



Full length article

## Patterns and correlates of purchasing cigarettes on Indian reservations among daily smokers in the United States

Julia N. Soulakova\*, Richard Pack, Trung Ha

Burnett School of Biomedical Sciences, College of Medicine, University of Central Florida, 6900 Lake Nona Blvd., Orlando, FL, 32827, USA

## ARTICLE INFO

## Keywords:

Complex sampling  
National survey  
Racial/ethnic health disparities  
Smoking behaviors

## ABSTRACT

**Introduction:** We described the population of daily smokers purchasing cigarettes on Indian reservations (IRs), estimated the rates of cigarette purchasing on IRs for diverse populations of daily smokers in the U.S., and assessed the trends in the period from 2010–11 to 2014–15.

**Methods:** We used the 2010–11 and 2014–15 Tobacco Use Supplement to the Current Population Survey data for adult daily smokers as well as additional information, e.g., state excise tax on tobacco ( $n = 33,871$ ).

**Results:** Daily smokers who purchased cigarettes on IRs were primarily 45+ years old, non-Hispanic (NH) White, resided in a state with an IR, paid less than \$4.50 per pack, and purchased cigarettes in the state of their residency. The majority of purchases on IRs were made in New York (28%), Oklahoma (14%), Washington (10%), Arizona (9%), and Florida (6%). The rate of purchasing cigarettes on IRs decreased from 4% in 2010–11 to 3% in 2014–15 ( $p = 0.012$ ). The rates were higher for females than males ( $OR = 1.23$ ,  $CI = 1.09:1.40$ ) and heavy than non-heavy smokers ( $OR = 1.35$ ,  $CI = 1.17:1.55$ ). Higher state excise tax on tobacco, on average, was associated with purchasing cigarettes on IRs.

**Conclusions:** The rate of purchasing cigarettes on IRs is relatively low and has decreased in recent years. However, the rates differ across sociodemographic factors of daily smokers, including the state of residency and purchase. Purchasing cigarettes on IRs at lower prices can affect smokers' intentions to quit and can reduce federal and state efforts toward a tobacco-free nation.

### 1. Introduction

Historically, commercial tobacco has been a source of income for American Indian/Alaska Native (AIAN) tribes (Kwok, 2014). Because AIAN tribes have semi-sovereignty and are outside the jurisdiction of the states in which they are located, the states cannot regulate tobacco sales on tribal lands (DeCicca et al., 2015). However, the states do have the authority to collect taxes on tribal tobacco sales to non-tribal members (DeLong et al., 2016; DeCicca et al., 2015). To resolve tax issues, some states and AIAN tribes have negotiated inter-governmental agreements, so-called “tribal compacts”, outlining tax collection mechanisms such as revenue allocation formulas (DeLong et al., 2016). Nonetheless, because states have taken different approaches toward taxing tribal tobacco sales, and AIAN tribes have negotiated different terms, there is considerable heterogeneity across the states, e.g., some states do not collect any taxes, while some states collect the state excise tax on tobacco (DeCicca et al., 2015). Specifically, among 34 states with federally recognized AIAN areas in 2015, only 20 states had tribal compacts or codified laws addressing the issue of tax enforcement of

tobacco sales on tribal lands (DeLong et al., 2016).

Increases in cigarette prices and taxes on tobacco are among the most effective means of reducing tobacco use (Chaloupka et al., 2011; Hill et al., 2014). On the other hand, tobacco sales have been a source of income for AIAN tribes. Thus, increased cigarette prices and decreased tobacco sales lead to lost revenue and increased financial burden for AIAN tribes (Kwok, 2014). For this reason, AIAN tribes, and primarily Indian reservations (IRs), often sell lower-priced cigarettes to non-tribal members (DeCicca et al., 2015; National Research Council, 2015; Stehr, 2005; Wang et al., 2017). Specifically, the majority of reported cigarette purchases made on IRs were made by non-Hispanic (NH) White smokers (Golden et al., 2016; Wang et al., 2017) rather than NH AIAN smokers.

Availability of cheaper cigarettes in IRs for tribal members does not fully eliminate disparities in cigarette purchasing prices for NH AIAN and other racial/ethnic groups. While NH AIAN and NH White smokers purchase cigarettes, on average, at a lower price relative to other smokers, NH AIAN smokers pay about 38 cents more per pack than NH White smokers (Golden et al., 2016). Moreover, only about 30% of NH

\* Corresponding author.

E-mail address: [Julia.soulakova@ucf.edu](mailto:Julia.soulakova@ucf.edu) (J.N. Soulakova).<https://doi.org/10.1016/j.drugalcdep.2018.07.036>

Received 12 April 2018; Received in revised form 13 July 2018; Accepted 24 July 2018

Available online 13 September 2018

0376-8716/ © 2018 The Author(s). Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license

<http://creativecommons.org/licenses/by-nc-nd/4.0/>.

AIAN smokers who last purchased their cigarettes made these purchases on IRs (Golden et al., 2016). This low rate indicates that the majority of NH AIAN smokers do not take advantage of low-priced cigarettes sold in IRs and buy cigarettes elsewhere (Golden et al., 2016).

Previous studies estimated that purchasing cigarettes on IRs is associated with average price savings of \$1.54 per pack when compared to purchasing cigarettes off IRs (Golden et al., 2016). In addition, among non-AIAN smokers, the 2010–11 prevalence of purchasing cigarettes in IRs was estimated at 4% (Wang et al., 2017). However, the populations of smokers who take advantage of low-priced cigarettes sold in IRs have not been fully described in the literature. To fill this gap in current knowledge we (1) described the population of daily smokers purchasing cigarettes in IRs in terms of smokers' sociodemographic characteristics and cigarette purchase attributes, (2) estimated the rate of cigarette purchasing in IRs among diverse populations of daily smokers in the U.S., as well as the rate trajectory in the period from 2010–11 to 2014–15, and (3) identified the key characteristics of daily smokers associated with purchasing cigarettes in IRs.

