

# The Role of Life Events/Contextual Factors and Cannabis Use in Patterns of Other Drug Use Among Young Adult Cannabis Users in Los Angeles: A Qualitative Inquiry

Journal of Drug Issues  
2020, Vol. 50(2) 157–172  
© The Author(s) 2020  
Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/0022042619900205  
journals.sagepub.com/home/jod



Ekaterina V. Fedorova<sup>1</sup> , Alexis M. Roth<sup>1</sup>,  
Alice Cepeda<sup>2</sup>, Carolyn F. Wong<sup>2,3</sup>,  
Ellen Iverson<sup>2,3</sup>, and Stephen E. Lankenau<sup>1</sup>

## Abstract

This analysis examined the role of impactful life events/stressful contextual factors and cannabis use in the patterns of illicit drug use. It utilized semi-structured qualitative interviews with 40 young adult medical cannabis patients and 22 non-patient users collected in Los Angeles during 2014–2015. Three patterns of illicit drug use emerged based on participants' narratives: regular/problematic, recreational/occasional, and never users. Among regular/problematic users, a common theme was the lasting impact of traumatic life events or stressful contextual factors on transition to and away from problematic drug use, and using cannabis to cope with negative after effects of drug use. In contrast, most recreational/occasional and never users, who reported impactful life events or stressful contextual factors, used cannabis to cope with those experiences. Family history of addiction and acceptance of cannabis use within a family as protective factors against illicit drug use among some recreational/occasional and never users was an unexpected finding.

## Keywords

medical marijuana, medical cannabis, illicit drug use, prescription drug misuse, young adults, traumatic events, positive life events, negative life events, contextual factors, substitution, coping, self-medication

## Introduction

Zinberg's (1984) "Drug, Set & Setting" framework proposes that patterns of drug use are influenced by three main factors: pharmaceutical properties of a specific drug, personal characteristics of a user (the set), and the settings (social and physical) whose role is often underestimated.

---

<sup>1</sup>Drexel University, Philadelphia, PA, USA

<sup>2</sup>University of Southern California, Los Angeles, CA, USA

<sup>3</sup>Children's Hospital Los Angeles, CA, USA

### Corresponding Author:

Ekaterina V. Fedorova, Department of Community Health and Prevention, Dornsife School of Public Health, Drexel University, 3215 Market Street, Philadelphia, PA 19104, USA.

Email: [evf26@drexel.edu](mailto:evf26@drexel.edu)

Furthermore, he argued that “controlled” drug use is possible through a learning process about social sanctions and rituals as informal norms around acceptable use of a specific substance: where, with whom, how, and how much to use (Zinberg, 1984). Therefore, it is important to distinguish controlled or recreational/occasional use, primarily driven by enhancement or social motives, from regular/problematic patterns of drug use, which have been linked to coping motives (Bahora et al., 2009; Boys et al., 1999; Cooper, 1994; Hides et al., 2008; Järvinen & Ravn, 2011; Lankenau et al., 2008; Lloyd, 1998).

### ***Role of Life Events/Contextual Factors in Continued Use and Transition to Problematic Drug Use***

Controlled forms of recreational drug use are influenced by social norms that support consumption of drugs when it is limited to certain settings (e.g., as facilitators of social interactions) and does not interfere with everyday functioning (e.g., school, work, health, and relationships). For instance, in a study of young adult ecstasy users, most respondents restricted their use to weekends and managed to maintain good academic standing, employment, and relationships with significant others (Bahora et al., 2009). Similarly, LSD (lysergic acid diethylamide) use is infrequent and requires advance planning and very specific circumstances to ensure pleasurable experiences (Boys et al., 1999; Järvinen & Ravn, 2011). Finally, prescription drug misuse is commonplace on college campuses, especially during periods of high academic stress such as exam week, where prescription stimulants facilitate learning process while prescription opioids or tranquilizers are often misused for fun and relaxation (Bardhi et al., 2007; Daniulaityte et al., 2006; DeSantis et al., 2008; Lord et al., 2011; Quintero, 2009).

Transitions from recreational to regular/problematic use can be influenced by negative life events (McCabe et al., 2016; McEwen, 2000), and family history of substance abuse and other mental health disorders (Lankenau et al., 2012; Lloyd, 1998; Stone et al., 2012). Young adults who misuse prescription opioids and transition to heroin oftentimes have diagnosed mental health disorders, report drug abuse and other serious mental health issues among their parents or siblings (Daniulaityte et al., 2006; Darke, 2011; Lankenau et al., 2012). In a qualitative study with former and current methamphetamine users, dealing with stress and depression was among the reasons for continued use while negative life events which involved relationships with significant others, such as break up, death, or dating a drug dealer, played an important role in relapse or escalation of use (Boeri et al., 2009).

### ***Role of Life Events/Contextual Factors in Transition to Non-Use or Non-Problematic Drug Use***

In addition to the significant impact of social factors, including family background, peers, and negative life events such as separation from loved ones, on initiation, escalation and continued problematic drug use (Liebregts et al., 2013; McCabe et al., 2016), relationship with significant others, and social institutions are among the most powerful motivators for remission or transition to asymptomatic drug use (Granfield & Cloud, 2001; Teruya & Hser, 2010; Walters, 2000). For instance, in a study on ecstasy use, almost all regular users switched back to occasional use once their use started to interfere with school, work, and romantic relationships (Järvinen & Ravn, 2011). Positive life events, such as starting a new relationship, getting married, and becoming a parent, were very common push factors for remission from heroin (Biernacki, 1986; Klingemann, 1992), methamphetamine (Boeri et al., 2009; Sexton et al., 2008), and other substances (Lankenau, Jackson Bloom, & Shin, 2010; Stone et al., 2012).

