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Seatbelt Use Among American Indians/Alaska Natives and Non-Hispanic Whites

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Abstract

Background—Accidents (including motor vehicle accidents) are a leading cause of death among American Indians/Alaskan Natives (AI/AN). The purpose of this study was to examine geographic variation and the existence of a seatbelt law on seatbelt use among AI/AN and non-Hispanic Whites (NHW).

Methods—Self-reported seatbelt behavior data from the 1997 and 2002 Behavioral Risk Factor Surveillance System (BRFSS) were analyzed in 2006–2007 and were restricted to AI/AN (n=4,310 for 2002, and n=1,758 for 1997) and NHW (n=193,617 for 2002, and n=108,551 for 1997) aged 18 years and older.

Results—Seatbelt non-use varied significantly across geographic regions for both AI/AN and NHW. For example, AI/AN living in the Northern Plains [odds ratio (OR)=12.4 (95% confidence interval (CI): 6.5, 23.7)] and Alaska [OR=10.3 (95% CI: 5.3, 19.9)] had significantly higher seatbelt non-use compared to AI/AN living in the West. In addition, compared to those residing in urban areas, those living in rural areas were 60% more likely in NHW and 2.6 times more likely in AI/AN not to wear a seatbelt. Both AI/AN and NHW living in states without primary seatbelt laws were approximately twice as likely to report seatbelt non-use in 2002 as those living in states with primary laws. In states with primary laws enacted between 1997 and 2002, AI/AN experienced greater decline in seatbelt non-use than NHW.

Conclusions—Seatbelt use among AI/AN and NHW varied significantly by region and urban-rural residency in 2002. Primary seatbelt laws appear to help reduce regional and racial disparities in seatbelt non-use.

INTRODUCTION

Accidents (including motor vehicle injuries) have been the third leading cause of death for American Indians/Alaska Natives (AI/AN) since 1989, and the leading cause of death among AI/AN ages 1–44 years.¹ A report by the National Highway Traffic and Safety Administration (NHTSA) estimated that over 76% of the fatally injured occupants on tribal reservations were not wearing seatbelts at the time of the crash.² Seatbelt use is associated with a 45% decreased

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risk for motor vehicle related traffic fatality in light cars.^{3–5} The NHTSA recently estimated that the prevalence of seatbelt use on reservations with tribal law and traffic law enforcement was 55.4%, which was substantially lower than the national prevalence of 82%.⁶ However, the generalizability of these findings is limited given that more than half of the nation's 4.1 million AI/ANs do not live on reservations.⁷ Prior studies examining seatbelt use among AI/AN have also found that residence in urban versus rural areas as well as certain regions have higher prevalences than others, suggesting heterogeneity within Indian Country.^{6,8} For instance, seatbelt non-use among AI/AN between 1995 and 1998 has been found to vary from as low as 19.4% in the Pacific Coast region to as high as 53.8% in the Northern Plains region.⁸

Some of the variation in seatbelt use may be related to traffic laws and enforcement.^{9,10,12,13} Primary laws, which allow an officer to stop and ticket occupants solely because they are unrestrained, have been shown to increase seatbelt use by as much as 22%,¹⁰ and reduce fatality by as much as 7%.¹² Secondary laws, which permit a citation for lack of restraint use only if a motorist has been stopped for another reason, have been shown to increase seatbelt use as much as 11%.¹⁰ One NHTSA study showed that primary laws increase seatbelt use on reservations.⁶ However, enforcement of state primary and secondary laws on reservations cannot be assumed due to the sovereign status of tribes and their unique government-to-government relationship with the United States Federal government.

In view of excess traffic-related injury and death among AI/AN and the potential benefit of seatbelt use, the current study examined variation in seatbelt use among AI/AN and non-Hispanic Whites (NHW) using the latest round of nationally representative data. Specifically, variation in seatbelt use by region, degree of urbanization, state traffic laws, as well as change over time were examined. Based on previous studies, it was hypothesized that states without primary laws and those geographic areas that are more rural would have higher seatbelt non-use among AI/AN and NHW.

METHODS

Data Source and Survey Design

The Behavioral Risk Factor Surveillance System (BRFSS) monitors national prevalence of major health behaviors that are associated with premature morbidity and mortality among adults. The BRFSS is a state-based, continuous cross-sectional telephone survey administered by state health departments in collaboration with the Centers for Disease Control and Prevention (CDC). Random-digit-dialing methods are used to capture a representative sample of the civilian, non-institutionalized U.S. adult population (persons aged ≥ 18 years). The sampling frame includes residents on reservations, but information on reservation residency or tribal affiliation is not collected.¹⁴ Data from the 2002 BRFSS provide the most recent information on seatbelt use. To assess change over time, 2002 BRFSS data were compared to seatbelt use data collected in the 1997 BRFSS. Data were restricted to American Indian/Alaska Natives (n=4,310 for 2002, and n=1,758 for 1997) and non-Hispanic Whites (n=193,617 for 2002, and n=108,551 for 1997) aged 18 years and older.

