



Effects of marijuana use on impulsivity and hostility in daily life



Emily B. Ansell^{a,*}, Holly B. Laws^a, Michael J. Roche^b, Rajita Sinha^a

^a Department of Psychiatry, Yale University School of Medicine, 2 Church St. South, Suite 209, New Haven, CT 06519, United States

^b Department of Psychology, The Pennsylvania State University, 140 Moore Building, University Park, PA 16802, United States

ARTICLE INFO

Article history:

Received 31 July 2014

Received in revised form

24 December 2014

Accepted 26 December 2014

Available online 6 January 2015

Keywords:

Marijuana

Impulsivity

Hostility

Recreational use

Young adults

ABSTRACT

Background: Marijuana use is increasingly prevalent among young adults. While research has found adverse effects associated with marijuana use within experimentally controlled laboratory settings, it is unclear how recreational marijuana use affects day-to-day experiences in users. The present study sought to examine the effects of marijuana use on within-person changes in impulsivity and interpersonal hostility in daily life using smartphone administered assessments.

Methods: Forty-three participants with no substance dependence reported on their alcohol consumption, tobacco use, recreational marijuana use, impulsivity, and interpersonal hostility over the course of 14 days. Responses were analyzed using multilevel modeling.

Results: Marijuana use was associated with increased impulsivity on the same day and the following day relative to days when marijuana was not used, independent of alcohol use. Marijuana was also associated with increased hostile behaviors and perceptions of hostility in others on the same day when compared to days when marijuana was not used. These effects were independent of frequency of marijuana use or alcohol use. There were no significant effects of alcohol consumption on impulsivity or interpersonal hostility.

Conclusions: Marijuana use is associated with changes in impulse control and hostility in daily life. This may be one route by which deleterious effects of marijuana are observed for mental health and psychosocial functioning. Given the increasing prevalence of recreational marijuana use and the potential legalization in some states, further research on the potential consequences of marijuana use in young adults' day-to-day life is warranted.

© 2015 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Marijuana remains the most commonly used illicit drug (Caldeira et al., 2012) and its use continues to rise, particularly among its most frequent users: young adults (Degenhardt and Hall, 2012; Substance Abuse and Mental Health Services Administration, 2014). Changes in legal status, perceptions of low associated risk and ease of availability of marijuana in social settings have been associated with increased rates of recreational marijuana use (Cerdeira et al., 2012; Johnston et al., 2013; Palamar et al., 2014). One in five young adults has used marijuana in the past month, and over a third of young adults have used marijuana in the past year. While the negative effects of chronic use of marijuana are increasingly well-established (Volkow et al., 2014; Silins et al., 2014), there are also many young adults using marijuana at sub-threshold

levels. Recreational marijuana use, the use of marijuana on one or more occasions without associated use disorders (Moreno et al., 2012), is increasingly prevalent. Further understanding of whether increased recreational exposure to marijuana leads to greater risk for detrimental psychological and behavioral effects is a needed avenue for research.

There is growing evidence that marijuana use has lasting effects on the cognitive and regulatory networks of the brain (Filbey et al., 2009). These effects may increase an individual's susceptibility to the acute effects of marijuana on impulsivity and broader neurocognitive functioning (Martin-Santos et al., 2010; Wrege et al., 2014). Recreational marijuana users report elevated impulsivity traits, impulsive behaviors, and deficits in inhibitory control relative to non-drug users, but similar to binge drinkers (Griffith-Lending et al., 2012; Moreno et al., 2012). These findings suggest that impulse control deficits may be observable even in those who engage only in recreational use. There is also evidence from experimental methods that marijuana affects impulsivity immediately after administration, including decreases in inhibitory control (McDonald et al., 2003) and measurable changes in risky

* Corresponding author at: Yale Stress Center, 2 Church St., South, Suite 209, New Haven, CT 06519, United States. Tel.: +1 203 737 3436.
E-mail address: Emily.Ansell@yale.edu (E.B. Ansell).

behavior relative to placebo (Lane et al., 2005). However, it is unknown whether recreational marijuana use in daily life elicits similar within-person changes in impulse control.

Marijuana use has also been associated with negative effects on interpersonal interactions. Laboratory studies have found that individuals under the influence of marijuana displayed systematic changes in interpersonal behavior and experience, including a pattern of interpersonal withdrawal, hostility, and diminished interpersonal skills (Janowsky et al., 1979; Roser et al., 2012). Despite subjective reports of enhanced sensation and perception, individuals under acute administration of THC showed objective decreases in the number of interpersonal interactions engaged in and the expression of empathetic communications (Galanter et al., 1974; Janowsky et al., 1979). This suggests that marijuana use has a significant impact on interpersonal behaviors, of which users are not aware. Additional research has found social-emotional deficits in marijuana users (Platt et al., 2010; Roser et al., 2012), and increases in hostility or aggression (Smith et al., 2013). Chronic marijuana users show anterior cingulate cortex (ACC) and amygdala deactivation in response to subconscious presentation of emotional faces, whereas normal controls show increased activation (Gruber et al., 2009). Given that the ACC is involved in error monitoring and behavioral correction/inhibition in response to changes in context or environment, this may manifest as inappropriate interpersonal responses or altered perceptions of interpersonal behaviors in others. However, it is unknown whether these effects on interpersonal behavior and social-emotional processing occur after any marijuana use and whether these changes are observable in interpersonal behavior (e.g., hostility) over the course of daily life.

