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Research paper

Correlates of intentions to use cannabis among US high school seniors in the case of cannabis legalization

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ABSTRACT

Background: Support for cannabis ("marijuana") legalization is increasing in the United States (US). Use was recently legalized in two states and in Uruguay, and other states and countries are expected to follow suit. This study examined intentions to use among US high school seniors if cannabis were to become legally available.
Methods: Data from the last five cohorts (2007–2011) of high school seniors in Monitoring the Future, an annual nationally representative survey of students in the US were utilized. Data were analyzed separately for the 6116 seniors who reported no lifetime use of cannabis and the 3829 seniors who reported lifetime use (weighted *N*s). We examined whether demographic characteristics, substance use and perceived friend disapproval towards cannabis use were associated with (1) intention to try cannabis among non-lifetime users, and (2) intention to use cannabis as often or more often among lifetime users, if cannabis was legal to use.
Results: Ten percent of non-cannabis-using students reported intent to initiate use if legal and this would be consistent with a 5.6% absolute increase in lifetime prevalence of cannabis use in this age group from 45.6% (95% CI = 44.6, 46.6) to 51.2% (95% CI = 50.2, 52.2). Eighteen percent of lifetime users reported intent to use cannabis more often if it was legal. Odds for intention to use outcomes increased among groups already at high risk for use (e.g., males, whites, cigarette smokers) and odds were reduced when friends disapproved of use. However, large proportions of subgroups of students normally at low risk for use (e.g., non-cigarette-smokers, religious students, those with friends who disapprove of use) reported intention to use if legal. Recent use was also a risk factor for reporting intention to use as often or more often.
Conclusion: Prevalence of cannabis use is expected to increase if cannabis is legal to use and legally available.

Introduction

The United States (US) is undergoing a drastic change in attitudes toward cannabis ("marijuana") use and associated policy. The states of Colorado and Washington legalized recreational cannabis use in 2012 (Hawken, Caulkins, Kilmer, & Kleiman, 2013; Healy, 2012), an additional 15 states have decriminalized cannabis use, and 19 states and the District of Columbia now allow medical cannabis to be prescribed (Pew Research Center, 2013). While other countries (e.g., The Netherlands, Portugal, Spain, Italy) have partially or fully decriminalized use, Uruguay became the first country to legalize (and regulate) cannabis use in December of 2013 (Room, 2013; Romero, 2013). With public favor for legalization increasing, other states and countries are likely to follow suit. Given the lack of data that would allow us to examine how these recent policy changes affect prevalence of use, it is important to examine intentions to use in the case of legalization, as surrogate markers for actual behavior.

According to recent polls, more than half (52–58%) of adults in the US now support cannabis legalization (Pew Research Center, 2013; Swift, 2013) and 64% of adults feel the federal government should not take steps to enforce federal anti-cannabis laws in Colorado and Washington (Newport, 2012). Support for legalization is highest among young adults (ages 18–32), with 65% favoring

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legalization (Pew Research Center, 2013). In Australia, 65% of individuals age 12 and older feel that cannabis possession should not be a criminal offence, with males reporting higher support (Australian Institute of Health & Welfare, 2011). While more liberal cannabis laws appear to be driven by public support in many areas, interestingly, the legalization of cannabis in Uruguay does not appear to be as strongly supported by the public (CIFRA, 2013). The impact of more recent legalization policies on cannabis prevalence remains to be determined.

Cannabis is the most frequently used illicit drug worldwide (United Nations Office on Drugs and Crime, UNODC, 2013) and among US adolescents and young adults, with 45.2% of high school seniors reporting lifetime use in 2012 and 36.4% reporting use in the past 12 months (Johnston, O'Malley, Bachman, & Schulenberg, 2013a). Cannabis use has fluctuated among US youth over the last few decades—lifetime prevalence among high school seniors peaked at 60.4% in 1979 and declined to 35.3% in 1993, and lifetime use recently surpassed 45% again in 2011 for the first time since 2004. In 2011, 2.6 million individuals (age 12 or older) in the US initiated cannabis use and the average age of initiation is 17.5 (Substance Abuse and Mental Health Services Administration, SAMHSA, 2012), the most common age of US high school seniors (modal age: 18).

As prevalence of cannabis use has risen, the proportion of US high school seniors who disapprove of trying cannabis only once or twice has slowly declined from 58.6% in 2007 to 48.8% in 2012, while disapproval toward smoking cannabis regularly slowly dropped to 77.8% in 2012; this is the lowest rate of disapproval since 1981 (Johnston et al., 2013a). The proportion of high school seniors in favor of legalization has increased to the highest rate ever (39.3% in 2012) since Monitoring the Future (MTF) began assessing such attitudes in 1975; and of the proportion in favor of treating use as a minor violation have slightly decreased in recent years (e.g., 30% in 2008 to 26.8% in 2012) (Johnston et al., 2013a) as more students are now favoring full legalization. Moreover, perception of risk associated with using once or twice has also decreased to 14.8% (e.g., from 18.6% in 2007). However, the proportion who perceive cannabis as easy to access have remained relatively stable at about 82% (Johnston et al., 2013a).