Study Variables

Consistent with prior studies, seatbelt non-use was defined as not reporting “always” using a seatbelt in response to the question, “How often do you use seatbelts when you drive or ride in a car?” Racial classification was based on responses to the question, “Which one or more of the following would you say is your race?” Respondents who reported being American Indian/Alaska Native either solely or in combination with another race/ethnicity were categorized as American Indian/Alaska Native. Those who reported being White and answered “no” to the question, “Are you Hispanic or Latino?” were categorized as non-Hispanic White.

All 50 states were classified into regions. The Bureau of Indian Affairs (BIA) has designated 6 regions based on social and cultural factors of tribes within the 48 contiguous states.⁶ However, in the current study, California, Nevada, and Hawaii were combined with the “Northwest” region because of similarities in seatbelt use and laws in those states. Alaska was categorized as a separate region because of unique ethnic composition and patterns of seatbelt use and traffic laws. Thus, the regions using all 50 states were defined as follows: Alaska: AK; West: CA, HI, ID, NV, OR, WA; Southwest: AZ, CO, NM, UT; Northern Plains: MT, ND, SD, WY; South Central: AR, IA, KS, LA, MO, NE, OK, TX; Great Lakes: IL, IN, MI, MN, OH, WI; South & East: AL, CT, DC, DE, FL, GA, KY, MA, MD, ME, NC, NH, NJ, NY, PA, RI, SC, TN, VA, VT, WV.

Degree of urbanization was categorized using the United States Department of Agriculture (USDA) 2003 rural-urban continuum codes, which describe metropolitan and non-metropolitan counties by degree of urbanization and proximity to metro areas.¹⁵ Based on previous studies that utilized the rural-urban continuum codes in conjunction with the BRFSS, the 9 USDA categories were collapsed into the following 4 categories: 1) metro, 2) large urban, 3) small urban, 4) rural.¹⁶ All counties in metro areas were included in the first category. Large urban areas consisted of an urban population of 20,000 or more people, either adjacent or not adjacent to a metro area. Small urban areas were defined as having an urban population of 2,500 to 19,999 people, either adjacent or not adjacent to a metro area. Rural areas were those that were completely rural or had an urban population less than 2,500 people, either adjacent or not adjacent to a metro area. County codes were unavailable for Alaska.

Finally, states were classified according to passage of primary seatbelt laws, which allow an officer to stop and ticket occupants solely because they are unrestrained.¹⁰ Three categories were created: 1) states with primary laws passed before 1997, 2) states with primary laws passed between 1997 and 2002, and 3) states without primary laws prior to 2002 (note that other than New Hampshire, all states without primary laws prior to 2002 had secondary laws, allowing for ticketing for seatbelt non-use if a car is stopped for another offense).¹¹

Statistical Analyses

Overall prevalence of seatbelt non-use was calculated by age, gender, education, racial, and regional groups. Logistic regression models were used to examine factors associated with seatbelt use. In all models, seatbelt use was regressed on age, gender, education, race and region. Model 2 examined the additional effects of urbanization, and Model 3 took into account both primary laws and degree of urbanization. Note that the “missing” category in degree of urbanization represents those individuals (n=6320) missing county codes. In addition, interaction terms between race and region were tested while adjusting for age and gender. Five of the six race by region interaction terms were significant ($p < 0.05$) in a logistic regression model of seatbelt non-use, and therefore all models were stratified by race. All data analyses were weighted to reflect the respondent’s probability of selection and demographic distribution of the population. Analyses were completed using STATA Version 9.0 (Stata Corp, College Station, Texas, 2006).

RESULTS

Demographic characteristics of the 2002 sample are presented in Table 1. The AI/AN population was younger than the NHW population. In addition, the majority of AI/AN were male, as opposed to NHW (56.3% and 48.2%, respectively). While both groups had similar high school graduation rates, there were fewer college graduates among AI/AN compared to NHW (15.1% and 32.4%, respectively). The majority of AI/AN participants lived in the West or the South & East regions (26.7% and 28.9%, respectively), while the majority of NHW participants resided in the South & East or Great Lakes regions (44.6% and 20.1%,

respectively). Similar distributions of AI/AN and NHW lived in urban and rural areas. Finally, approximately two-thirds of AI/AN lived in states with primary seatbelt laws whereas a little under half of NHW lived in such states.

