)

| | | | | Counseling | |
|---|---|---|---|---|---|
| | | Received Counseling | | Counseling Sessions | ≥ 2 Follow up sessions |
| Ethnicity | *N* | % (95% CI) | *N* | *M* (95% CI) | % (95% CI) |
| White | 173,425 | 65.7 (65.4, 65.9) | 113,855 | 3.0 (3.0, 3.0) | 45.1 (44.8, 45.3) |
| AIAN | 16,089 | 67.1 (66.4, 67.9)* | 10,800 | 3.1 (3.05, 3.15)* | 46.6 (45.7, 47.6) |
| | | | | Quitting Aids | |
| | | Received Nicotine Patch from quitline | | NRT Use | Any Quitting Aid Use |
| Ethnicity | *N* | % (95% CI) | *N* | % (95% CI) | % (95% CI) |
| White | 173,425 | 28.3 (28.1, 28.5) | 8,194 | 53.5 (52.4, 54.6) | 63.0 (62.0, 64.1) |
| AIAN | 16,089 | 27.1 (26.4, 27.8)* | 764 | 51.3 (47.8, 54.9) | 59.0 (55.5, 62.5) |

*Note.* NRT = nicotine replacement therapy, AIAN = combines American Indian/Alaska Native monoethnic and multiethnic. * = significantly different from White. Received NRT represents those that received free nicotine patches from California's quitline. NRT Use includes use of NRT (patch, gum, lozenge) received from any source. Any Quitting Aid Use includes patch, gum, lozenge, Zyban, Chantix, and other; it does not include e-cigarettes.