## Role of Cannabis in Other Drug Use

As formulated in Kandel's (1975) gateway theory, for decades, cannabis use was viewed as a factor that might increase vulnerability to use and abuse of other substances. Moreover, in the recreational cannabis literature, concurrent use of cannabis and other substances was linked to poor addiction treatment outcomes (Aharonovich et al., 2005; Mojarrad et al., 2014; Wasserman et al., 1998). However, in the wake of medical cannabis research, an increasing number of studies suggest that cannabis might protect against use and abuse of other licit and illicit substances. Many of these studies were based on adult medical cannabis patients (MCP), where cannabis was most frequently substituted for prescribed medications due to less side-effects, less addiction potential, and better symptom management (Lucas et al., 2013; Reiman, 2009), whereas some substituted cannabis for illicit drugs (Grella et al., 2014; Lankenau, Wagner, et al., 2010; Lucas et al., 2016; Reiman, 2007). The first case report of the benefit of cannabis as a substitute for opiates was published in the end of the 19th century (Birch, 1889), which was followed by descriptions of the therapeutic value of cannabis for treatment of alcohol addiction in 1970s (Mikuriya, 1970, 2004) and, later, crack cocaine addiction (Dreher, 2002). More recent qualitative studies report on cannabis use as a strategy to cope with the after effects of ecstasy (Järvinen & Ravn, 2011; Levy et al., 2005) and methamphetamine (Sexton et al., 2008) use such as depression, paranoia, and insomnia. Furthermore, cannabis was found to be instrumental in maintaining long-term abstinence among heavy methamphetamine users (Boeri et al., 2009; Sexton et al., 2008). Finally, in qualitative studies on prescription drug misuse, regular young adult cannabis users did not become addicted and managed to maintain non-problematic patterns of prescription medications misuse (Bardhi et al., 2007; Daniulaityte et al., 2006).

In summary, a number of quantitative and qualitative studies have explored the impact of contextual factors and life events on the continued drug use, and transition into and away from problematic drug use. In addition, a few qualitative studies reported on the role of recreational cannabis on other drug use among young adult ecstasy users and prescription opioid misusers, and adult methamphetamine users. However, no qualitative studies have investigated the interplay of life events/contextual factors and cannabis use in the patterns of other drug use among young adult cannabis users with and without legal access to medical cannabis. Therefore, given this gap in the literature, the present analysis was undertaken to address the following research questions: (a) What is the role of life events and contextual factors in the distinct patterns of drug use other than cannabis over time? and (b) What is the role of cannabis in the distinct patterns of other drug use?

## Method

### Sample

The qualitative sample was derived from a larger study ( $n = 366$ ) examining the role of medical cannabis and medical cannabis dispensaries on health and other drug use among young adult cannabis users. Enrollment criteria for the study were as follows: age between 18 and 26 years old; residing in Los Angeles metro area; ability to speak and read English; using cannabis at least four times within 30 days prior recruitment; and either having current valid medical cannabis recommendation issued in California or never having medical cannabis recommendation (see Lankenau et al., 2017 for additional details). The following characteristics were used to select the qualitative subsample ( $n = 62$ ): recent light or recent heavy cannabis users (range of 4–90 days of cannabis use in the past 90 days); participants with or without some type of chronic health condition (35 out of 62 respondents had a chronic illness such as anxiety, asthma, and lower back pain); and participants who scored high or those who scored low on emotion suppression or

cognitive reappraisal subscales of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). In total, 40 MCP and 22 non-patient cannabis users (NPU) were interviewed (see Lankenau et al., 2018 for additional details).

### **Data Collection**

Semi-structured baseline qualitative interviews were conducted by two trained interviewers in private (e.g., project office) or semi-private (e.g., coffee shops, parks) settings between June 2014 and August 2015, and the interview duration varied between 60 and 90 min. Upon completion of the interview, participants received \$35 cash incentive. All study procedures were approved by the Children's Hospital Los Angeles and Drexel University's Institutional Review Boards.

### **Measures**

A semi-structured qualitative interview guide covered the following domains: cannabis practices, physical and psychological health, getting a medical cannabis recommendation, accessing dispensary/collectives, and other substance use. Participants were asked about past and recent history of other drug use and its overlap with cannabis practices (*Tell me about your patterns of alcohol and other drug use during this period [adolescence]. How did your use of cannabis relate to, impact or overlap with your other patterns of drug use? How has your use of illegal drugs changed since you first began using cannabis/receiving the rec card? Has cannabis been a factor in this change? Have you ever substituted cannabis for another drug, such as alcohol, prescription drugs, etc. If yes, what are some of the reasons for substituting?*) and impact of the events within a family on cannabis use (*Were there any events or situations within the family that influenced your cannabis use during this period, for example, stress/problems, family members' cannabis/drug use, family members' medical cannabis recommendation?*).

### **Data Analysis**

All interviews ( $n = 62$ ) were digitally recorded, transcribed verbatim, and entered into Atlas.ti version 7.5.3. For each transcript, analysts created a timeline which included ages for significant life events, key events in cannabis, other drug use history, medical cannabis recommendation, and health histories.

The coding process was initially driven by priori themes included in the interview guide. Examples of codes developed during the initial coding phase were as follows: "Drugs: Illegal Drugs," "Drugs: Rx Drugs," and "Cannabis Practices: Substitution." Initial coding was followed by a focused coding phase, where emerging codes (e.g., "Significant Events/Persons," "Initiation/Escalation of Drug Use," "Cessation/Reduction of Drug Use") were developed deductively based on the research questions and from the participants' narratives. During the coding process, three patterns of illicit/prescription drug use/misuse were identified as reported in the "Results" section.