In Figure 1, the overall age and gender-adjusted prevalence estimates of seatbelt non-use were similar for AI/AN and NHW. However, racial disparities in seatbelt non-use varied substantially by region. AI/AN had significantly higher seatbelt non-use than NHW in the Northern Plains and Alaska, but significantly lower seatbelt non-use than NHW in the West. Figure 2 shows that residence in less urbanized areas was associated with higher reported seatbelt non-use for both AI/AN and NHW. Seatbelt non-use was significantly higher in rural AI compared to rural NHW.

Table 2 presents logistic regression models stratified by race. Younger adults were more likely to report seatbelt non-use than older adults. AI/AN men were 60% more likely than AI/AN women to report seatbelt non-use, and NHW men were nearly twice as likely than NHW women to report seatbelt non-use. In addition, those with a high school education or lower were more likely not to use a seatbelt when compared with college graduates.

For regional comparisons, the West was the reference group because it had the lowest prevalence of seatbelt non-use for both populations. As shown in Model 1 of Table 2, AI/AN in the Northern Plains were 12.4 times more likely to report seatbelt non-use compared to AI/AN in the West, while NHW in the Northern Plains were 4.8 times more likely to report seatbelt non-use than NHW in the West. Similarly, AI/AN in Alaska were 10.2 times more likely to report seatbelt non-use than AI/AN in the West, while NHW in Alaska were 2.7 times more likely to report seatbelt non-use than NHW in the reference group.

Degree of urbanization variables were entered into Model 2 of Table 2. In both AI/AN and NHW, the odds ratio for seatbelt non-use increased with decreasing urbanization, confirming the trend seen in Figure 2. Compared to Model 1, adjustment for degree of urbanization slightly attenuated the association of region with seatbelt non-use. Finally, Model 3 examines state seatbelt laws and degree of urbanization. AI/AN and NHW who resided in states without primary seatbelt laws were twice as likely not to wear a seatbelt, compared to those AI/AN and NHW in the reference group. Across models the adjustments for seatbelt laws and degree of urbanization reduced the strength of association between region and seatbelt non-use, but had little effect on the association of age, gender, and education with seatbelt non-use. This reduced effect of region was especially pronounced in AI/AN, wherein the risk of seatbelt non-use associated with residing in the Northern Plains and Alaska was reduced by approximately half.

In 1997, the overall age-gender adjusted prevalence estimates of seatbelt non-use in AI/AN and NHW were 24.7% and 25.9%, respectively. By 2002, these estimates decreased to 16.7% and 18.7%, respectively. As shown in Figure 3, AI/AN experienced a greater decline in seatbelt non-use when they resided in states with primary laws. Both AI/AN and NHW who lived in states with primary laws passed before 1997 had the lowest prevalence of the three law categories in 1997 and 2002. When a primary law was passed between 1997 and 2002, the racial disparity was no longer significant in 2002. In fact, seatbelt non-use declines for AI/AN and NHW were 55% and 43%, respectively. However, in states without primary laws, percent declines for both races were minimal. Both AI/AN and NHW living in states without primary laws experienced the highest seatbelt non-use prevalence of the three law categories in 2002, wherein AI/AN had significantly higher seatbelt non-use than NHW ($p=0.01$).

DISCUSSION

While overall prevalence of seatbelt non-use among AI/AN and NHW in 2002 was similar, seatbelt non-use varied significantly by region and degree of urbanization among AI/AN and NHW. Indeed, in 2002 AI/AN had higher seatbelt non-use prevalence than NHW in 5 out of 7 regions (Figure 1). Prevalence of seatbelt non-use in AI/AN was significantly higher compared to NHW in the Northern Plains and Alaska, but significantly lower in the West. Also, in rural areas, seatbelt non-use occurred more frequently among AI/AN than in NHW (Figure 2). Consistent with previous studies, residence in urban areas as well as in states with primary laws was strongly associated with better seatbelt use behavior (Table 2).^{6,9,10,12,13,17-21} AI/AN and NHW residing in states without primary laws were nearly twice as likely not to use seatbelts as those persons living in states with primary laws (Table 2). Further, prevalence of seatbelt non-use declined more sharply among AI/AN than NHW living in states that passed primary traffic laws between 1997 and 2002 (Figure 3). For example, in the West seatbelt non-use was reduced substantially by 61% for AI/AN and 29% for NHW between 1997 and 2002 (results not shown). This change may be attributed to the fact that two-thirds of the states in the West have primary laws.

