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RESEARCH ARTICLE

Tobacco Product Use Health Equity Among Non-Hispanic American Indian Alaska Native Youth in 29 States, 2007–2013

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Introduction: American Indian/Alaska Native (AI/AN) youth are more likely to smoke than non-Native youth. The aim of this study is to compare tobacco product use among youth by AI/AN race and region over time to identify populations and geographies of higher risk.

Methods: From 2015 to 2018, biennial U.S. Youth Risk Behavior Surveillance data from 29 states were examined to compare ever and current cigarette use, current cigar use, current smokeless tobacco use, and cigarette initiation before the age of 13 years between non-Hispanic AI/AN and non-Native youth by region from 2007 to 2013.

Results: Although cigarette use among AI/AN and non-Native youth decreased significantly from 2007 to 2013, AI/AN youth were significantly more likely than non-Native youth to ever use (AOR=1.88, 95% CI=1.71, 2.06) or currently use (AOR=1.88, 95% CI=1.69, 2.09) cigarettes, currently use cigars (AOR=1.17, 95% CI=1.03, 1.34), currently use smokeless tobacco (AOR=1.84, 95% CI=1.63, 2.07), or initiate cigarette use before the age of 13 years (AOR=1.92, 95% CI=1.72, 2.15). Disparities between AI/AN and non-Native youth varied by region, with the largest disparity in Northern Plains and Alaska.

Conclusions: The prevalence of AI/AN youth cigarette, cigar, and smokeless tobacco use is significantly higher than that of non-Native youth. Tobacco control efforts to address AI/AN cigarette use disparities may consider those younger than 13 years.

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INTRODUCTION

Youth cigarette smoking prevalence has decreased; however, data indicate that disparities persist between non-Hispanic American Indian/Alaska Native (AI/AN) and other racial/ethnic youth.[1–6] Adult data are similar.[4,7,8] A recent study found that AI/AN youth are more likely than non-Native youth to use cigarettes, smokeless tobacco, and cigars, but no studies could be found that compared how health equity has changed over time, which could help inform interventions.[6] As the mean initiation age among youth is 12.3 years (95% CI=12.2, 12.3), most youth cigarette initiation prevention programs target those aged 12–17 years.[2] However, AI/AN youth initiate at a significantly lower age (11.5 years, 95% CI=11.2, 11.9) compared with non-Native youth.[2]

Despite the high prevalence of AI/AN tobacco use, there is a paucity of tobacco research among this population.[4] Approximately 2% of the U.S. population are AI/AN,[9] and additional steps are needed to power analyses such as combining multiple years and geographies of data collection[10] and oversampling AI/AN respondents. Data suggest that tobacco use prevalence among AI/AN individuals may vary by tribe and region[4]; research among adults has identified Northern Plains[11] and Alaska

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as regions with particularly high cigarette use prevalence.[12,13] These differences may stem from variations in histories and traditions, as not all AI/AN communities have a tradition of using tobacco for ceremonies or medicine. For example, although ANs have not had a history of tobacco use before the arrival of European settlers in Alaska, modern day tobacco use prevalence is high, and smokeless tobacco use in the form of highly addictive *iqmik*, smokeless tobacco mixed with locally found tree fungus ash, is a practice that has taken on traditional meaning for some in Southern Alaska.[14,15] In current research practice, those with AI/AN race are often grouped with other minority race individuals into an "other category"[16] or treated as an aggregate identity representing a diverse array of peoples and cultures, as most national surveys do not collect tribal affiliation information. Using combined data across 29 states and over 6 years from four cross-sectional surveys of the Youth Risk Behavior Survey (YRBS), this paper examines differences in tobacco use and initiation between AI/AN and non-Native youth over time and by region. These data fill an important gap in the literature by (1) identifying priority regions where tobacco use disparities between AI/AN and non-Native youth are highest and (2) being the first to report how smokeless tobacco and cigar use disparities have changed over time. These data inform targeted efforts designed to improve tobacco-related health equity.