Coded transcripts were continuously reviewed by the analytical team to ensure inter-coder reliability within and between transcripts. Pseudonyms were assigned to each participant in this analysis.

### **Results**

Respondents were predominantly heterosexual Hispanic/Latino males in their 20s (range = 18–26 years) (Table 1). As compared to the larger baseline quantitative sample, a

**Table 1.** Sociodemographic Characteristics and Qualitative Sample Selection Variables Within Quantitative Sample and Qualitative Subsample of Young Adult Cannabis Users in Los Angeles.

Variable	Total quantitative sample ( <i>n</i> = 366) % ( <i>n</i> )	Total qualitative subsample ( <i>n</i> = 62) % ( <i>n</i> )	Regular/ problematic users ( <i>n</i> = 17) % ( <i>n</i> )	Recreational/ occasional users ( <i>n</i> = 36) % ( <i>n</i> )	Never users ( <i>n</i> = 9) % ( <i>n</i> )
Age, <i>M</i> ( <i>SD</i> )	21.2 (2.5)	21.7 (2.5)	22.4 (2.4)	21.3 (2.5)	22.3 (2.5)
Male gender	66.1 (242)	59.7 (37)	64.7 (11)	61.1 (22)	44.4 (4)
Heterosexual	79.0 (289)	72.6 (45)	76.5 (13)	63.9 (23)	100.0 (9)
Race					
Non-Hispanic White	25.1 (92)	29.0 (18)	29.4 (5)	27.8 (10)	33.3 (3)
Non-Hispanic African American	18.6 (68)	14.5 (9)	5.9 (1)	13.9 (5)	33.3 (3)
Non-Hispanic Multiracial	6.0 (22)	6.5 (4)	11.8 (2)	5.6 (2)	0.0 (0)
Non-Hispanic Asian/Pacific Islander	3.8 (14)	3.2 (2)	5.9 (1)	2.8 (1)	0.0 (0)
Hispanic/Latino	44.8 (164)	43.5 (27)	47.1 (8)	44.4 (16)	33.3 (3)
MCP	57.4 (210)	64.5 (40)	70.6 (12)	61.1 (22)	66.7 (6)
Chronic health condition (yes)	30.1 (110)	56.5 (35)	58.8 (10)	52.8 (19)	66.7 (6)
90-day cannabis days, <i>M</i> ( <i>SD</i> )	69.1 (26.6)	67.4 (26.6)	74.1 (27.3)	64.7 (26.5)	65.8 (26.2)
ERQ Cognitive Reappraisal, <i>M</i> ( <i>SD</i> )	4.9 (1.4)	5.2 (1.5)	4.7 (1.3)	5.4 (1.3)	5.1 (2.3)
ERQ Emotion Suppression, <i>M</i> ( <i>SD</i> )	3.6 (1.3)	3.4 (1.4)	3.5 (1.5)	3.4 (1.4)	3.3 (1.1)

Note. MCP = medical cannabis patients.

higher proportion of the qualitative sample had a chronic health condition while mean days of cannabis use and ERQ scores were similar. Based on the participants' perceptions of their own drug use (e.g., perceived as problematic, attempts to stop using), three patterns of illicit/prescription drug use were identified: regular/problematic (*n* = 17), recreational/occasional (*n* = 36), and never (*n* = 9) use. As compared with other user groups, a greater proportion of regular/problematic users were males and identified as Hispanic/Latino while all groups had similar proportion of MCP.

### *Regular/Problematic Users of Illicit/Prescription Drugs*

Methamphetamine, cocaine, and ecstasy were the top three drugs used on a regular basis and associated with problematic use in this group. In addition, one participant misused prescription tranquilizers, and two respondents misused prescription opioids with one of them transitioning into heroin use. Initiation into a regular/problematic use in many cases followed two commonly reported experiences: the lasting impact of traumatic events or stressful contextual factors. Traumatic events included loss of a significant other through either death or physical separation (e.g., break up with a partner, parents' divorce), whereas stressful contextual factors included living in a dysfunctional family (e.g., addiction coupled with domestic violence, suicidal attempts, and other serious mental health issues within a family). Interestingly, most participants articulated a link between the loss of a significant other and their drug use. On the contrary, a dysfunctional family was often acknowledged as an impactful chronic stressor but rarely stated as a factor in the initiation/escalation of a regular/problematic drug use.

Initiation into methamphetamine use for Jose (24 years, MCP) was brought about through a sexual partner following his grandmother's death coupled with relationship issues, HIV diagnosis, and amid experimentation with various drugs:

*My relationship was really rocky. My grandmother passed in 2009. That still has not left me until this day . . . It was to the point that I was crying over everything. It was ruining friendships and relationships. It was a lot. I was so insecure. It was just so much going on. I did not know why. I could not get control of. I was trying different things . . . I got diagnosed with HIV. I had so much going on . . . I was experimenting with different drugs. I wasn't myself.*

Push factors for substance misuse for Javier (24 years, MCP) was a break up with his girlfriend followed by bouts of depression and confinement to a juvenile detention center. He started with stealing prescription drugs from a friend's parents and misusing Xanax that was prescribed to him, and later progressed to buying prescription drugs off the street:

*I was 15 and she was my everything. She broke up with me and it was bad. I was a juvenile in Texas. I decided to go to L.A. I stole a check from my dad and wrote it \$500 . . . After I left juvie I did other drugs like Xanax, alcohol. I was depressed so I did whatever. That's also why I got into that pharmaceutical depression pills. It helped more. I wasn't just going to smoke—I would drink too. I was mixing . . . I was prescribed Xanax. I don't want to say I was addicted but it got to the point that I needed it every day because I felt like I couldn't function without it . . . Like if I didn't have enough money for my prescription one month I would be pretty bad . . . angry to my friends, scream at my parents. Lots of bad stuff. I would get it [Xanax] from the street. I would still pursue it when doctors said they couldn't give me that much.*

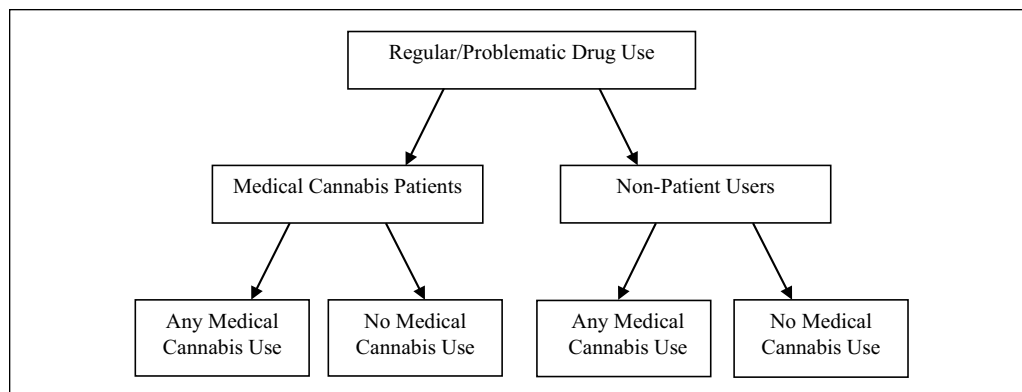
The role of chronic stressful contextual factors in the initiation of a regular/problematic drug use was exemplified by Daniel (24 years, NPU) who had a 10-year career using prescription (originally, from mother's supply) and street opioids. He attributed initiation of prescription opioid misuse, which quickly escalated to problematic use, to loneliness and inability to make friends after his parents divorced. In contrast, Jane (18 years, MCP), who had a history of a heavy methamphetamine use, did not clearly ascribe her mother's depression and suicidal attempts as a factor in her substance use but regarded it as impactful in general.

Cessation of drug use was often attributed to experiencing or witnessing an overdose. Witnessed or personal overdose as a motivation for quitting drugs was limited to cocaine and ecstasy users. For instance, Rodrigo (22 years, NPU) used cocaine daily for a month and decided to quit after he witnessed a friend's overdose who he was using cocaine with:

*I did have a friend that did overdose . . . he was so paralyzed—he couldn't move . . . That really scared me because we were like . . . me and him were doing the same amount. I was like, that could have been me, you know? . . . I would say like two days later, that's when I realized everything. That's when I quit and all that.*

Positive life events were another frequently reported factor for quitting drugs which often involved increased responsibilities (e.g., starting a college, starting new relationship, or birth of a child). For Miguel (20 years, MCP), a heavy crystal methamphetamine user, the birth of his child was a turning point toward curbing his drug use:

*She [girlfriend] moved in with me. I was about to smoke some crystal meth in the bathroom and at that moment I just didn't do it. I just put it away and walked over to my son and I looked at him. Because that was the first time that he was over at my house. But, I couldn't do it. And from there I just quit. I gave all my crystal meth for free. I gave three pipes away that [I] had. And then I just quit on the spot.*



**Figure 1.** MCP status and any medical cannabis use subgroups within regular/problematic drug use group.

Note. MCP = medical cannabis patients.

Finally, existential experiences related to drug use in different contexts resulted in a few respondents quitting drugs. Matt (22 years, NPU), who had a history of a heavy methamphetamine use, had a transformational experience using mescaline at a music festival whereby viewing other people's use of drugs made him averse to drugs, so he stopped using methamphetamine after this event.

Regular/problematic users included both MCP and NPU while a majority were MCP. Among MCP and NPU, some reported medical cannabis use, whereas others did not (Figure 1). All but one MCP and none of the NPU reported using cannabis to cope with physical or mental health problems (e.g., pain, insomnia, anxiety, or depression).

In addition, almost all regular/problematic users used cannabis to address short- and long-term consequences after using drugs with stimulant-like properties (e.g., ecstasy, cocaine, and methamphetamine). Many used cannabis to come down from a drug or "to sleep off the high" while all regular/problematic methamphetamine users also smoked cannabis to overcome negative consequences of use, such as lack of appetite and anxiety, and as a long-term substitute to reduce cravings for methamphetamine.

Matt (22 years, NPU) used cannabis in combination with Xanax to help sleep after methamphetamine use:

*The come down on it [methamphetamine] is so terrible, you feel like you wanna die . . . I use marijuana . . . like I take Xanax then smoke pot just cause Xanax takes a while, pot is instant, so it's like I can feel better now, and then fall asleep later, it'll be good.*

Cannabis served as a long-term substitute for cocaine for Rodrigo (22 years, NPU) who used cocaine daily for a month:

*I knew I was like into coke and so I was just like, "Whoa, I need to really stop doing this." So I just stopped buying that and I started buying more weed. And eventually I just got my mind off coke and I said, you know what, I'm done with that life. That's when I deleted everyone from my life.*

Bruno (19 years, MCP), who had a 3-year period of heavy methamphetamine use, used cannabis to deal with various short- and long-term consequences of use, such as insomnia, appetite, anxiety, and cravings:

*Yeah, it helped me [cannabis for methamphetamine cravings] just because I would get like anxious because my body was used to it. I was using it for like 2 or 3 years, you know? And my body would get anxious, I would be like "I know I don't need it, I know it's not good for my body." To me, it was about the mind. Like mind control . . . I have to say they [cannabis vs. methamphetamine] were completely opposite. Because crystal gets you up . . . Some people say it gets you all focused. With the weed it gets you drowsy and hungry. Cause a lot of times with crystal I would feel too amped up. And with the weed it would help me calm down.*

In addition, few regular/problematic users reported a history of drug addiction within their families or a history of cannabis use among adult family members.