AI/AN as a whole responded more positively than NHW to the passage of primary laws (Figure 3). Yet, residence in a primary or secondary law state may not necessarily translate into the same seatbelt use behavior in AI/AN living on reservations compared to urban AI/AN. Indeed, rural AI/AN in Figure 2 reported significantly less seatbelt use than rural NHW and urban AI/AN. This may be due to jurisdictional divisions among tribal, federal and state law enforcement agencies that complicate law enforcement in Indian Country. For example, state authority in tribal reservations may exist under federal legislation known as Public Law 280 (PL-280), which shifted federal criminal jurisdiction over offenses involving Indians in Indian Country to certain states, and gave other states an option to assume jurisdiction in the future.²² However, tribes have voiced concerns regarding a reduction of federal funding due to PL-280 and infringement on tribal sovereignty.²² Further, there are fewer law enforcement officers in Indian Country than in other rural areas, and significantly fewer per capita than nationwide.²³ Per capita spending on law enforcement in AI/AN communities is roughly 60 percent of the national average.^{23,24} Thus, the complex and under-funded law enforcement arrangements on reservations may further explain the observed racial and regional disparities.

Considering that seatbelt use reduces risk of motor vehicle fatality, the current study result on urban-rural differences in seatbelt use was consistent with previous urban-rural findings regarding motor vehicle fatality. One study of an elderly population found that motor vehicle fatality rates are inversely related to population density.¹⁹ Other studies have also shown rural AI/AN were more likely to not wear a seatbelt, become injured, and die compared to urban AI/AN.^{20,21} This might reflect limited traffic law enforcement and the underdeveloped Indian Reservation Road system that primarily contains unimproved earth and gravel roads.²⁵ Despite urban AI/AN appearing to do better in motor vehicle fatality than rural AI/AN, one study found that mortality from unintentional injuries in counties served by urban Indian health organizations is still significantly higher in urban AI/AN compared to the general population in those areas.²⁵ In contrast, seatbelt use in the current study for urban AI/AN was significantly better than NHW in urban areas (Figure 2).

Perceptions of differential law enforcement may further explain racial differences in seatbelt use in urban and rural areas. In exploratory analyses not reported in the results, AI/AN residing in urban areas of primary law states had better seatbelt use than NHW, while in rural areas of primary law states, AI/AN reported less seatbelt use than NHW. This pattern suggests that enforcement problems in rural areas exist for AI/AN. In states with secondary laws, AI/AN were less likely to report seatbelt use than NHW in both urban and rural areas. These findings

are consistent with other studies that show in areas with primary laws there were practically no differences in belt use by race, but in areas with secondary laws African Americans were less likely to wear seatbelts compared to Hispanics and Whites.^{27,28} Similarly, in a study that examined states that have switched from secondary to primary laws, seatbelt use increased more among minorities than non-minorities.²⁹ In fact, in the current study, AI/AN seatbelt use increased more in AI/AN than in NHW when primary laws were passed (Figure 3). Another study suggested that these results may be driven by perceptions of differential law enforcement among minorities, wherein minorities more than others felt that enforcement was strict and that they would be stopped and ticketed.²⁹ Our results support the need for education campaigns that target racial/ethnic minorities, especially in rural areas, and promote the safety benefits of seatbelt use.³⁰

A limitation of the current study was the self-report of seatbelt use. One study that compared self-reported seatbelt use to observed seatbelt use, with the drivers unaware of the observation, found that Hispanic and non-Hispanic drivers over-reported seatbelt use by 27% and 21%, respectively.³¹ Since over-reporting was greater in Hispanics, there was concern that response bias is greater than suggested in populations with already low seatbelt use. It is therefore possible that seatbelt non-use in this study was underestimated in AI/AN. Another limitation was not being able to identify residence on reservations. However, compared to other studies that were limited to reservations, analysis of self-reported data from the 1997 and 2002 BRFSS permitted estimation of seatbelt non-use prevalence on a nationally representative sample of AI/AN and NHW adults residing in all 50 states. This inclusive sample facilitated investigation of geographic variation of seatbelt use, and evaluation of the effect of seatbelt laws on seatbelt use over time. In light of these findings, targeted interventions to promote seatbelt use and primary seatbelt law enforcement might further reduce mortality related to motor vehicle accidents in AI/AN and NHW.