While cannabis legalization would likely reduce rates of arrest and incarceration related to use, it is unknown whether legalization would be associated with higher rates of use, particularly among those at highest risk for use—adolescents approaching adulthood. There is a dearth of epidemiological data with regard to cannabis legalization; however, studies have begun to examine how various forms of decriminalization and depenalization relate to rates of use. Studies have found that overall, cannabis decriminalization or depenalization have generally not been associated with increased rates of use (Greenwald, 2009; Hughes & Stevens, 2010; MacCoun, 2010a; MacCoun & Reuter, 2011; Vuolo, 2013). However, results from some studies suggest temporary increases in prevalence of recent use in some subgroups after a form of decriminalization is implemented (e.g., Dutch coffee shop decriminalization) (Kilmer, Caulkins, Pacula, MacCoun, & Reuter, 2010; MacCoun, 2010b). It is unknown whether similar policies would have comparable effects elsewhere (e.g., in more heterogeneous areas) (Kleiman, Caulkins, & Hawken, 2011). It is estimated that consumption would increase in the case of full legalization, in part, due to a drop in prices; however, taxation and regulations would likely help prevent increases in initiation (Caulkins, Hawken, Kilmer, & Kleiman, 2012; Kilmer et al., 2010). Recent epidemiological studies have also yielded mixed results regarding the associations between local medicinal cannabis policies and rates of use. While some research suggests that adolescent cannabis use is higher in states that allow medicinal cannabis (Wall et al., 2011), others suggest that higher use may precede such laws (Harper, Strumpf, & Kaufman, 2012).

Cannabis policy is rapidly evolving in some areas of the world and it is crucial to determine whether more liberal policies lead to increased incidence of cannabis use as well as problematic use. However, there is a lack of empirical data to examine the effects of such policies. In the absence of data to address these questions, we focus on surrogates for those outcomes: in the case of legalization, intentions to initiate use among non-users and intentions to use more among those who have already initiated use. Intentions are assumed to capture the motivational factors that may result in behaviors, and of all behavioral dispositions they are most closely linked to corresponding actions (Ajzen and Fishbein, 1980). For example, research suggests that intention to not smoke cigarettes is protective against smoking in national samples (Wakefield et al., 2004) and for this reason intention to smoke is often an important covariate and outcome for tobacco studies (Bauer, Johnson, Hopkins, & Brooks, 2000). So while there is a lack of data regarding how changes in policy affect use, intention to use in the case of legalization would serve as an important indicator of who may be at highest risk for initiation, continuation, or escalation of use if policies continue to shift.

Here we examine correlates of intention to use cannabis among US high school seniors if it were to become legalized. Examining intention to use cannabis among high school seniors would help delineate risk factors that could be targets of interventions and programs designed to prevent or delay use in an era of potential "normalization" of use.

Methods

Data were taken from MTF, an annual survey of high school students in approximately 130 public and private schools throughout 48 states in the US (Johnston, O'Malley, Bachman, & Schulenberg, 2012). The MTF protocol was reviewed and approved by the University of Michigan Institutional Review Board. Schools were selected through a multi-stage random sampling procedure: geographic areas were selected, then schools within geographic areas, and then students within selected schools. Since MTF assesses a variety of constructs, content is divided into six questionnaire forms, which are distributed randomly. This study focuses on data collected through Form 4, which assesses cannabis legalization attitudes in addition to drug use and demographics.

To examine the most current attitudes, we focused on the 2007–2011 cohorts. Thus, the data were collected prior to the legalization of recreational use in Colorado and Washington, but after medical cannabis legalization in up to 16 states. Data on state of residence are not available in MTF, which is an important contextual variable given the variation in cannabis policies between states. With respect to medical cannabis policy, 11 states legalized medical cannabis prior to the study (California in 1996; Alaska, Oregon and Washington in 1998; Maine in 1999; Hawai'i, Colorado and Nevada, in 2000; Montana and Vermont in 2004; and Rhode Island in 2006). Five states (New Mexico in 2007; Michigan in 2008; New Jersey and Arizona in 2010; and Delaware in 2011) and the District of Columbia legalized medical cannabis during the study (in 2010). Three states legalized medical cannabis after the study (Connecticut and Massachusetts in 2012 and New Hampshire in 2013).

MTF assessed age (<18 years, ≥18 years), sex, and race/ethnicity (white, black, Hispanic) of students, as well as population density where students reside (non-, small-, or large-metropolitan statistical areas [MSAs]). Small MSAs are defined as counties or groups of counties with at least one city of at least 50,000 inhabitants and the 24 largest MSAs are defined as large MSAs (Johnston et al., 2012). Non-MSAs reflect the remaining areas. Students were asked about parents' educational attainment on an ordinal scale and a mean score for both parents (or the actual score was used if only