Drug and Alcohol Dependence 130 (2013) 115–121

Contents lists available at SciVerse ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

Correlates of smoking among young adults: The role of lifestyle, attitudes/beliefs, demographics, and exposure to anti-tobacco media messaging

Noella A. Dietz[a,*], David F. Sly[b], David J. Lee[a], Kristopher L. Arheart[c], Laura A. McClure[d]

[a] University of Miami Miller School of Medicine, Department of Epidemiology and Public Health, Sylvester Comprehensive Cancer Center, 1120 NW 14th Street, 15th Floor, Miami, FL 33136, United States
[b] College of Social Sciences, Florida State University, 543 Old Cove Rd N, Jasper, GA 30143, United States
[c] University of Miami Miller School of Medicine, Department of Epidemiology and Public Health, 1120 NW 14th Street, 10th Floor, Miami, FL 33136, United States
[d] University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, 1120 NW 14th Street, 15th Floor, Miami, FL 33136, United States

ARTICLE INFO

Article history:
Received 28 February 2012
Received in revised form
26 September 2012
Accepted 24 October 2012
Available online 20 November 2012

Keywords:
Smoking
Young adults
Attitudes/beliefs

ABSTRACT

Background: Young adults (18-24 years) have the highest smoking rate of any age group. Unlike youth/adult populations where there is one primary message targeting behavior, anti-tobacco campaigns targeting young adults should contain messages of prevention and cessation. The objective was to identify factors influencing young adult cigarette use, employing the Centers for Disease Control and Prevention logic model, with an emphasis on the role of lifestyle, tobacco use tolerance, and attitudes/beliefs.
Methods: Cross-sectional data were collected from 4401 young adults using telephone interviews in 2010 as part of the evaluation for the Tobacco Free Florida Campaign. Multivariate logistic regression was used to examine the relationship between current smoking status and lifestyles, tolerance of tobacco use, and attitude/belief variables.
Results: The young adult cigarette prevalence rate is 20.3%, with males more likely to be smokers (25.1%) than females (15.6%) and non-Hispanic Whites more likely to be smokers than other racial/ethnic groups (23.8%). Significant associations were found between lifestyle variables (frequent bar/club, drinks per month, and number of friends who smoke), tolerance of tobacco use (allow smoke in house/car and moderate tobacco use), and four attitude/belief indices and current smoking behavior.
Conclusions: Results suggest lifestyles and attitudes/beliefs should be key behavioral targets of prevention programs aimed at young adults. Data strongly suggest that as young adults reject negative labels attached to smokers, they are more likely to smoke. Prevention (and cessation) programs may need to reduce barriers that result in segregating nonsmokers/smokers so smokers can have an increased chance of adopting attitudes/beliefs of nonsmokers.

1. Introduction

Youth (12-17 years) and adult (25 years and older) cigarette use declined dramatically with the onset of anti-tobacco countermarketing mass media campaigns (Farrelly et al., 2005; Murphy-Hoefer et al., 2008; Sly et al., 2001a). Despite evidence suggesting that the decline has ceased among youth, and is, in fact, reversing, smoking remains relatively low among youth and adults when compared to peak levels at the start of the anti-tobacco programs (Dietz et al., 2010; Murphy-Hoefer et al., 2010; Murray, 2010). Current evidence shows young adults, 18–24 years of age, now have the highest rate of cigarette use of any age group (20%; Centers for Disease Control and Prevention, 2011; Florida Department of Health, 2010a; Gilpin et al., 2005; Lawrence et al., 2007; Ling et al., 2009; Song and Ling, 2011). Nationally, the median prevalence rate for smoking among youth is 18.2% and 19.8% for adults (Centers for Disease Control and Prevention, 2009, 2010). In Florida, 13% of youth in high school were current smokers in 2010 and 5% of middle school youth smoked (Florida Department of Health, 2009, 2010b). Data also show 17% of Florida adults smoked and 22% of young adults smoked every day and 6% of young adults smoking at least some days (about 28% of young adults smoke at least some days) (Florida Department of Health, 2010c). Researchers have suggested that the upswing in young adult cigarette use may reflect an extension of the earlier surge in uptake among youth (Chassin et al., 1990; Lantz, 2003; Murphy-Hoefer et al., 2005). However, this argument has largely been mitigated by the continued rise in young adult smoking even as youth rates decline. Research also shows a lack of

* Corresponding author at: Department of Epidemiology & Public Health, University of Miami School of Medicine, 1120 NW 14th Street, 15th Floor, C202 Miami, FL 33136, United States. Tel.: +1 305 243 5756; fax: +1 305 243 2997.
E-mail address: ndietz@med.miami.edu (N.A. Dietz).