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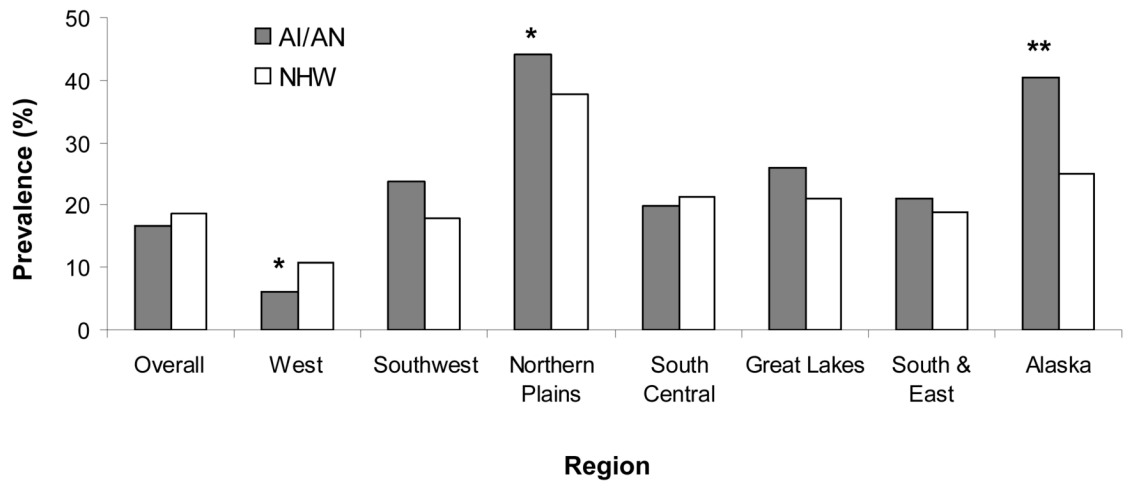


Figure 1.

Age and gender-adjusted regional and racial comparison of seatbelt non-use, BRFSS 2002