In sum, impactful negative life events and chronic stressful contextual factors played important roles in the initiation of regular/problematic drug use while cannabis served to alleviate short-term after effects of drug use such as insomnia, anxiety, or lack of appetite. Finally, cessation/reduction of problematic drug use was frequently motivated by positive life events while cannabis was instrumental in this transition by reducing cravings and other mental and physical health issues as an aftermath of a drug use.

### **Recreational/Occasional Users of Illicit/Prescription Drugs**

Respondents in this group reported recreational/occasional use of substances other than cannabis that never became problematic. Ecstasy, cocaine, or mushrooms were the most commonly reported drugs within this group. Some were experimental users where illicit or prescription drugs were taken out of curiosity, and, in many cases, use was a one-time experience.

Nick (18 years, NPU) experimented with variety of drugs but never used them on regular basis:

*Not in high school but I have done it [mushrooms, LSD, ecstasy]. You know, but not frequently at all. Just once to see what it was like . . . It would be like at a party or something. People would be like, "Do you want to do this?" I mean I would turn it down most of the time. It was not like I was open to it because of marijuana. Yeah, people have definitely tried to get me to do other things other than weed . . . I go about it with a cautious approach.*

Despite being surround by drug use in college, drug using experiences for Luis (22 years, NPU) were limited to use with friends on special occasions:

*There was a lot of drugs around. Our fraternity wasn't very drug influenced—we just smoked . . . I've taken shrooms [mushrooms] in college—like my junior and senior year—just to try it out. I would only try again with like buddies but wouldn't really go out of my way to get it. I have tried cocaine, which came up when I was in Vegas . . . I had a good experience with it, but I don't think I would try it unless it was there or a super special occasion with all my friends.*

For others, drug use was beyond one-time experiences, but it was limited to special settings where it enhanced social interactions and activities (e.g., ecstasy use at raves).

For Adam (22 years, NPU), use of ecstasy and "molly" [powder form of ecstasy] was limited to the time when he lived in Albuquerque and frequently attended rave parties:

*I grew up going to underground raves in Albuquerque, New Mexico. Parties . . . I didn't really use weed. I would like do ecstasy and like molly . . . Because ecstasy like makes you dance more. It makes you kinda like in the state of mind where it's like everything's light and free and you're happy and it's just fun.*

The majority of recreational/occasional users had a medical cannabis recommendation. Furthermore, most MCP and about half of NPU in this group reported medical uses of cannabis



for physical and mental health problems with some resulting from traumatic events or chronic stressful contextual factors. Traumatic life events/chronic stressful contextual factors that had a lasting impact on psychological well-being were reported by about one-third of recreational/occasional users. Most of those events were related to a family situation while they were growing up, such as forced separation from one of the parents (e.g., death, imprisonment or divorce) or emotionally unavailable parents (e.g., remarriage and focus on a new partner). The majority of recreational/occasional users with the history of traumatic events or chronic stressful contextual factors reported cannabis use to cope with post-traumatic stress disorder (PTSD), depression, or anxiety caused by those events.

Jamel's (25 years, MCP) family was separated due to his father's growing addiction to cocaine. This traumatic event caused him to suffer from anxiety and depression for over a decade where cannabis helped to alleviate those uneasy feelings:

*I did go through a period of depression that stemmed from childhood. We moved as a result of the separation. As a result of the move, I was not allowed to tell my father that we were moving. I could not tell my aunts, uncles, and cousins. Initially, we were only supposed to be here for a year. A year passed. Time moved on. We were not moving back. I started to feel guilty. I felt like I betrayed my cousins. They were affected by that. I still feel like I should have told them. They told me. I felt very ashamed of that. I held that from 8 to 21 years old. I always think about it. I never spoke to anyone about it . . . I suffered from high anxiety. I did not realize that until after I started smoking. It brought everything down.*

Gabriella (21 years, MCP) was diagnosed with PTSD by a therapist after being drugged and raped one year prior study enrollment. She chose to medicate with a CBD tincture, a cannabidiol extract soaked in alcohol and taken sublingually. However, she was reluctant to either take prescribed medications or use illicit drugs to numb the symptoms of PTSD:

*I was diagnosed with like anxiety, PTSD, stuff like that. It was really hard to transition—going back into normal life. And I didn't want to do hardcore pharmaceuticals. I've been down that road, it's a really shitty road. And I tried it [CBD tincture] and it was literally five minutes, it stopped my panic attack . . . CBD tincture, yeah . . . it's a godsend. I tell every single person that suffers from it to like totally do it . . . I think so many traumatic events happened back to back . . . And I needed clarity, just clarity in general. And I didn't want to allow myself to go down the road of drinking to numb myself or to do weed because I'm numbing myself or drugs because it's easy. The only thing I took up there was my CBD tincture and that was it.*

A history of substance abuse (apart from cannabis) within a family was reported by about one-third of recreational/occasional users. A few of these respondents clearly expressed that they did not want to follow the footsteps of family members struggling with addiction.