METHODS

Study Sample

Data for this study were derived from the state-level YRBS, a cross-sectional survey conducted every 2 years. The YRBS monitors the prevalence of a variety of youth health risk behaviors over time. The YRBS is based on a two-stage cluster sample design, where schools are first selected with probability proportional to school enrollment size by state and then, within each selected school, classes are selected randomly, and all the students in the selected classes are eligible to participate in the survey. Further details on YRBS methodology and human subjects protection procedures can be found elsewhere.[17] This secondary analysis of deidentified data was exempt from IRB review. Analyses for this study took place from August 2015 to June 2018 and used a combined YRBS data set of weighted high school data available from the Centers for Disease Control and Prevention (CDC) with state permission for public use from 2007, 2009, 2011, and 2013. States without weighted data for all 4 years, such as California, were not included in the sample. Across all years in the combined YRBS data set, the variables were standardized based on the 2013 YRBS standard questionnaire, which allowed for analyses to be conducted using several years of data to increase the analytic sample size of the represented area or population.[18] In addition, the South Dakota Department of Health provided permission to include in the analysis South Dakota's data for the same period, so South Dakota's files were combined with the public-use file for analysis. These data files were stacked with the public-use data set and included in the analyses. The data analytic annual weights were included in analyses, which accounted for youth nonresponse and produced representative estimates of the study population. Weighted analysis was done in line with the CDC's guidance for multiyear YRBS analysis.[10] YRBS data from Delaware, Florida, Massachusetts, and Pennsylvania were not available in the public data set and, though weighted, were omitted because of the small AI/AN proportion in their samples (≤0.5%).

Measures

Ever use of cigarettes was assessed with the following item: *Have you ever tried cigarette smoking, even one or two puffs?* Response options were *yes* (ever users) or *no* (never users). Current cigarette smoking was assessed with the following item: *During the past 30 days, on how many days did you smoke cigarettes?* Response options ranged from *0* to *all 30 days*. Those who indicated smoking at least 1 day in the past 30 days were categorized as current smokers. In YRBS, all respondents were asked about past–30-day use of cigarettes and age of initiation of cigarettes, regardless of their response to the ever cigarette use question. However, no individuals in the data set reported conflicting data (i.e., never cigarette users who identified as past–30-day cigarette smokers).

Current cigar smoking was assessed with the following item: *During the past 30 days, on how many days did you smoke cigars, cigarillos, or little cigars?* Those who indicated smoking at least 1 day in the past 30 days were categorized as current smokers.

Current smokeless tobacco use was assessed with the following item: *During the past 30 days, on how many days did you use chewing tobacco, snuff, or dip, such as Redman, Levi Garrett, Beechnut, Skoal, Skoal Bandits, or Copenhagen?* Those who indicated using smokeless tobacco at least 1 day in the past 30 days were categorized as current users.

Age of initiation was assessed with the following question: *How old were you when you smoked a whole cigarette for the first time?* Response options were *I have never smoked a whole cigarette*, *8 years old or younger*, or *17 years old or older*. A dichotomous indicator of the age of initiation was constructed following the CDC YRBS definition and was defined as smoking before the age of 13 years versus initiating smoking at an age of ≥13 years.

The U.S. Office of Management and Budget guidance defines AI/AN identity as having heritage from one of the original peoples in the Americas and maintaining a tribal affiliation or community attachment.[19] The AI/AN racial category is not homogeneous but instead represents a diverse group of tribal identities, each with their own culture and history that includes 567 AI/AN federally recognized tribes and villages.[20] Racial identity is based on self-report without an opportunity to identify with which tribe or tribes they are affiliated or otherwise identify; this lack of granularity masks potential disparities that can inform the development of tailored health equity interventions. The YRBS public-use file uses a combination measure for race and ethnicity so racial information among Hispanic youth is not provided; that is, Hispanic AI/AN are labeled as Hispanic and not AI/AN. YRBS data that combine race and ethnicity are not in line with U.S. Office of Management and Budget guidance[19] and may have been organized as such to be consistent with pre-2007 data, before youth were asked about Hispanic ethnicity separately from race. Similarly, the YRBS public file categorizes multiracial AI/AN youth as multiracial rather than AI/AN. This is in line with common

practice in peer-reviewed research[21–23] where multiracial individuals are categorized as one group, separately from the races to which they belong. South Dakota data were recoded to match the public-use file for consistency. Given the challenges with the data, the following proxy AI/AN race was used: (1) exclusively selecting AI/AN race and (2) not identifying as Hispanic or Latino. Similarly to other studies,[8] a dichotomous AI/AN variable was constructed where youth were categorized as AI/AN if they reported being exclusively AI/AN.