* $p < 0.05$, AI/AN compared to NHW

** $p < 0.01$, AI/AN compared to NHW

AI/AN, American Indians/Alaskan Natives; NHW, non-Hispanic white

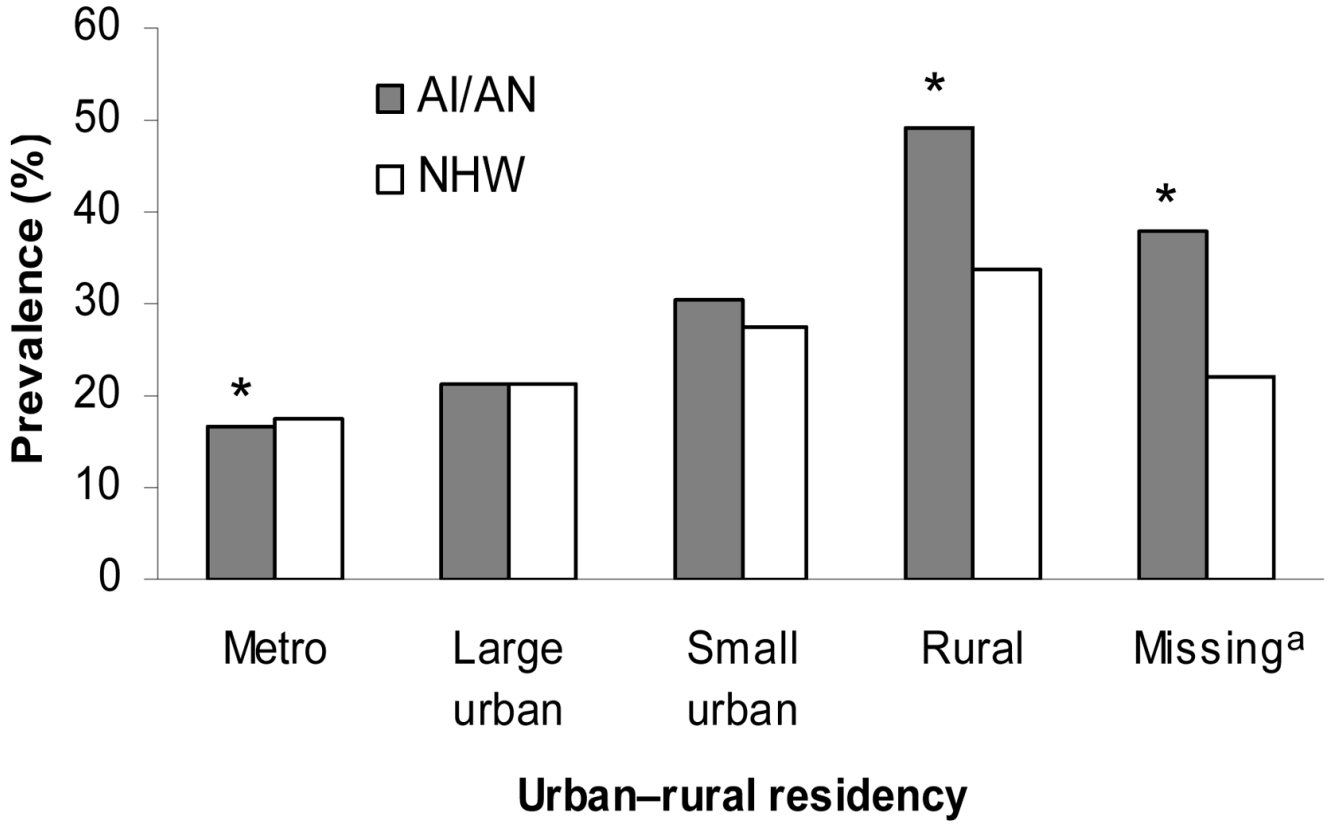


Figure 2. Age and gender-adjusted urban-rural and racial comparison of seatbelt non-use, BRFSS 2002
^a Includes all participants in Alaska that did not collect county codes, which are used to determine urban-rural residency
* $p < 0.05$, AI/AN compared to NHW

