Short Communication

Characteristics of American Indian light smokers

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ARTICLE INFO

ABSTRACT

Introduction: American Indians (AI) have the highest smoking rates of any racial/ethnic group in the U.S. and have more difficulty quitting smoking. Little is known about the smoking characteristics of AI smokers. The present study compared the demographic and smoking characteristics of light (≤ 10 cigarettes per day; N = 206) and moderate/heavy (11+ cigarettes per day; N = 86) AI smokers participating in a cross-sectional survey about smoking and health.
Methods: Multiple methods were used to recruit participants in attendance at powwows, health and career fairs, and conferences. A total of 998 AI (76% cooperation rate) completed a survey assessing general health, sociodemographics, traditional and commercial tobacco use, knowledge and attitudes related to cancer, source of health information and care and other health-related behaviors.
Results: AI light smokers were younger and less likely to be married or living with a partner compared to moderate/heavy smokers. AI light smokers were less dependent on smoking and more likely to have home smoking restrictions. There were no differences with respect to number of quit attempts in the past year or the average length of their most recent quit attempt by light vs. moderate/heavy smoking. In addition, a similar proportion of light and heavy smokers reported using tobacco for traditional purposes such as ceremonial, spiritual and prayer.
Conclusions: These findings highlight important differences between AI light and heavier smokers. Differences related to smoking characteristics such as level of dependence and home smoking restrictions have important implications for the treatment of AI smokers.

1. Introduction

American Indians (AI) have the highest smoking rates of any racial/ethnic group in the U.S. and have more difficulty quitting smoking (Choi et al., 2006; Cox, Okuyemi, Choi, & Ahluwalia, 2011; Gohdes et al., 2002). Approximately 33% of AI adults were current smokers, compared with 22.5% White adults and 20.6% African American adults (Barnes, Adams, & Powell-Griner, 2010). While smoking prevalence across most racial/ethnic groups has declined, this has not been the case in some AI populations, where rates vary across regions and tribal communities. Smoking among AI females increased in 2002, from 34.1% in 1980 to 40.9% (NHIS 2002). High rates of smoking contribute to higher mortality rates from cardiovascular disease, hypertension, lung cancer and other chronic conditions (Barnes et al., 2010; Burgess et al., 2007).

In 2000, 70% of AI smokers indicated a desire to quit; 41% of these attempted to quit and 5% succeeded. Among AI who had ever smoked, 41% reported successfully quitting, compared with 51% of Whites (Barnes et al., 2010; Choi et al., 2006). Barriers to cessation include lack of access to health care, nicotine replacement therapy and pharmacotherapy, and a lack of culturally appropriate programs (Burgess et al., 2007; Choi et al., 2006; Denny, Holtzman, Goins, & Croft, 2005). Psychological disorders and a higher risk for traumatic events within this population hinder cessation and contribute to smoking and relapse (Burgess et al., 2007; Hodge et al., 1995; Manson, Beals, Klein, & Croy, 2005). Finally, tobacco is used traditionally among some AI (Choi et al., 2006; Daley et al., 2011; Nez Henderson, Jacobsen, & Beals, 2005) and traditional use may have a protective effect (Daley et al., 2011).

Research and public health interventions generally aim to reduce smoking in moderate/heavy smokers, those who smoke more than 10 cigarettes daily. Theoretical models are based on what is known about the addiction process and cessation in these smokers. Far less is known about smoking patterns and cessation in light smokers (Fagan & Rigotti, 2009; Schane, Ling, & Glantz, 2010; Shiffman, 2009; Trinidad et al., 2009). There is little consensus as to what constitutes a "light"

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smoker, including lack of clarity on frequency, physiological addiction, and behavioral patterns. Light smokers may use fewer than 20, 15 or 10 cigarettes per day, and may do so intermittently (Schane et al., 2010; Shiffman, 2009; Shiffman & Paty, 2006). We define light smokers as those who smoke ≤10 cigarettes per day, as this is the most commonly accepted definition.

Incidence of light smoking is increasing, while regular use has declined due to public health interventions to aid cessation and increase awareness, as well as policy measures, such as smoking bans, indoor air quality laws, and taxation. (Fagan & Rigotti, 2009; Schane et al., 2010). Concurrent increase in light smoking is cause for concern. One-fifth to one-half of U.S. smokers are light or intermittent smokers (LITS) (Fagan & Rigotti, 2009; Shiffman, 2009). Studies indicate that minority racial/ethnic groups, including AI, are more likely to be light smokers, (Fagan & Rigotti, 2009; Shiffman, 2009; Trinidad et al., 2009) who consistently experience the most disparate rates of smoking related diseases. Because the Surgeon General has determined that there is no safe level of tobacco smoke exposure (USDHHS, 2006), there is a significant need to understand light smokers' patterns to aid cessation efforts. We seek to characterize the differences between AI light versus moderate/heavy smokers to understand better ways to target cessation efforts.