As the AI/AN-only race measure does not speak to the diversity of AI/AN people in the U.S., the authors also looked at differences by geographic region. Although AI/AN people can live anywhere, geographic regions may be particularly influenced by specific native cultures and regional-specific histories. Health equity research conducted with a geographic lens can help shed important light on an issue such as tobacco use when the data are otherwise limited. In the analytical data set, state-level high school data that were either available in the combined file (www.cdc.gov/healthyyouth/data/yrbs/data.htm) or provided by South Dakota were organized into regions with sufficiently large sample sizes of AI/AN youth to facilitate geographic comparisons (≥500 AI/AN youth per region). State groupings were developed to be as consistent as possible with the Indian Health Service regions and service areas, which were intended to align with how regions are defined in existing AI/AN-specific service provision, shared histories, and cultural ties (e.g., the influence of Ojibwe culture in the Great Plains and Navajo culture in the Southwest). These 29 states were grouped in five geographic regions: (1) Alaska (n=5,523); (2) Northern Plains: Michigan, Montana, North Dakota, South Dakota, Wisconsin, and Wyoming (n=65,558); (3) Oklahoma and Kansas (n=14,222); (4) Southwest, Navajo, and Albuquerque: Arizona, New Mexico, and Utah (n=36,722); and (5) East: Arkansas, Connecticut, Georgia, Illinois, Kentucky, Louisiana, Maine, Maryland, Mississippi, New Hampshire, New York, North Carolina, South Carolina, Tennessee, Texas, Vermont, and West Virginia (n=277,799). Sex and age were both assessed.

Statistical Analysis

All analyses were conducted using Stata, version 15.1 SE and weighted to account for stratification and clustering to provide representative estimates for the relevant population groups. Analyses were consistent with the *Healthy People 2010* criteria for statistical reliability, which indicate that any findings based on analyses from YRBS data with <100 cases should be suppressed.[24] An α level of 0.05 was used for all statistical tests. All presented p-values are for two-tailed tests.

First, orthogonal polynomials were used to perform logistic regression analyses and examine linear and quadratic trends in ever use of cigarettes and current use of cigarettes, cigars, and smokeless tobacco and initiation of cigarette use during 2007–2013, stratified by AI/AN race. Next, interaction terms were added to the analyses to compare trends between AI/AN and non-Native youth. For each of the tobacco use outcomes, chi-square tests were conducted to examine difference in tobacco use between AI/AN race within each year of data collection, weighted by year.

The remainder of the analyses used pooled data with average weights from 4 years of data collection. Chi-square tests were used to examine differences in the prevalence of tobacco use between AI/AN and non-Native youth overall and within each region. Finally, multivariable-adjusted logistic regression models controlling for sex and age were used to examine the association between AI/AN race and tobacco use overall and stratified by region.

RESULTS

From 2007 to 2013, there was a statistically significant, downward linear trend for ever and current cigarette use among AI/AN respondents (Table 1, Figure 1). For non-Native respondents, there was a downward linear trend in ever cigarette use and downward linear and quadratic trends in current cigarette use. Although ever and current cigarette use trended downward for both groups, ever and current cigarette use among AI/AN youth remained significantly higher within each year relative to their non-Native counterparts.

Linear and quadratic downward trends for current cigar use were observed among non-Native youth but not AI/AN youth. The prevalence of current cigar use did not differ between AI/AN youth and non-Native youth across years, except for 2007, during which cigar use was significantly higher among AI/AN youth compared with non-Native youth. There were no significant trends observed for current smokeless tobacco use for either youth group. Each year, however, the prevalence of smokeless tobacco use was significantly higher among AI/AN youth compared with non-Native youth. Linear downward trends were observed for smoking initiation before the age of 13 years for both AI/AN and non-Native youth (all p<0.001). None of the linear trend × linear trend or the quadratic trend × quadratic trend interactions were statistically significant (data not shown).