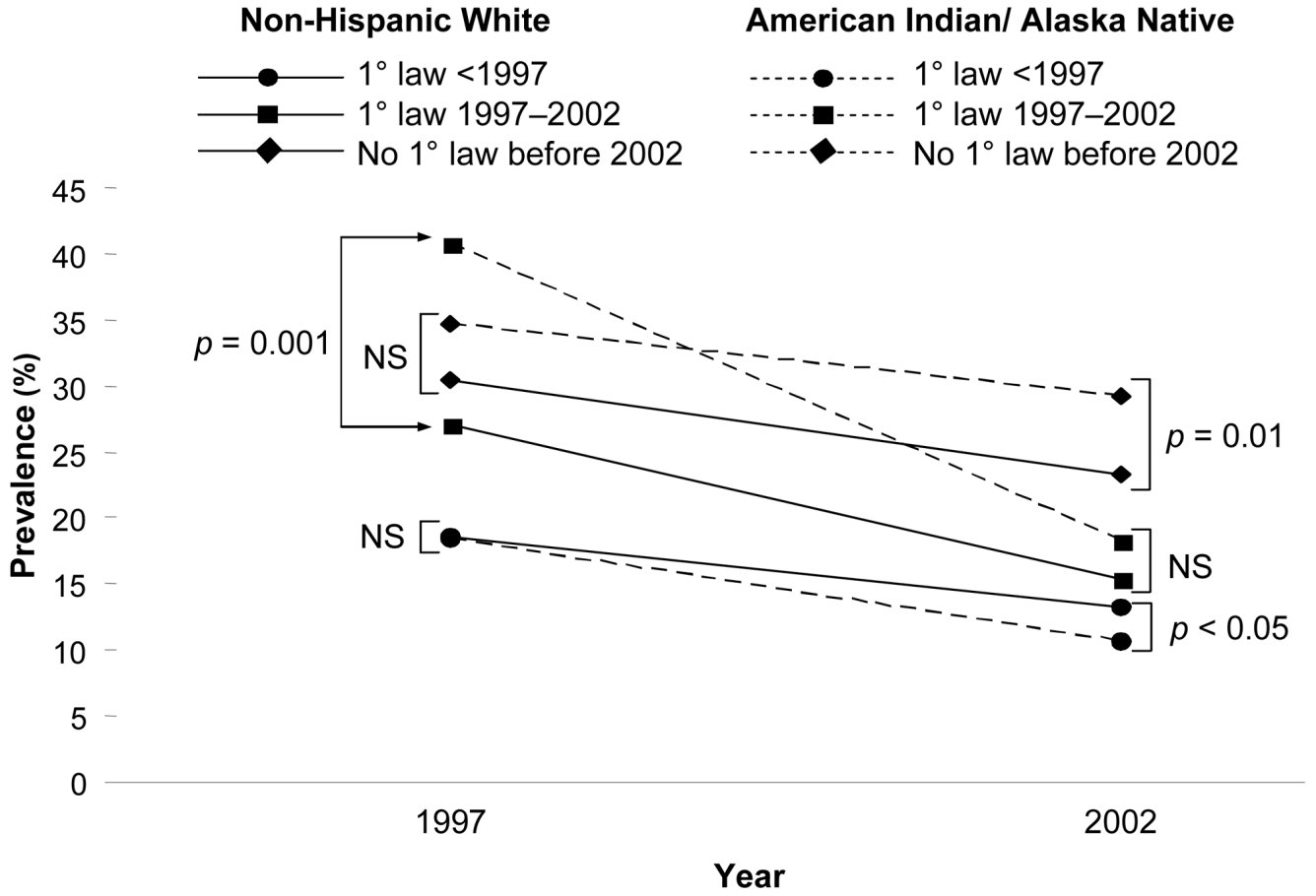


Figure 3. Age and gender-adjusted prevalence of seatbelt non-use by race and primary traffic law in 1997 and 2002
NS, not significant

Table 1
Demographic and regional characteristics (%) of the study sample, BRFSS 2002

| | American Indian/Alaska Native (<i>n</i> = 4310) | Non-Hispanic white (<i>n</i> = 193,617) |
|------------------------------|--|--|
| Age | | |
| 18–34 | 39.3 | 27.7 |
| 35–44 | 21.1 | 20.4 |
| 45–54 | 18.8 | 19.1 |
| 55–64 | 10.9 | 13.6 |
| ≥65 | 9.9 | 19.2 |
| Gender | | |
| Men | 56.4 | 48.1 |
| Women | 43.6 | 51.9 |
| Education | | |
| < 12 years | 22.6 | 8.3 |
| High school graduate | 34.8 | 31.2 |
| Some college | 27.5 | 28.1 |
| College graduate | 15.1 | 32.4 |
| Region^a | | |
| West | 26.9 | 13.8 |
| Southwest | 9.0 | 5.0 |
| Northern Plains | 2.6 | 1.3 |
| South Central | 20.1 | 15.0 |
| Great Lakes | 10.7 | 20.1 |
| South & East | 28.8 | 44.6 |
| Alaska | 1.8 | 0.2 |
| Seatbelt Law | | |
| 1° law before 1997 | 46.9 | 31.7 |
| 1° law 1997–002 | 17.0 | 16.3 |
| No 1° law before 2002 | 36.1 | 52.0 |
| Urban-rural residency | | |
| Metro | 71.5 | 76.9 |
| Large urban | 10.2 | 8.7 |
| Small urban | 12.1 | 10.5 |
| Rural | 2.8 | 2.5 |
| Missing ^b | 3.4 | 1.4 |

^a Alaska: AK; West: CA, HI, ID, NV, OR, WA; Southwest: AZ, CO, NM, UT; Northern Plains: MT, ND, SD, WY; South Central: AR, IA, KS, LA, MO, NE, OK, TX; Great Lakes: IL, IN, MI, MN, OH, WI; South & East: AL, DE, CT, DC, FL, GA, KY, ME, MD, MA, NH, NJ, NC, NY, PA, RI, SC, TN, VT, VA, WV

^b Includes all participants in Alaska, which did not collect county codes that are used to determine urban-rural residency

Table 2
Odds ratios for seatbelt non-use according to demographic characteristics and seatbelt laws