Moreover, cannabis was accepted within a family or regularly used by adult family members for about one-third of recreational/occasional users. For instance, Fernanda's (20 years, MCP) family members were very specific about their preference for cannabis over other substances:

*Oh—who is supportive of it [cannabis use]? There's actually my dad's brother . . . I smoke with him sometimes. He is always like "Fernanda, I am so proud of you—you don't drink, you don't do hard drugs—you just stick to weed and that's all you need to stick to." And my grandfather is like this . . . My aunt that is 4 years older than me—her dad—I told you—they smoke together . . . He is supportive of it. He has grown weed and given me some and he always just says "Just stick with the green." Because all of my family members are like that—they've had weed smoking in family and stuff and some of them are just like "Just stick with the green."*

Furthermore, in two cases, family members had a history of hard drug use or alcoholism where cannabis was used as a long-term substitute for those substances.

In sum, for the majority of recreational/occasional users, neither cannabis nor life events/contextual factors played a role in the initiation and continued use of illicit or prescription drugs. Rather, cannabis use was a coping strategy among recreational/occasional users who did have traumatic experiences. Finally, a family history of hard drug use or alcoholism and acceptability of cannabis use within a family served as protective factors for a subset of recreational/occasional users.

### Never Users of Illicit/Prescription Drugs

The majority of never users of illicit or prescription drugs reported cannabis as their drug of choice and about one-third reported cannabis use by their parents or other adult family members. Most had a reason for never experimenting with other drugs. Some attributed it to fear of drugs—either due to observing friends on drugs or a belief that they had an addictive personality, which stemmed from a history of addiction within their families in some cases. Less frequent motives were related to lifestyles incompatible with drug use, for example, desire to work in a police department or being an athlete.

Imani (23 years, MCP) never used drugs other than cannabis despite going to raves and music festivals where drug use was widespread and viewed as a “must do” thing. She witnessed friends who overdosed, including one who died which was a very impactful experience. She tried to distance herself from people who did not share the same view on drug use:

*After a while some of them would do more than just weed. And I'm like “You can pop a pill. Do whatever you want to do, but that's just not who I am.” So I kind of like broke away from that, because I don't want you thinking that'll be okay with me . . . Two kids died from using cocaine and then smoking weed and then taking another upper and then another downer—all at the same situation . . . And so I was like “Whoa. Yeah. No. Not for me.” . . . Never had the urge of wanting to even do all of that . . . So “Nope. I know my little lane. My lane is weed and drinking.” That's where I like to be at.*

Diego's (19 years, NPU) abstinence from drugs other than cannabis was motivated by not wanting to be like his uncle, who was in jail and a heavy methamphetamine user:

*I would have family members that would do marijuana, but they would move on to other drugs. And that stemmed from my grandmother because my uncle did crystal and stuff like that. She thinks that you do marijuana and you're stepping in the same footsteps and you're gonna do all that. I have arguments with her about that. I always stuck to marijuana. I've been offered cocaine. I've been offered \$120 to do a line of cocaine and I still wouldn't do it.*

Furthermore, Angel (24 years, MCP) and one other participant did not want drugs to interfere with their professional goals:

*In college, I had a lot of friends who were cooking [using drugs] a lot, but I never got into it because I was trying to work for LAPD [Los Angeles Police Department]—you know, weed is the only thing you could have done and not get in trouble for. Any other type of drug would automatically disqualify you.*

The majority of never users of illicit/prescription drugs had a medical cannabis recommendation. All never users, except from one NPU, reported at least some degree of medical cannabis use (e.g., coping with mental health problems, such as depression, anxiety, and insomnia, and as a safer alternative to prescribed medications), whereas one-third reported current cannabis use among their parents or other relatives. Only two participants in this group reported impactful

traumatic events where cannabis was used to cope with mental health issues. Nicole (25 years, MCP) was using cannabis to manage PTSD symptoms resulting from sexual abuse in childhood. Candice (23 years, MCP), who was using cannabis to deal with stress-related insomnia issues due her mother's sickness and death, described her motivations to use cannabis:

*Not to hang out with my boyfriend but to just . . . honestly just to go to sleep . . . I think as I got older and I got on my own and I started to get more stressed out so it became a lot harder to sleep at night . . . College and my mom being sick [were the biggest stresses]—I just lost my mom last year in July. So, I just had been dealing with it.*

In sum, the majority of never users were articulate about the reasons why they did not try drugs other than cannabis. Few reported experiencing traumatic events, and those who did, used cannabis to cope with those experiences. Finally, observing friends or family members on drugs and subsequent aversion or fear of drugs was the most common reason against drug use.

## Discussion

In our sample of young adult cannabis users, recreational/occasional use was the most commonly identified pattern of illicit or prescription drug use. Ecstasy, cocaine, or mushrooms were the most popular drugs reported by this group. The predominance of recreational/occasional drug users in our sample might reflect the fact that young adulthood is a period of dramatic life changes, such as moving away from parents and living on your own, greater freedom, which can lead to exploration and experimentation with different substances (Arnett, 2000). In addition, drugs can be instrumental toward enhancing social interactions and making those experiences more pleasurable (Bahora et al., 2009; Boys et al., 1999; Järvinen & Ravn, 2011). Regular/problematic use represented a smaller proportion of respondents in our sample. Methamphetamine followed by cocaine and ecstasy were the most commonly reported drugs in this group. In addition, one person misused prescription tranquilizers, and two others misused prescription opioids where one of them transitioned into heroin use. Only a few respondents never used illicit or misused prescription drugs.