Overall, ever and current cigarette use were more prevalent among AI/AN youth compared with non-Native youth (p<0.001) (Appendix Figure 1, available online). Similarly, a greater proportion of AI/AN youth reported initiating smoking before the age of 13 years compared with non-Native youth across all regions (p<0.001). Ever (71.3%) and current (38.5%) cigarette use was highest among AI/AN youth in the Northern Plains compared with all other regions. Initiation before the age of 13 years was also most prevalent in the Northern Plains region (26.5%).

Overall, current cigar use was more prevalent among AI/AN youth compared with non-Native youth (16.2% vs 13.8%, p<0.01) (Appendix Figure 2, available online). Across all regions, the prevalence of current cigar use was highest in the East (21.6%). Current cigar use was higher in the Southwest (16.0% vs 11.9%, p<0.001) and East (21.6% vs 14.2%, p<0.001) among AI/AN youth compared with non-Native youth.

Table 1. Weighted Tobacco Use 2007–2013 Trends, by Race, 29 States in the U.S., YRBS

Race group	Ever cigarette use, % (95% CI)	Current cigarette use, % (95% CI)	Current cigar use, % (95% CI)	Current smokeless use, % (95% CI)	Initiation before age 13 years, % (95% CI)
2007[a]					
AI/AN	**67.7 (64.2, 71.0)****	**32.2 (29.0, 35.5)****	**17.4 (14.9, 20.3)***	**16.4 (13.8, 19.3)****	**25.4 (22.9, 28.1)****
Non-native	**52.3 (51.2, 53.4)**	**19.3 (18.5, 20.1)**	**13.6 (13.0, 14.2)**	**7.9 (7.4, 8.5)**	**14.0 (13.5, 14.5)**
2009[a]					
AI/AN	**60.7 (56.4, 64.8)****	**28.2 (24.4, 32.3)****	17.2 (14.0, 21.0)	**13.1 (10.8, 15.8)****	**20.5 (17.7, 23.6)****
Non-native	**47.6 (46.6, 48.6)**	**18.4 (17.6, 19.1)**	14.6 (14.1, 15.2)	**8.6 (8.1, 9.1)**	**11.7 (11.2, 12.2)**
2011[a]					
AI/AN	**64.1 (59.6, 68.4)****	**30.1 (26.1, 34.4)****	17.2 (14.5, 20.2)	**16.4 (12.6, 21.0)****	**19.7 (16.3, 23.7)****
Non-native	**45.1 (44.1, 46.2)**	**16.4 (15.8, 17.1)**	14.5 (13.9, 15.1)	**8.3 (7.9, 8.8)**	**10.8 (10.3, 11.3)**
2013[a]					
AI/AN	**52.9 (48.2, 57.6)****	**19.4 (16.1, 23.1)****	13.3 (10.4, 16.8)	**12.8 (10.1, 16.3)****	**14.8 (11.5, 19.0)****
Non-native	**39.7 (38.6, 40.7)**	**13.3 (12.7, 14.0)**	12.6 (12.1, 13.2)	**8.4 (7.8, 9.0)**	**9.1 (8.6, 9.6)**
Linear trend *p*-values[b]					
AI/AN	**	**	NS	NS	**
Non-native	**	**	NS	NS	**
Quadratic trend *p*-values[b]					
AI/AN	NS	NS	NS	NS	NS
Non-native	NS	**	**	NS	NS

Note: Boldface indicates statistical significance (*$p<0.01$; **$p<0.001$).
[a]*p*-values were obtained from chi-square tests to indicate statistically significant differences between AI/AN and non-Native individuals within a given year.
[b]*p*-values were obtained from orthogonal polynomials.
AI/AN, American Indian/Alaska Native; NS, not significant; YRBS, Youth Risk Behavior Survey.