0376-8716/$ – see front matter © 2012 Elsevier Ireland Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.drugalcdep.2012.10.019

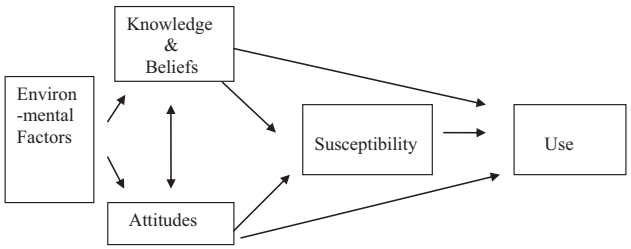

Fig. 1. Influencing tobacco use behaviors.

(a) effective smoking cessation strategies and (b) anti-tobacco messaging specifically targeting the young adult population, which also could explain the high prevalence rate for young adult cigarette use (Bader et al., 2007; US Department of Health and Human Services, 2012). Further, other studies have suggested that young adults are vulnerable to the increase in the tobacco industry's advertising and marketing strategies (e.g., tobacco promotional items or promotions in bars/clubs), particularly since tobacco companies are banned from advertising to youth and when smoking prevention strategies are predominantly aimed at youth (Biener and Albers, 2004; Gilpin et al., 2005; Ling and Glantz, 2002a,b; Ling et al., 2009).

Literature on young adult smoking is generally small, and research focusing on factors that differentiate young adult (18-24) smokers from nonsmokers is relatively scarce. While there is a dearth of research on young adults, some studies have shown lifestyle factors and attitudes and beliefs are associated with young adult tobacco use. For example, alcohol consumption or going to bars/clubs have been associated with tobacco use in this population (Gilpin et al., 2005). Further, young adults who have friends who smoke also are at risk for tobacco use (Chassin et al., 2000). The limited available data on young adults also indicate that youth growing up in households with smoking bans were more likely to live in smoke free households as young adults (Albers et al., 2009). Studies examining the attitudes and beliefs of young adults and tobacco use have focused on the health risks associated with tobacco use as well as anti-industry attitudes toward smoking (Murphy-Hoefer et al., 2004; Richardson et al., 2010; Tucker et al., 2002). Factors such as age, gender, race/ethnicity, and achieved status differences (e.g., education, employment, and income) have been reported to influence tobacco use, as well (Chassin et al., 1990; Ellis et al., 2008; Juon et al., 2002; Lawrence et al., 2007; Newcomb et al., 1989). However, the surveys from which these data are derived are restricted to a limited range of attained status variables, have few attitude/belief items, and do not include items measuring past exposure to anti-tobacco media programs. Secondly, a number of studies on young adult cigarette use are based on samples from the college population and do not consider potential subpopulation differences.

In this paper, we identify some key factors that distinguish young adult cigarette users from young adult nonusers, particularly how more general attitudes and beliefs affect tobacco use. We employ the basic Centers for Disease Control and Prevention (CDC) logic model for the development and evaluation of tobacco control programs as an organizing frame of reference (Fig. 1; MacDonald et al., 2001). A theory of change is necessary to understand how various processes lead to changes in behaviors (Ajzen, 1991; Centers for Disease Control and Prevention, 2003; Fishbein, 1990; Janz et al., 2002; Prochaska et al., 1992; Velicer et al., 1985). The CDC logic model is derived from various theoretical behavioral models, thereby allowing researchers to identify environmental factors, attitudes and beliefs, and self-efficacy that affect positive behavior change. The logic model activities lead to short-term outcomes, intermediate outcomes, and long-term outcomes (Centers for Disease Control and Prevention, 2003). With this logic model, demographic factors and exposure to anti-tobacco programs as youth are treated as background factors, achieved statuses and lifestyle factors as intermediate factors, and attitudes/beliefs as direct factors influencing cigarette use. If the latter are primarily responsible for cigarette use, as the model implies, we expect that as the background and intermediate variables are controlled, the magnitude of the association between attitude/belief items and smoking cigarettes will remain or be strengthened. We hypothesize that awareness of previous anti-tobacco campaigns, particular lifestyle factors, and more pro-tobacco attitudes/beliefs affect current smoking status.