Negative life events and stressful contextual factors played an important role in initiation of regular/problematic drug use. Most of these factors were interpersonal in nature and involved a family situation or relationships with significant others. Interestingly, unlike traumatic life events (e.g., death, separation), family situations as chronic stressful contextual factors (e.g., domestic violence, parents with serious mental illness) were rarely directly linked to the initiation of problematic drug use. Due to the chronic nature of some difficult family situations, individuals might perceive dysfunction as a normal part of their lives, therefore, making it difficult for them to connect stressors to their drug use (Teruya & Hser, 2010). Concurring with previous research, reasons for remission from regular/problematic drug use included interpersonal/social factors (e.g., positive life events such as new relationships, having a child, or starting a school; Liebrechts, 2015; McCabe et al., 2016; Stone et al., 2012; Teruya & Hser, 2010) and individual-level factors (e.g., overdose, negative health consequences, or existential experiences; Granfield & Cloud, 2001; Liebrechts, 2015; Sexton et al., 2008; Walters, 2000). Therefore, our findings highlight life events/contextual factors that involve significant others or social institutions as powerful drivers of changes in patterns of drug use either as a “negative push” toward drug use or as a “positive pull” away from drug use (Granfield & Cloud, 2001).

Traumatic life events or chronic stressful contextual factors were reported by some recreational/occasional users. However, none reported using drugs other than cannabis to cope with anxiety or depression brought about by those factors. In addition, a sizable proportion of recreational/occasional users had a family history of addiction, whereas a few stated that this

awareness made them cautious about their own drug use. Few never users reported experiencing any impactful stressful life events. Interestingly, the majority of never users reported reasons for staying away from drugs, including a fear of drugs, consequences of use due to family history of addiction, or after observing effects of drugs on other people. A few in this group had practical reasons for never using other drugs such as incompatibility with future career aspirations or being an athlete. These results also suggest that a family history of substance abuse could be protective against initiating or transitioning into a problematic drug use, which is surprising, given that previous research uniformly reported family history of substance abuse as a risk factor for offspring's substance abuse later in life (Chassin et al., 2004; Clark et al., 2005; Darke, 2011; Fergusson et al., 2008; Lankenau et al., 2012; Lloyd, 1998; Stone et al., 2012).

The majority of respondents in all three groups had a medical cannabis recommendation. Most of recreational/occasional and regular/problematic users who were MCP, and all never users who were MCP, reported using cannabis medically for physical or mental health issues. Interestingly, no NPU within the regular/problematic use group reported using cannabis for medical purposes. In contrast, about half of recreational/occasional users who were NPU and two out of three NPU among never users used cannabis medically. Furthermore, cannabis played a different role in other drug use for each of the three user groups. Due to its sedative effects, cannabis was instrumental for regular/problematic users of methamphetamine (Boeri et al., 2009; Sexton et al., 2008), ecstasy (Beck & Rosenbaum, 1994; Boys et al., 1999; Järvinen & Ravn, 2011; Levy et al., 2005), and cocaine (Bottorff et al., 2011; Dreher, 2002; Lau et al., 2015a; Sifaneck & Kaplan, 1995) by alleviating either short- or long-term consequences of use. Cannabis was used for insomnia, to increase appetite, to cope with anxiety and depression caused by those drugs, and to deal with cravings for those who wanted to stop/reduce their use of other drugs by substituting them with cannabis. Cannabis was used for almost all of those purposes either in the course of ongoing use (e.g., come down from a drug) or after respondents stopped using stimulants to deal with long-term consequences of use (e.g., addiction, panic attacks).

Furthermore, cannabis was indispensable for some recreational/occasional users and a few never users who had experienced impactful traumatic events or chronic stressful contextual factors. Cannabis was used to alleviate emotional pain following those events. Moreover, for some recreational/occasional users, preference for cannabis over other drugs as a coping strategy was a result of a rational decision-making process, whereas for other recreational/occasional and never users, it was more of a fortuitous realization of the healing properties of cannabis. In addition, about one-third of recreational/occasional and one-third of never users reported having regular cannabis users among adult family members, including parents, and, in some cases, a preference for cannabis over other drugs was clearly stated by their relatives (Kosterman et al., 2016).

The differences in response to traumatic events/chronic stressful contextual factors between the three groups were possibly due to different norms around acceptable ways to cope with trauma or stress (Zinberg, 1984). For many regular/problematic users, illicit/prescription drugs were used as an escape from emotional pain, whereas recreational/occasional and never users with similar traumatic experiences resorted to using cannabis instead. With the passage of the Adult Use of Marijuana Act (AUMA) in 2016 in California, and the beginning of recreational cannabis sales in 2018, we might anticipate cannabis emerging as a protective factor against other drug use (Sifaneck & Kaplan, 1995) and greater normalization and acceptance of cannabis use even among non-users (Hartig & Geiger, 2018; Lau et al., 2015b). The impact of family history of substance abuse and changes in attitudes toward cannabis use on drug use among young adults should be explored further in future studies. Overall, our results showed that cannabis was protective against other drug use in several ways: either by helping regular/problematic users to step off problematic drug use or by keeping recreational/occasional and never users away from problematic or any drug use. The latter was accomplished by using cannabis to cope with trauma and endorsement of positive norms around cannabis use within families (Sifaneck & Kaplan, 1995).

