State of transition: Marijuana use among young adults in the San Francisco Bay Area

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ABSTRACT

Background. California may vote on marijuana legalization in 2016. Young adults have the highest rates of marijuana use, but little is known about the correlates of use in this age group, including factors that may be affected by policy change. We investigated whether there are differences in marijuana use by sociodemographic characteristics, psychological distress, loneliness and social support, controlling for risk factors such as alcohol and cigarette use as well as perceived harm of marijuana.

Methods. Bivariate and multivariable analysis of past 30 day marijuana use using the 2014 San Francisco Bay Area Young Adult Health Survey, a probabilistic multi-mode survey of ($N = 1324$) young adults (aged 18–26 years) residing in Alameda and San Francisco Counties, stratified by race/ethnicity.

Results. 291 (27%) sample participants reported current marijuana use. Compared to non-Hispanic Whites (referent) Asian/Pacific Islander respondents were less likely to use marijuana (AOR, 0.42; 95% CI, 0.22–0.80) while multiracial participants were twice as likely (AOR, 2.27; 95% CI, 1.06–4.85). Psychological distress was not related to marijuana use, but social support (AOR, 1.42; 95% CI, 1.08–1.88) and loneliness (AOR, 1.42; 95% CI, 1.09–1.86) were. Perceived harm of marijuana was inversely related to marijuana use (AOR, 0.60; 95% CI, 0.51–0.70), while smoking cigarettes (AOR, 3.95; 95% CI, 2.28–6.84) and binge drinking (AOR, 1.13; 95% CI, 1.03–1.24) were positively related.

Conclusions. Legalization policies should include public education campaigns addressing potential harms of marijuana use particularly targeting multiracial young adults who also engage in other risk behaviors, such as cigarette smoking and binge drinking.

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1. Introduction

Laws and social norms around marijuana use are changing rapidly in the United States. Twenty-four states and Washington D.C. have legalized some form of medical marijuana, four additional states have decriminalized marijuana possession, and four states with medical marijuana policies recently voted to legalize retail marijuana (NORML, 2015). To inform policy efforts around marijuana, it is important to monitor the sociodemographic and psychosocial correlates of marijuana use. Nationally, young adults have the highest rates of past 30 day marijuana use, with 18.9% of 18–25 year olds using in 2013, compared to 7.1% of 12–17 year olds and 5.5% of adults 26 years old and older (Substance Abuse and Mental Health Services Administration, 2015).

In California marijuana use rates are even higher among young adults (21.6%), and about 7% higher than cigarette use (California Tobacco Control Program, 2015). However, rates of use may differ across race/ethnicity, sex, sexual orientation, socioeconomic status and region. National data show past 30 day marijuana use is highest among non-Hispanic Native Hawaiian/Pacific Islander (12.1%) young adults ages 18–25, followed by non-Hispanic American Indians (11.8%), blacks (10.3%), whites (8.7%) and Latinos (6.7%) (Center for Behavioral Health Statistics and Quality, 2015; Ramo et al., 2012). Men in this age range are also estimated to use marijuana at slightly higher rates (10.9% versus 6% of women), as are young adults with less than a high school education (21.9%) (Center for Behavioral Health Statistics and Quality, 2015). However in longitudinal studies of adolescents, including those accounting for cannabis use disorders, non-Hispanic black adolescents and young adults and those identifying with two or more racial categories appear to be at greater risk (Clark et al., 2013; Pollard et al., 2014). Furthermore, as local data may differ significantly from findings in national data sets, closer examination of

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sociodemographic associations with marijuana use in a diverse population of young adults may suggest unique targets for intervention.

Young adulthood is a time of transition, in which people are navigating new roles and identities; it can also be a time of great stress (Stroud et al., 2013). Past research has found that adolescents and young adults identify stress as a motive for using marijuana as they perceive it to be an effective coping method (Hyman and Sinha, 2009; Brodbeck et al., 2007). Young adults who report using marijuana as a coping mechanism demonstrate poorer mental health outcomes and greater risk for marijuana dependence and other substance use, such as alcohol and tobacco (Hyman and Sinha, 2009; Brodbeck et al., 2007; Kilpatrick et al., 2000), and some studies report Black and multiracial young people co-use marijuana with tobacco and alcohol more frequently (Ramo et al., 2012; Pacek et al., 2012). Psychological distress has also been shown to be related to use of marijuana in adults (Shi, 2014), but there is limited research on the relationship between psychological distress and marijuana use in young adults (Bonn-Miller et al., 2008). At a population level distress is an especially useful measure as it quantifies subclinical incidence of mental illness and may provide additional insight as to how and why young adults use marijuana (Kessler et al., 1985).