2. Methods

2.1. Study participants

Because there is no comprehensive list of AI residents in Kansas or the Midwest region, we used multiple recruitment methods. Participants were recruited by AI research assistants via pow-wows (N = 207), focus groups (N = 211), health fairs (N = 124), career fairs and conferences (N = 275), and other AI events or through referrals (N = 181). This convenience sample potentially created a non-representative sample with respect to socio-demographic characteristics. We recruited 998 AI from May 2008 to December 2009. The cooperation rate, calculated as the percent who agreed to the survey of all those who were approached, was approximately 76% (998 out of 1313 approached) across all recruitment methods. After providing written and verbal consent, participants completed a 20-minute self-administered survey related to health behaviors and knowledge. Participants received a $10 gift card for their time and participation.

Eligible participants included men and women who self-identified as AI (only or in part) and were at least 18 years of age. The survey included questions about general health, demographics, traditional and commercial tobacco use, knowledge and attitudes related to cancer, use of the Internet, sources of health information and health care and other health-related behaviors. This study was approved by the Institutional Review Board of the University of Kansas Medical Center.

2.2. Measures

2.2.1. Smoking status

Current smokers (those who reported smoking "every day" or "some days") were asked: "On average, how many cigarettes do you now smoke in one day?" Those who answered 10 cigarettes or less per day were classified as light smokers and those smoking more than 10 as moderate/heavy smokers.

2.2.2. Traditional use of tobacco

We asked the following questions to ascertain information related to traditional use of tobacco for all participants: 1) "Do you use tobacco for traditional purposes, such as ceremonial, spiritual, or prayer, etc.?" (Response options were Yes/No), 2) "When using tobacco for traditional purposes, how do you use it?"(Response options were: 'check all that apply' Smoke cigarettes, Smoke a pipe, Smudge, Offering or prayer, Gift, Other).

2.2.3. Quitting history

To estimate the smoking relapse curve for current smokers, participants were asked the following questions related to quitting history: 1) "Are you seriously thinking about quitting in the next 30 days?", 2) "In the last 12 months, how many times have you tried to quit smoking for at least one day?" and 3) "On your last quit attempt, how many days did you quit for?"

2.3. Data analysis

Discrete variables are described using frequency and percentage. Means and standard deviations (SD) are used to describe continuous variables. Parametric tests were used for comparisons among groups: Chi-square test in the case of categorical variables and the t-test in the case of continuous variables. The relapse curve was generated using the Kaplan–Meier method and the log-rank test was employed to compare the curves for groups of interest. Statistically significant associations and differences were identified by p-values of less than 0.05. All analyses were conducted using SAS version 9.2 (copyright 2002–2008 by SAS Institute Inc., Cary, NC, USA).

3. Results

Table 1 shows the demographic distribution and smoking characteristics of current smokers. Of the 998 participants, 292 (29.3%) were current smokers. The mean age of smokers was 33.5 years and approximately 57% were females. Current smokers reported smoking an average of 10 cigarettes per day. Seventy one percent of the current smokers smoked 10 cigarettes or less per day and were classified as light smokers. Fewer than 36% of the smokers smoked their first cigarette within 30 min of waking and 55% had home smoking restrictions. The mean number of days for most recent quit attempt was 46 days with an average of 3 quit attempts during the past 12 months. Most smokers (74%) reported using traditional tobacco, and of those who used traditional tobacco, 74% used traditional tobacco in a form that involved smoking it.

Table 2 compares light and moderate/heavy smokers and shows differences between the two. A higher proportion of moderate/heavy smokers smoke their first cigarette within 30 min of waking compared to light smokers. Though 73% of moderate/heavy smokers had children at home, only 38% had home smoking restrictions. Almost 44% of moderate/heavy smokers were married or living with a partner compared to only 27% of light smokers.

Fig. 1 shows the duration of most recent quit attempt for all current smokers by level of tobacco use. Though not statistically significant ($p = 0.26$), on average light smokers had similar abstinence rates (mean of 46 +/− 162 days) compared to moderate/heavy smokers (mean of 45 +/− 276 days).

A stepwise logistic model showed that smoking within the first 30 min of waking is the strongest predictor of being a moderate to heavy smoker with an odds ratio of 13.7 (95% CI 7.1–26.6).

4. Discussion

In this descriptive cross-sectional study of AI smokers, light smokers were younger, less likely to be married or have a partner, more likely to have a complete smoking ban at home, and less likely to smoke within 30 min of waking. Factors that were not significantly different between light and moderate/heavy smokers were number of quit attempts in the past year, use of traditional tobacco, and length of most recent quit attempt. Approximately 70% of current smokers reported being "light smokers," smoking 10 or less cigarettes per day.

There are too few smoking cessation interventions for this underserved population which has the highest smoking prevalence of any racial/ethnic group and most interventions have focused on daily and heavier smokers. However, an increasing percentage of current smokers