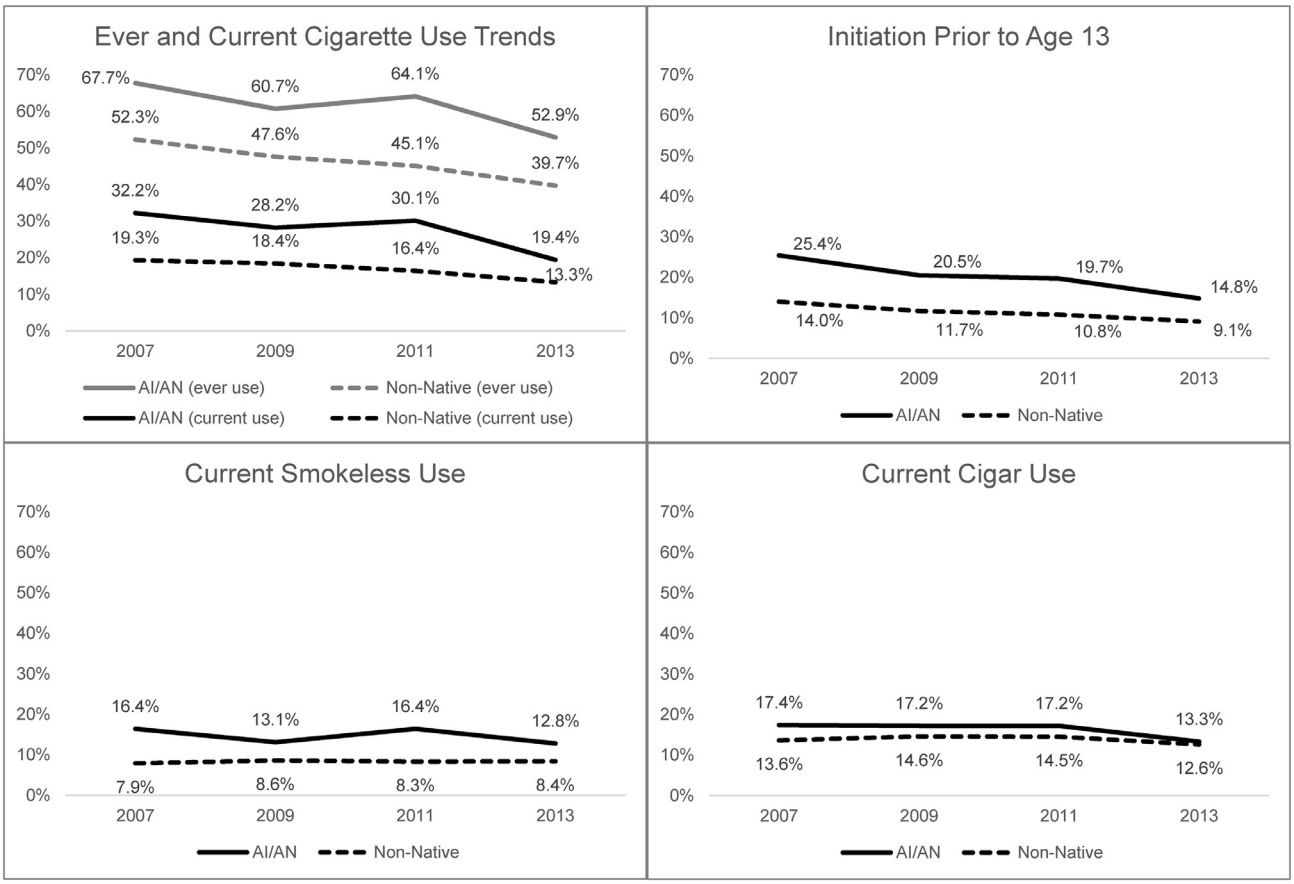

Figure 1. Weighted trends in youth tobacco behavior by race, in 29 U.S. states, Youth Risk Behavior Survey 2007–2013.
AI/AN, American Indian/Alaska Native.

Across the study sample, current smokeless tobacco use was approximately 43% higher among AI/AN youth compared with non-Native youth (14.6% vs 8.3%, $p<0.001$). Apart from the Southwest region, current smokeless tobacco use was significantly higher among AI/AN youth compared with non-Native youth within each region.

In adjusted logistic regression models examining the association between AI/AN race and tobacco use behavior, controlling for sex and age (Table 2), AI/AN youth reported greater odds of ever cigarette use, current cigarette use, and initiation of cigarette smoking before the age of 13 years compared with non-Native youth. AI/AN youth in the Northern Plains, Alaska, and Southwest regions had the greatest odds of ever and current cigarette use compared with non-Native youth.

Overall, in the Southwest and East, AI/AN youth reported greater odds of current cigar use compared with non-Native youth. Except for the Southwest, in every region and overall, AI/AN youth reported greater odds of current smokeless tobacco use compared with non-Native youth. AI/AN youth in Alaska, Northern Plains, and the Oklahoma/Kansas regions had the greatest odds of current smokeless tobacco use compared with non-Native youth.