**Table 3.** Quit Attempt and Long-term Abstinence Rates for AIAN and White Callers to the Qutline (2008-2018)

| | | | Evaluation Outcomes | | | |
|---|---|---|---|---|---|---|
| | | | Quit Attempt Lasting 24hrs | | Quit for at least 180 Days | |
| Variable | | *N* | % (95% CI) | aOR (95% CI) | % (95% CI) | aOR (95% CI) |
| Ethnicity | White | 8,194 | 71.4 (70.4, 72.4) | Ref | 12.2 (11.5, 12.9) | Ref |
| | AIAN | 764 | 73.6 (70.4, 76.7) | 1.23 (0.99, 1.53) | 10.1 (7.9, 12.2) | 0.89 (0.66, 1.19) |
| Gender | Female | 9,256 | 72.5 (71.5, 73.4) | Ref | 11.6 (10.9, 12.2) | Ref |
| | Male | 6,867 | 71.5 (70.5, 72.6) | 0.97 (0.89, 1.06) | 13.0 (12.2, 13.8) | 1.09 (0.97, 1.23) |
| Age | 18-24 | 878 | 77.3 (74.6, 80.1) | Ref | 11.2 (9.1, 13.2) | Ref |
| | 25-44 | 5,754 | 75.1 (74.0, 76.2) | 0.79 (0.63, 1.00) | 12.9 (12.1, 13.8) | 1.32 (0.97, 1.79) |
| | 45-64 | 8,189 | 70.6 (69.6, 71.6) | 0.62 (0.49, 0.78)* | 11.7 (11.1, 12.4) | 1.19 (0.88, 1.62) |
| | 65+ | 1,418 | 64.7 (62.3, 67.2) | 0.45 (0.36, 0.58)* | 12.0 (10.3, 13.7) | 1.19 (0.84, 1.70) |
| Education | <HSD/ GED | 3,844 | 68.3 (66.8, 69.7) | Ref | 12.0 (11.0, 13.1) | Ref |
| | HSD/GED | 4,475 | 71.8 (70.5, 73.1) | 1.15 (1.02, 1.29)* | 11.6 (10.6, 12.5) | 0.94 (0.80, 1.11) |
| | >HSD/ GED | 7,798 | 74.1 (73.1, 75.1) | 1.36 (1.23, 1.52)* | 12.5 (11.8, 13.3) | 1.02 (0.88, 1.18) |
| Insurance | None | 2,113 | 72.2 (70.2, 74.1) | Ref | 13.5 (12.0, 14.9) | Ref |
| | Medicaid | 10,351 | 72.0 (71.1, 72.8) | 1.04 (0.90, 1.20) | 11.8 (11.2, 12.4) | 0.93 (0.77, 1.12) |
| | Government | 1,369 | 70.1 (67.7, 72.5) | 1.05 (0.86, 1.30) | 10.1 (8.5, 11.7) | 0.82 (0.62, 1.10) |
| | Private | 2,114 | 74.1 (72.3, 76.0) | 1.13 (0.94, 1.35) | 13.7 (12.3, 15.2) | 1.07 (0.85, 1.34) |
| Physical Health | None | 8,341 | 73.3 (72.4, 74.3) | Ref | 12.7 (12.0, 13.4) | Ref |
| | Any | 7,623 | 70.8 (69.8, 71.9) | 0.99 (0.90, 1.09) | 11.6 (10.9, 12.3) | 0.93 (0.82, 1.05) |
| Mental Health | None | 5,206 | 73.7 (72.5, 74.9) | Ref | 15.3 (14.3, 16.2) | Ref |
| | Any | 6,055 | 70.4 (69.2, 71.5) | 0.85 (0.78, 0.93)* | 10.0 (9.3, 10.8) | 0.64 (0.57, 0.72)* |
| | | | Evaluation Outcomes among those who Received Counseling | | | |
| | | | Quit Attempt Lasting 24hrs | | Quit for at least 180 Days | |
| Variable | | *N* | % (95% CI) | aOR (95% CI) | % (95% CI) | aOR (95% CI) |
| Ethnicity | White | 6,142 | 74.4 (73.3, 75.4) | Ref | 13.6 (12.7, 14.4) | Ref |
| | AIAN | 576 | 76.9 (73.5, 80.4) | 1.39 (1.06, 1.81)* | 11.3 (8.7, 13.9) | 0.95 (0.69, 1.31) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Gender | Female | 7,083 | 75.4 (74.4, 76.4) | Ref | 12.9 (12.2, 13.7) | Ref |
| | Male | 4,933 | 74.2 (73.0, 75.5) | 0.94 (0.84, 1.04) | 15.0 (14.0, 16.0) | 1.12 (0.98, 1.27) |
| Age | 18-24 | 565 | 77.5 (74.1, 81.0) | Ref | 12.4 (9.7, 15.1) | Ref |
| | 25-44 | 4,162 | 78.4 (77.1, 79.7) | 1.06 (0.79, 1.42) | 15.0 (13.9, 16.1) | 1.26 (0.89, 1.79) |
| | 45-64 | 6,292 | 73.4 (72.3, 74.5) | 0.78 (0.59, 1.04) | 13.2 (12.3, 14.0) | 1.12 (0.79, 1.60) |
| | 65+ | 1,059 | 68.3 (65.5, 71.1) | 0.59 (0.43, 0.82)* | 13.2 (11.2, 15.3) | 1.13 (0.75, 1.69) |
| Education | <HSD/ GED | 2,973 | 71.3 (69.7, 73.0) | Ref | 13.4 (12.2, 14.6) | Ref |
| | HSD/GED | 3,241 | 74.3 (72.8, 75.8) | 1.14 (0.99, 1.31) | 12.9 (11.7, 14.1) | 0.94 (0.78, 1.13) |
| | >HSD/ GED | 5,780 | 77.1 (76.0, 78.1) | 1.40 (1.23, 1.59)* | 14.3 (13.4, 15.2) | 1.08 (0.92, 1.26) |
| Insurance | None | 1,353 | 75.2 (72.9, 77.5) | Ref | 16.6 (14.6, 18.6) | Ref |
| | Medicaid | 8,029 | 74.9 (73.9, 75.8) | 0.98 (0.81, 1.18) | 13.2 (12.4, 13.9) | 0.90 (0.72, 1.11) |
| | Government | 1,025 | 72.1 (69.4, 74.8) | 0.94 (0.72, 1.22) | 10.7 (8.8, 12.6) | 0.78 (0.56, 1.09) |
| | Private | 1,485 | 77.1 (75.0, 79.2) | 1.15 (0.91, 1.45) | 16.0 (14.1, 17.8) | 1.04 (0.80, 1.35) |
| Physical Health | None | 6,005 | 76.1 (75.0, 77.2) | Ref | 14.6 (13.7, 15.4) | Ref |
| | Any | 5,868 | 73.9 (72.8, 75.0) | 0.98 (0.88, 1.10) | 13.0 (12.1, 13.8) | 0.90 (0.78, 1.03) |
| Mental Health | None | 3,580 | 76.9 (75.5, 78.3) | Ref | 17.8 (16.6, 19.1) | Ref |
| | Any | 4,602 | 73.6 (72.3, 74.9) | 0.85 (0.76, 0.95)* | 11.4 (10.5, 12.3) | 0.62 (0.55, 0.71)* |