2. Methods

2.1. Sample

Data were collected as part of the evaluation for the current Florida anti-tobacco campaign, Tobacco Free Florida (http://www.tobaccofreeflorida.com). This campaign has three target populations: youth (12–17 years), young adults (18-24 years), and adults (25+). Here we employ data from surveys of the young adult population. Data were collected via telephone interviews from January through March of 2010. The sampling frame was comprised from two sources: (1) names and telephone numbers of young adults attending all universities and colleges (including community and junior) in the state; and (2) a vendor generated listed sample targeting young adults in the specified age range assembled by Genesys, Inc., a sampling frame vendor. Genesys, Inc. has provided sampling frames for a number of special surveys conducted by the U.S. Census Bureau and the National Institutes of Health. We used both sources to ensure there would be young adults in the sample frame who were attending trade and technical schools or were not in school. In using both sources, we obtained telephone numbers, the vast majority of which were cell phone numbers. Up to 10 callbacks were made for each sampled number. Interviews averaged 38 min and respondents were given a $20 incentive for their participation. The final sample included completed interviews with 4401 young adults who were representative of the young adults in the state by age, gender, race/ethnicity, and educational attainment based on 2000 Census data.

2.2. Measures

2.2.1. Dependent variable. The dependent variable is current smoking status and is derived from the item, "during the last 30 days, on how many days did you smoke cigarettes, even just a puff or two?" with responses categorically coded (smoker = 1; nonsmoker = 0).

2.2.2. Independent variables. Independent variables included in the analysis can be grouped under six broad categories: demographic factors, "truth" campaign factors, achieved statuses, lifestyle considerations, tolerance of tobacco use, and attitude/belief indices. The demographic factors included age, gender, and ethnicity. For analytical purposes, young adults were placed into two groups: early young adults (18–21) and late young adults (22–24). Race/ethnicity included four categories: White, non-Hispanic; Black-non-Hispanic, Hispanic; and other.

2.2.3. "Truth campaign. The young adults in this sample would have predominantly been exposed to the Florida anti-tobacco "truth" campaign and the American Legacy "truth" campaign. These campaigns were very similar, and previous research has established that at the time of their overlap, Florida youth could not distinguish between them (Sly et al., 2001b). For the current survey, young adults were asked a series of questions about the past "truth" campaign. The first asked respondents if they could remember Florida's truth anti-tobacco or anti-smoking campaign (self-report). Despite the nearly 10-year lapse since the campaigns ended, 59.4% of young adults indicated they remembered the "truth" campaign. To confirm awareness of this self-reported item, respondents were asked to state the major message/theme of the campaign (theme confirmation) and to describe any one of the advertisements from the campaign (event confirmation). These items were coded as 1 = confirm and 0 = not confirm. Thirty-two percent of young adults confirmed the message/theme of the campaign, while 27.6% of young adults could describe one of the truth advertisements, and 18.5% could confirm both. A final item in this section asked respondents to recall if they talked to friends about truth advertisements (yes = 1; no = 0). Twenty percent of young adults talked to friends about the truth advertisements.

2.2.4. Achieved status. Data also were collected on four achieved status variables: completed education (at the time of the survey), straight-to-work status, employment status, and marital status. The straight-to-work population included those who reported only a high school education or less and who reported not having been enrolled in a trade or technical school, but did have employment experience (26.8%). Employment status is a four category variable (employed full-time, employed part-time, unemployed, and not in the labor force). Marital status is defined as single/never married, married/partnered, and divorced/separated/widowed.