DISCUSSION

The current study found that cigarette use declined from 2007 to 2013 for both AI/AN and non-Native youth. This declining trend may be because of changes in policy and enforcement[25,26] and interventions such as tobacco public education campaigns[27,28] targeting youth in general that could benefit AI/AN youth. However, cigarette use continues to be significantly higher among AI/AN youth compared with their non-Native counterparts, indicating that AI/AN youth cigarette use disparities persist. In certain regions, such as Northern Plains and Alaska, differences between AI/AN and non-Native youth are particularly high. AI/AN youth in the Northern Plains, Southwest, and Alaska had especially higher odds of initiating before the age of 13 years compared with their non-Native peers. Many U.S. tobacco interventions target youth aged 12 years and older. Therefore,

Table 2. Weighted Tobacco Behavior by Race, 2007–2013 Pooled Sample, 29 States by U.S. Region, YRBS

Race group	Ever cigarette use,[a] OR (95% CI)	Current cigarette use,[a] OR (95% CI)	Initiation before age 13 years,[a] OR (95% CI)	Current cigar use,[a] OR (95% CI)	Current smokeless use,[a] OR (95% CI)
Alaska					
AI/AN	**3.20 (2.56, 4.00)**	**2.89 (2.04, 4.10)**	**2.37 (1.75, 3.22)**	[b]	**3.30 (2.37, 4.57)**
Non-native	ref	ref	ref		ref
Northern Plains					
AI/AN	**3.38 (2.85, 4.01)**	**3.39 (2.87, 3.99)**	**3.26 (2.75, 3.88)**	1.19 (0.97, 1.46)	**2.36 (1.99, 2.81)**
Non-native	ref	ref	ref	ref	ref
OK and KS					
AI/AN	**1.57 (1.34, 1.85)**	**1.52 (1.19, 1.93)**	**1.51 (1.14, 1.99)**	1.09 (0.83, 1.44)	**1.87 (1.47, 2.38)**
Non-native	ref	ref	ref	ref	ref
SW					
AI/AN	**2.73 (2.28, 3.27)**	**2.14 (1.77, 2.58)**	**2.45 (2.06, 2.93)**	**1.41 (1.17, 1.70)**	1.21 (0.95, 1.53)
Non-native	ref	ref	ref	ref	ref
East					
AI/AN	**1.40 (1.14, 1.71)**	**1.56 (1.27, 1.92)**	**1.94 (1.53, 2.45)**	**1.59 (1.24, 2.04)**	**1.59 (1.24, 2.04)**
Non-native	ref	ref	ref	ref	ref
Total					
AI/AN	**1.88 (1.71, 2.06)**	**1.88 (1.69, 2.09)**	**1.92 (1.72, 2.15)**	**1.17 (1.03, 1.34)**	**1.84 (1.63, 2.07)**
Non-native	ref	ref	ref	ref	ref

Note: Boldface indicates statistical significance ($p<0.05$).
[a]All models controlled for age and sex.
[b]The estimate was suppressed because the number of cases was too small to provide a reliable estimate.
AI/AN, American Indian/Alaska Native; KS, Kansas; OK, Oklahoma; SW, Southwest; YRBS, Youth Risk Behavior Survey.

AI/AN youth at risk of initiation at a younger age may not be reached by these interventions early or frequently enough to inoculate them against potential pro-tobacco influencers by the age they are likely to initiate use, a potential contributing factor to the tobacco use disparities. For interventions among AI/AN youth, implementers may consider including younger age groups to prevent initiation to cigarette smoking.

Current cigar use did not differ by AI/AN status after 2007. However, cigar use decreased significantly from 2007 to 2013 only among non-Native youth. If these trends continue, a significant difference between these two groups could re-emerge; therefore, these trends merit further monitoring. The examination of cigar use by geographic region found that AI/AN current cigar use was only significantly higher than non-Native use in the East and Southwest, areas for consideration for potential AI/AN cigar use intervention.