| | American Indian/Alaska Native (<i>n</i> = 4310) | | | Non-Hispanic white (<i>n</i> = 193,617) | | |
|-------------------------------|--|---------------------|---------------------|--|---------------------|---------------------|
| | Model 1 OR (95% CI) | Model 2 OR (95% CI) | Model 3 OR (95% CI) | Model 1 OR (95% CI) | Model 2 OR (95% CI) | Model 3 OR (95% CI) |
| Age | | | | | | |
| 18-4 | 1.6 (1.0-2.6) | 1.7 (1.1-2.7) | 1.8 (1.1-2.8) | 1.4 (1.3-1.5) | 1.4 (1.3-1.5) | 1.4 (1.4-1.5) |
| 35-4 | 1.1 (0.7-1.9) | 1.1 (0.7-1.9) | 1.2 (0.7-1.9) | 1.1 (1.1-1.2) | 1.1 (1.1-1.2) | 1.2 (1.1-1.2) |
| 45-4 | 0.8 (0.5-1.3) | 0.8 (0.5-1.3) | 0.8 (0.5-1.3) | 1.0 (0.9-1.1) | 1.0 (1.0-1.1) | 1.0 (1.0-1.1) |
| 55-4 ^d | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| ≥65 | 0.9 (0.5-1.7) | 0.8 (0.4-1.7) | 0.9 (0.4-1.7) | 0.8 (0.7-0.8) | 0.8 (0.7-0.8) | 0.8 (0.7-0.8) |
| Gender | | | | | | |
| Men | 1.6 (1.2-2.1) | 1.6 (1.2-2.1) | 1.6 (1.2-2.1) | 2.1 (2.1-2.2) | 2.1 (2.1-2.2) | 2.2 (2.1-2.2) |
| Women ^a | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Education | | | | | | |
| < 12 years | 1.6 (1.0-2.6) | 1.7 (1.1-2.8) | 1.7 (1.0-2.7) | 2.4 (2.2-2.5) | 2.2 (2.0-2.4) | 2.2 (2.0-2.3) |
| High school graduate | 1.8 (1.2-2.7) | 1.8 (1.2-2.7) | 1.7 (1.1-2.6) | 1.8 (1.8-1.9) | 1.8 (1.7-1.8) | 1.7 (1.6-1.8) |
| Some college | 1.3 (0.8-2.0) | 1.3 (0.8-2.1) | 1.3 (0.8-2.1) | 1.5 (1.4-1.5) | 1.4 (1.4-1.5) | 1.4 (1.3-1.5) |
| College graduate ^d | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Region | | | | | | |
| West ^d | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Southwest | 4.9 (2.5-9.8) | 4.5 (2.3-9.1) | 3.0 (1.5-6.1) | 1.8 (1.6-2.1) | 1.8 (1.6-2.0) | 1.2 (1.0-1.3) |
| Northern Plains | 12.4 (6.5-23.7) | 7.6 (3.8-15.2) | 4.0 (1.9-8.6) | 4.8 (4.4-5.4) | 4.0 (3.6-4.4) | 2.5 (2.2-2.7) |
| South Central | 3.8 (2.0-7.4) | 3.4 (1.8-6.8) | 2.9 (1.5-5.9) | 2.2 (1.9-2.4) | 2.0 (1.8-2.2) | 1.7 (1.6-1.9) |
| Great Lakes | 5.5 (2.7-11.2) | 5.0 (2.5-10.0) | 3.0 (1.4-6.4) | 2.1 (1.9-2.3) | 2.0 (1.8-2.2) | 1.4 (1.3-1.6) |
| South & East | 4.3 (2.2-8.5) | 4.2 (2.1-8.2) | 3.0 (1.4-6.2) | 1.8 (1.7-2.0) | 1.8 (1.6-2.0) | 1.4 (1.2-1.5) |
| Alaska | 10.2 (5.3-19.7) | 8.2 (2.4-27.9) | 4.8 (1.3-17.3) | 2.7 (2.3-3.2) | 2.5 (1.9-3.2) | 1.6 (1.2-2.0) |
| Urban-Rural | | | | | | |
| Metro ^d | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Large urban | | 1.2 (0.8-1.9) | 1.3 (0.9-2.0) | | 1.2 (1.1-1.3) | 1.2 (1.1-1.3) |
| Small urban | | 1.6 (1.1-2.2) | 1.5 (1.1-2.1) | | 1.5 (1.4-1.6) | 1.4 (1.4-1.5) |
| Rural | | 2.6 (1.5-4.4) | 2.6 (1.5-4.4) | | 1.7 (1.6-1.9) | 1.6 (1.5-1.7) |
| Missing ^d | | 1.3 (0.5-3.7) | 1.2 (0.4-3.5) | | 1.1 (1.0-1.3) | 1.1 (0.9-1.3) |

| | American Indian/Alaska Native (<i>n</i> = 4310) | | | Non-Hispanic white (<i>n</i> = 193,617) | | |
|----------------------------------|--|---------------------|---------------------|--|---------------------|---------------------|
| | Model 1 OR (95% CI) | Model 2 OR (95% CI) | Model 3 OR (95% CI) | Model 1 OR (95% CI) | Model 2 OR (95% CI) | Model 3 OR (95% CI) |
| Seatbelt law | | | | | | |
| 1° law before 997 ^{a,b} | | | 1.0 | | | 1.0 |
| 1° law 1997–002 | | | 1.4 (0.8–2.2) | | | 1.1 (1.1–1.2) |
| No 1° law before 2002 | | | 2.1 (1.4–2.3) | | | 1.8 (1.7–1.9) |

^aReference group

^bCA, CT, GA, HI, IA, LA, NC, NM, NY, OR, TX

^cAL, DC, IN, MD, MI, NJ, OK, WA

^dIncludes all participants in Alaska, which did not collect county codes that are used to determine urban-rural residency