*Note*. AIAN = combines American Indian/Alaska native monoethnic and multiethnic, HSD/GED = high school diploma/General Education Development, Ref = reference group. CI= Confidence interval aOR = adjusted Odds Ratio, * = statistical significance.

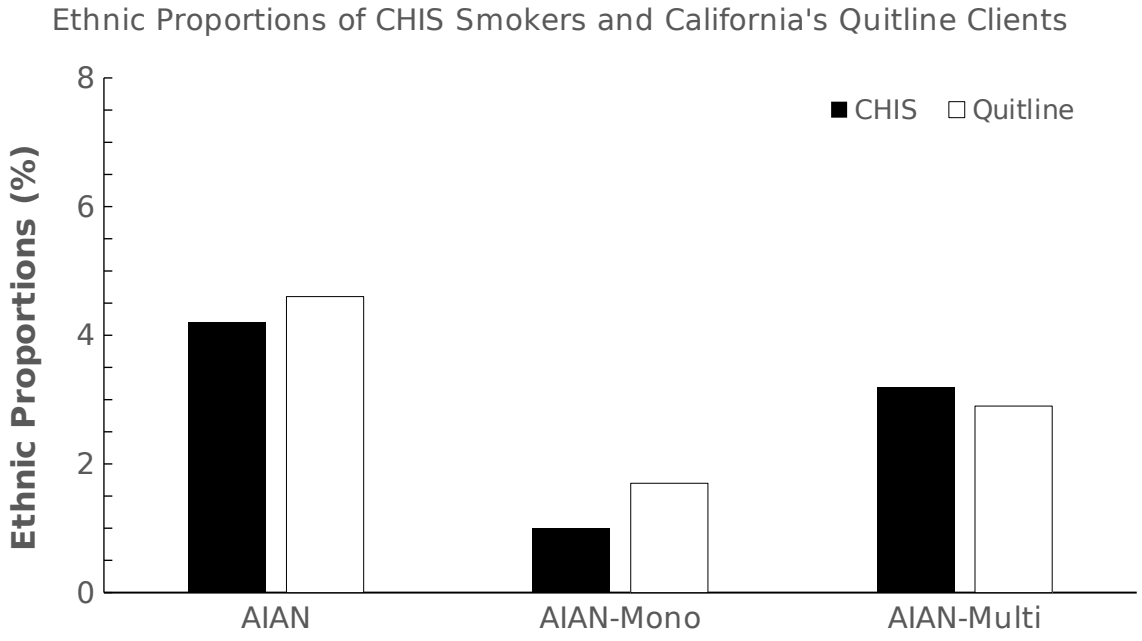


**Figure 1.** Ethnic proportions of California Health Interview Survey Smokers (2009, 2011-2017) and California's Quitline Clients (2009-2018).

*Note.* CHIS = California Health Interview Survey, AIAN = combines American Indian/Alaska Native monoethnic and multiethnic, AIAN-Mono = American Indian/Alaska Native monoethnic, AIAN-Multi = American Indian/Alaska Native multiethnic.