## 2. Methods

### 2.1. Data and measures

We used the 2010–11 and 2014–15 Tobacco Use Supplement to the Current Population Survey (TUS-CPS), a national survey of tobacco use in the U.S. (US Department of Commerce, Census Bureau, 2016). The overall cohort (n = 33,871) consisted of the 2010–11 (n = 18,991) and 2014–15 (n = 14,880) cohorts. The cohort consisted of adults (18+ years old) who self-identified as daily cigarette smokers at the time of the assessment, reported buying their own cigarettes, and provided information regarding their last cigarette purchase. The interviews were done either in-person (46.5%) or by phone (53.5%). Sociodemographic characteristics of daily smokers are depicted in Table 1.

In addition to the sociodemographic characteristics depicted in Table 1, the survey mode (phone, in-person), and the period (2010–11, 2014–15), we considered the following measures:

#### 2.1.1. Heavy smoking status

Heavy smokers (40.8%) were defined as smoking 20 or more cigarettes per day (on average) and non-heavy smokers (59.2%) as smokers who smoke less than 20 cigarettes per day (on average).

#### 2.1.2. Price per pack measure

Price was categorized as \$0.00–\$4.49 (29.7%), \$4.50–\$5.99 (39.7%), and \$6.00–\$20.99 (30.6%). Prices reported for the last purchased pack or carton were converted to the (average) price per pack; price per pack of \$21 or higher was treated as an outlier and was not included in the definition.

#### 2.1.3. Indicator of residing in a state with an IR

Residing in a state with an IR (77.0%) and residing in a state with no IR (23.0%) was defined using multiple external sources of federally and state recognized IRs and AIAN tribes (National Conference of State Legislatures, List of Federal and State Recognized Tribes, 2018). Arkansas, District of Columbia, Hawaii, Illinois, Kentucky, Missouri, New Hampshire, Ohio, Pennsylvania, Tennessee, and West Virginia were identified as states with no IRs; the other states were identified as states with an IR.

#### 2.1.4. Indicator of purchasing cigarettes in the state of residency

Purchasing cigarettes in the state of residency (97.8%) and purchasing cigarettes in another state (2.2%) was also measured. The indicator was defined using responses to the survey item, "Did you buy your last pack (carton) of cigarettes in your state of residency or some other state?"

**Table 1**  
Sociodemographic Characteristics of Daily Smokers in the U.S. in 2010–11 and 2014–15.

Characteristics	Sample Count	Percent (%) Based on Population Counts
<b>Age</b>		
18–24	2,490	12.0
25–44	12,990	38.4
45+	18,391	49.6
<b>Sex</b>		
Male	16,651	53.5
Female	17,220	46.5
<b>Race/Ethnicity</b>		
Non-Hispanic (NH) White	26,859	75.6
NH Black/African American	3,234	11.3
NH American Indian/Alaska Native	561	1.0
NH Asian, NH Hawaiian /Pacific Islander	686	2.3
NH Multiracial	625	1.8
Hispanic	1,906	7.9
<b>Marital Status</b>		
Married (spouse present or absent)	13,720	38.9
Widowed, divorced, or separated	10,922	29.7
Never married	9,229	31.4
<b>Education</b>		
Less than High school	5,635	17.5
High school (or equivalent)	14,130	41.3
Some college or a Bachelor's Degree	13,312	39.0
Graduate degree or equivalent	794	2.2
<b>Employment Status</b>		
Employed (at work or absent)	19,747	59.1
Unemployed	2,989	9.9
Not in labor force	11,135	31.0
<b>Region of Residency</b>		
Northeast	5,745	16.3
Midwest	9,072	26.0
South	12,525	41.6
West	6,529	16.2
<b>Metropolitan Area of Residency</b>		
Metropolitan area	24,310	79.2
Non-metropolitan area	9,561	20.8
Total (Population Count is 22,873,620)	33,871	100.0

#### 2.1.5. State excise tax on tobacco (in the state where the cigarettes were purchased)

State excise tax was recorded for each subject using his/her state of purchase in addition to information on state excise tax amount. 2010 tax amount was used for 2010–11 purchases, and 2014 tax amount was used for 2014–15 purchases (Centers for Disease Control and Prevention, 2018). In 2010, the average state excise tax was \$1.36 (SE = \$0.86), ranging from \$0.07 in South Carolina to \$3.46 in Rhode Island, and in 2014, the average state excise tax was \$3.04 (SE = \$1.04), ranging from \$0.17 in Missouri to \$4.35 in New York (Centers for Disease Control and Prevention, 2018). In our cohort, the average state excise tax on tobacco was \$1.25 (SE = \$0.01) for 2010–11 and \$1.43 (SE = \$0.01) for 2014–15 cigarette purchases.

#### 2.1.6. Indicator of purchasing cigarettes on an IR (yes, no; primary measure)

If a respondent reported purchasing cigarettes in his/her state of residency or some other state (including DC), then he/she was asked, "Did you buy your last pack (carton) of cigarettes from an IR?" If the respondent indicated buying cigarettes some other way (e.g., on the internet), then he/she was asked to clarify how/where the purchase was made, including whether it was made in an IR.

Download English Version:

<https://daneshyari.com/en/article/10147211>

Download Persian Version:

<https://daneshyari.com/article/10147211>

[Daneshyari.com](https://daneshyari.com)