Research to date has primarily used experimentally controlled laboratory methods to examine associations between marijuana use and impulse control and interpersonal behavior; although valuable, this approach limits generalizability of the findings (e.g., to day to day experiences of individuals in natural contexts). Ecological Momentary Assessment (EMA) is a validated and reliable method to uniquely capture substance use—as well as important social, contextual, and behavioral information in daily life via real-world data collection (Shiffman et al., 2008; Shiffman, 2009; Smyth and Heron, 2012). Frequently implemented via smartphone technology, EMA offers several advantages in examining complex directional relationships by assessing variations in experiences, environmental exposures, and psychological states within and outside the context of drug or alcohol use (Shiffman et al., 2008; Shiffman and Saul, 2009; Shiffman, 2009). These methods improve upon traditional timeline follow-back approaches by capturing intraindividual variability in behaviors and experiences over time, while having minimal impact on behavior (Simpson et al., 2005; Shiffman et al., 2007; Shiffman and Saul, 2009). EMA has been used to monitor alcohol and drug use in community adult and adolescent samples and has been widely used in studies to understand effects of alcohol and drug use, drug craving and relapse outcomes (Shiffman et al., 1997, 2002; Armeli et al., 2000, 2005, 2007; Carney et al., 2000; Chandra et al., 2007; Mermelstein et al., 2007; Weinstein et al., 2008; Todd et al., 2009).

Despite increases in use of marijuana, very little research has examined the real world effects of recreational marijuana use on daily experiences. Several studies have used daily diary methodology to examine psychological states as predictors of marijuana use in regular users (Buckner et al., 2011, 2012a,b). Research with regular marijuana users has found that retrospective reports of frequency of use are highly unreliable in predicting moment to moment use (Hughes et al., 2014). These findings point to the utility and validity of assessing marijuana use using EMA methods. However, less work has been done using this methodology to examine

Table 1
Sample demographics and descriptives.

Age	23.7 (4.6)
Female	60.5% (26)
Education years	15.3 (2.0)
Currently enrolled in post-secondary education	65.1% (28)
Race/Ethnicity	
Caucasian	65.1% (28)
Hispanic	16.3% (7)
Asian	14.0% (6)
African-American	4.7% (2)
Drug screening	
Cotinine positive	4.7% (2)
Tetrahydrocannabinol positive	20.9% (9)
Carbon monoxide level >6	7.0% (3)
Average number of use days in last 30 days	
Marijuana use days	4.5 (8.3)
Alcohol use days	9.6 (5.2)
Tobacco use days	1.5 (4.6)
Mean daily variable scores	
Marijuana use days	.18 (.38) [0–1]
Alcohol use days	.40 (.49) [0–1]
Impulsivity score	30.2 (14.6) [0–79.3]
Hostility (self)	20.3 (12.4) [0–78.8]
Hostility (other)	20.5 (11.4) [0–82.0]

Percentages (frequency) and mean (SD) and [ranges]. $N = 43$.

the potential behavioral and psychological effects of marijuana use on real world outcomes in recreational marijuana users.

The purpose of this study was to examine the effects of marijuana use on same day and subsequent day reports of impulsivity, interpersonal behavior, and interpersonal perceptions using EMA. Based on prior findings from experiments in which marijuana was administered and behavioral changes were observed, we hypothesized that marijuana use would acutely increase impulsivity (i.e., a diminished ability to focus on or persist in tasks and a tendency to act on the spur of the moment without planning) and hostile interpersonal interactions (i.e., perceptions of self or other as distant, unfriendly, cold, disagreeable or quarrelsome) in day-to-day life.

2. Method

2.1. Sample

The sample consisted of 43 men and women, who reported prior recreational marijuana use, currently consumed alcohol at least once per week, and were not substance dependent or currently using substances other than nicotine, marijuana, or alcohol. Participants were recruited for a larger study on social and hazardous drinking, which used flyers and pamphlets distributed at high traffic locations and community events, word of mouth, and ads posted on Craig's List. Ads requesting inquiries from social drinkers, regular drinkers, or individuals interested in reporting experiences using a smartphone for a research study. Demographics and descriptives are presented in Table 1.

2.2. Procedures

Respondents initially completed a phone screening and were excluded if they did not drink at least once per week for the last month, were substance dependent for any substance except nicotine or had a serious mental illness (schizophrenia, bipolar disorder, psychotic disorder). This study was approved by the human subjects research committee and written informed consent was obtained prior to intake.

Following the phone screening, participants completed an intake interview that verified eligibility criteria using SCID-I diagnostic interviews (First et al., 1996) and gathered demographic and substance use history. Participants completed carbon monoxide test (Pico Smokerlyzer) and provided urine samples (Innovacon Integrated E-Z Split Key 6 Panel Cup II; Reditest cotinine test device). They returned for a 1 h training session on how to use and complete the items on the smartphone assessments prior to commencing 14 consecutive days of reporting. Participants could initiate event-contingent surveys (e.g., interaction or substance use) at any time. Reminders to complete the end of day survey were triggered on the phones every evening at 9:30 pm but could be completed at any time in the evening when activities were done for the day and prior to going to bed. Responses were uploaded to a secure server in real time and back-ups were saved on the devices. Research assistants monitored compliance daily and subjects were contacted if irregularities were identified or surveys were not completed. At the end of participation, data saved on the phones was then uploaded and verified against data sent in real time

Download English Version:

<https://daneshyari.com/en/article/7505327>

Download Persian Version:

<https://daneshyari.com/article/7505327>

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