Young adults' who are transitioning in social roles may experience heightened feelings of loneliness, or a perceived deficit in the quality or quantity of their social relationships (Hawkley, 2010). Loneliness has been found to be positively related to alcohol and marijuana use (Page, 1990), but not consistently (Cacioppo et al., 2000). Conversely, perceived social support, or the idea that there are people in someone's life who can provide emotional support and help with problems (Brown et al., 1986), might be associated with a lower probability of using marijuana. However at least one study among adolescents found social support to predict an increase in substance use (Lifrak et al., 1997) while others have found inverse associations (Willis and Cleary, 1996; Piko, 2000). Gaining better understanding how psychological distress and social supports or deficits relate to marijuana use among young adults may inform tailored intervention development.

Marijuana has become more socially acceptable in California since medical marijuana laws passed in 1996, and acceptability is likely to increase further if marijuana is legalized (Nagourney, 2012; Fisher, 2014). A 2015 study of Northern California teens reported that marijuana was perceived as more socially acceptable, normative, and safer than cigarettes (Roditis and Halpern-Felsher, 2015). However, it remains unclear how this social context may interact with sociodemographic and psychosocial characteristics in marijuana use among young adults.

Although the evidence base for understanding the health effects of marijuana is limited as a result of the difficulties with conducting research on a drug classified as Schedule 1 under the United States Controlled Substances Act, early studies have indicated associations between long-term heavy marijuana use and increased risk of addiction, chronic bronchitis, cognitive impairment and psychosis disorders in people predisposed to them (Volkow et al., 2014). Additionally, studies of marijuana use among adolescents have demonstrated associations with decreased academic achievement and increases in use of other illicit drugs as well as suicide attempts (Silins et al., 2014). Marijuana use has further been associated with risky health behaviors, such as tobacco use and binge drinking (Ramo et al., 2012; Agrawal et al., 2012; Wagner and Anthony, 2002), and secondhand marijuana smoke has been shown to compromise vascular function similar to secondhand cigarette smoke (Wang et al., 2014).

This study's objective is to describe the sociodemographic correlates of marijuana use in a diverse population-based sample of young adults residing in San Francisco and Alameda Counties, and to investigate associations between psychological distress, social support, loneliness and marijuana use. Specifically, we hypothesize that: 1) there will be differences in marijuana use by sociodemographic characteristic; 2) psychological distress will be positively associated with use; and 3) social support and loneliness will moderate the association between psychological distress and marijuana use. We additionally control for known correlates of marijuana use among young adults, including perceived harms of marijuana, sleep quality, cigarette smoking, and alcohol use.

2. Methods

2.1. Data

Data for this study are from the 2014 San Francisco Bay Area Young Adult Health Survey, a probabilistic multi-mode household survey of 18–26 year old young adults, stratified by race/ethnicity, in Alameda and San Francisco Counties in California. Potential respondent households were identified in two ways – first from address lists obtained from Marketing Systems Group wherein there was an approximately 40% chance that an eligible young adult resided at the selected addresses (n = 15.000 addresses), and second using 2009–2013 American Community Survey and 2010 decennial census data in a multistage sampling design to identify Census Block Groups and subsequently Census Blocks in which at least 15% of residents were adults in the eligible age range; address lists were compiled for each selected block and households were randomly selected from these lists for face-to-face visits (n = 1636 housing units).

The survey was conducted using three modes – mail/web, telephone, and face-to-face interviews. Mailings, including the survey questionnaire, informed consent document, and $2 incentive were sent to each of the 15,000 addresses identified, followed by two additional mailings. Respondents could return the questionnaire by mail, or complete it online. Subsequently, the ~13,000 households for which we had phone numbers (landline and cellular) and from which we had not already received a response received up to three calls to determine eligibility and attempt questionnaire completion. Finally, a random selection of addresses (n = 1240) was drawn from the households lacking a mail or phone response, and research assistants visited each of these households, as well as all of the randomly selected housing units from the block sample, in person up to three times. The final number of observations was 1363 for a survey response rate of 30%. Approximately 2/3 of respondents replied via mail or online with most of the remaining responses completed in the face-to-face phase; only a handful of questionnaires were completed via telephone. Individual sample and post-stratification adjustment weights were constructed after data collection.

2.2. Measures

2.2.1. Outcome variable

The outcome for this study is current marijuana use. Respondents were asked, "during the past 30 days, on how many days (0–30) did you use marijuana or hash?" Current use was coded dichotomously, with a value equal to 1 if respondents reported using marijuana between 1 and 30 days in the past month.

2.2.2. Independent variables

2.2.2.1. Sociodemographic characteristics. We assessed respondent age, sex, race/ethnicity, sexual orientation, maternal education and marital status. Age is a continuous variable in years; self-reported race/ethnicity is measured as a categorical indicator and the remaining measures are dichotomous. Respondents were given the opportunity to select multiple race categories, and those who selected more than one category and were not Latino were classified as "multirace." Sex was coded as '1' if the respondent was male, 0 otherwise; LGBT was coded as '1' if the respondent identified as homosexual or bisexual; mother's college education was coded as '1' if the respondent's mother had at least graduated college; married was coded as '1' if the respondent was currently married.