Smokeless tobacco use prevalence was stable between 2007 and 2013. There was a disparity between AI/AN and non-Native youth in all regions but the Southwest. This finding is consistent with adult data, which show that smokeless tobacco use is higher among AI/AN adults than other ethno-racial groups.[8] Compared with non-Native youth, the odds of current smokeless tobacco use among AI/AN youth in Alaska and the Northern Plains were particularly high. AI/AN smokeless tobacco use interventions are promising areas for health equity interventions.

Compared with their non-Native peers, AI/AN youth in the Northern Plains and Alaska had the largest cigarette and smokeless tobacco use disparities. Diversity in traditional (including medicinal and ceremonial) and historic tribal relationships with tobacco use, high tobacco use in some communities, and resulting tobacco-enabling social norms may contribute to regional variations in AI/AN health equity,[11,29] all of which may be influenced by living in areas with higher proportions of AI/AN such as in Alaska and South Dakota.[29] Furthermore, more region-specific research would provide further understanding of the unique factors that contribute to cigarette and smokeless tobacco use among AI/AN youth in different regions. AI/AN communities in priority regions should be deeply involved with research and intervention development to ensure that they are culturally appropriate and developed with the population's needs and aspirations in mind.[30,31]

Future AI/AN-specific youth tobacco interventions are needed and would complement existing general youth interventions as well as AI/AN-specific interventions designed to mitigate tobacco use disparities among adults, such as National Native Network's Keep It Sacred campaign.[32] AI/AN youth may have benefited from

tobacco interventions and policy changes that do not target them specifically. Researchers may consider looking for potential changes in smokeless tobacco use among AI/AN as an unintended halo effect of the U.S. Food and Drug Administration's The Real Cost: Smokeless Doesn't Mean Harmless campaign,[33] the first national smokeless tobacco public education campaign, which targets rural male youth and launched in 2016.

Future health equity research would be strengthened if surveys such as YRBS made available data that separated Hispanic ethnicity from race and provided race information for multiracial participants. Manually merging YRBS state data to identify Hispanic and multiracial AI/AN youth requires a great deal of time and effort, creating a major barrier for health equity research.

Limitations

As with any other self-reported data, the accuracy of reporting health risk behaviors cannot be determined. The YRBS survey instrument did not differentiate ceremonial from commercial tobacco use. The public-use data file does not include states without weighted data for each of the 4 selected years, which excludes states such as California. The public-use data file does not identify Hispanic AI/AN or multicultural AI/AN, so only those who reported exclusive AI/AN race were considered AI/AN in this analysis. This approach serves as a rough proxy but underestimates the size of the AI/AN population in the sample. The YRBS data for youth apply only to students in grades 9–12 who attend school; therefore, these data are not representative of all youth in this age group. State-level YRBS data were only analyzed among 29 states, affecting estimates for some regions; therefore these estimates are not nationally representative. Some state-level data are missing; both Connecticut and New York did not ask age of initiation for all survey years.

The YRBS, similar to many federal surveys, does not collect more-granular information among native populations such as tribal or native village identity, so AI/AN youth are treated as a monolith rather than a heterogeneous population, which can mask potential disparities. Although Indian Health Service–based regional grouping provides more information on possible geographic and related cultural ties, this approach has not been validated against tribe-specific data.

Certain sociodemographic characteristics that are known to be associated with tobacco use, such as household income and poverty level,[4,8] were not assessed in the YRBS surveys and therefore could not be included as covariates in multivariable-adjusted models. However, age and sex were asked in YRBS and were included in the logistic regression models as covariates, allowing the authors to control for the effects of these potentially confounding factors.

In 2007–2013, the standard YRBS instrument did not include measures to assess hookah or electronic nicotine delivery system use (added in 2015). Based on adult data and smaller surveys among AI/AN youth, AI/AN electronic nicotine delivery system use is an important area for further study.[34–36]

CONCLUSIONS

Tobacco use disparities persist between AI/AN and non-Native youth in 29 U.S. states. Certain regions where tobacco use differences are especially high, such as the Northern Plains and Alaska, may merit both research to understand the underlying health equity factors and AI/AN youth–specific interventions to address them. Continued AI/AN youth tobacco use surveillance can help shed light on the patterns of comparative tobacco use over time to inform ongoing tobacco control efforts among this critical population.

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SUPPLEMENTAL MATERIAL

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