Our study had several limitations. First, since our sample primarily consisted of MCP, cannabis use to cope with mental health problems could be less pronounced in the population of young adult cannabis users in Los Angeles compared with the larger study sample. Second, since life events and their role in other drug use were not the primary focus of the qualitative interview guide, but rather cannabis use and its relationships with life events and other drug use, there could be an underreporting of the connections between traumatic life events and other drug use. Third, given the sensitivity of the topic and retrospective nature of the data, our results could be a subject to social desirability and recall bias. However, social desirability bias may have been minimized due to a good rapport established between interviewers and participants during the course of study activities.

## Conclusion

This is the first study to examine the role of traumatic events/stressful contextual factors and cannabis use in the patterns of other drug use among young adult MCP and non-patient users. Across the three groups with distinct patterns of drug use, we did not find differences in the proportion of MCP, but we did observe differences in the proportion of medical cannabis use among NPU. Medical use was common among NPU in recreational/occasional and never use groups, but absent among NPU in regular/problematic use group. Among regular/problematic users, the role of life events/chronic stressful contextual factors in the patterns of other drug use was the most pronounced, and illicit drugs, for example, methamphetamine and ecstasy, were potentially used to cope with trauma or stress. Among recreational/occasional or never users, fewer experienced traumatic life events, while cannabis, not other drugs, were used to cope with emotional pain resulting from those events. The potentially protective role of a family history of substance abuse and cannabis use among adult family members requires further investigation.

## Acknowledgments

The authors would like to thank the following individuals who supported the development of this manuscript: Miles McNeely, Megan Treese, Ali Johnson, Chaka Dodson, Maral Shahinian, Avat Kioumars, Janna Ataiants, Salini Mohanti, and Megan Reed.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The study was funded by a grant from the National Institute on Drug Abuse (Grant Number DA034067).

## ORCID iD

Ekaterina V. Fedorova  <https://orcid.org/0000-0002-8084-9703>

## References

- Aharonovich, E., Liu, X., Samet, S., Nunes, E., Waxman, R., & Hasin, D. (2005). Postdischarge cannabis use and its relationship to cocaine, alcohol, and heroin use: A prospective study. *The American Journal of Psychiatry, 162*(8), 1507–1514.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480.

- Bahora, M., Sterk, C. E., & Elifson, K. W. (2009). Understanding recreational ecstasy use in the United States: A qualitative inquiry. *International Journal of Drug Policy, 20*(1), 62–69.
- Bardhi, F., Sifaneck, S. J., Johnson, B. D., & Dunlap, E. (2007). Pills, thrills and bellyaches: Case studies of prescription pill use and misuse among marijuana/blunt smoking middle class young women. *Contemporary Drug Problems, 34*(1), 53–101.
- Beck, J., & Rosenbaum, M. (1994). *Pursuit of ecstasy: The MDMA experience*. State University of New York Press.
- Biernacki, P. (1986). *Pathways from heroin addiction: Recovery without treatment*. Temple University Press.
- Birch, E. (1889). The use of Indian hemp in the treatment of chronic chloral and chronic opium poisoning. *The Lancet, 133*(3422), 625.
- Boeri, M. W., Harbry, L., & Gibson, D. (2009). A qualitative exploration of trajectories among suburban users of methamphetamine. *Journal of Ethnographic & Qualitative Research, 3*(3), 139–151.
- Bottorff, J. L., Bissell, L. J., Balneaves, L. G., Oliffe, J. L., Kang, H. B. K., Capler, N. R., Buxton, J. A., & O'Brien, R. K. (2011). Health effects of using cannabis for therapeutic purposes: A gender analysis of users' perspectives. *Substance Use & Misuse, 46*(6), 769–780.
- Boys, A., Marsden, J., Fountain, J., Griffiths, P., Stillwell, G., & Strang, J. (1999). What influences young people's use of drugs? A qualitative study of decision-making. *Drugs: Education, Prevention and Policy, 6*(3), 373–387.
- Chassin, L., Flora, D. B., & King, K. M. (2004). Trajectories of alcohol and drug use and dependence from adolescence to adulthood: The effects of familial alcoholism and personality. *Journal of Abnormal Psychology, 113*(4), 483–498.
- Clark, D. B., Cornelius, J. R., Kirisci, L., & Tarter, R. E. (2005). Childhood risk categories for adolescent substance involvement: A general liability typology. *Drug and Alcohol Dependence, 77*(1), 13–21.
- Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment, 6*(2), 117–128.
- Daniulaityte, R., Carlson, R. G., & Kenne, D. R. (2006). Initiation to pharmaceutical opioids and patterns of misuse: Preliminary qualitative findings obtained by the Ohio Substance Abuse Monitoring Network. *Journal of Drug Issues, 36*(4), 787–808.
- Darke, S. (2011). *The life of the heroin user: Typical beginnings, trajectories and outcomes*. Cambridge University Press.
- DeSantis, A. D., Webb, E. M., & Noar, S. M. (2008). Illicit use of prescription ADHD medications on a college campus: A multimethodological approach. *Journal of American College Health, 57*(3), 315–324.
- Dreher, M. (2002). Crack heads and roots daughters: The therapeutic use of cannabis in Jamaica. *Journal of Cannabis Therapeutics, 2*(3–4), 121–133.
- Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2008). The developmental antecedents of illicit drug use: Evidence from a 25-year longitudinal study. *Drug and Alcohol Dependence, 96*(1), 165–177.
- Granfield, R., & Cloud, W. (2001). Social context and “natural recovery”: The role of social capital in the resolution of drug-associated problems. *Substance Use & Misuse, 36*(11), 1543–1570.
- Grella, C. E., Rodriguez, L., & Kim, T. (2014). Patterns of medical marijuana use among individuals sampled from medical marijuana dispensaries in Los Angeles. *Journal of Psychoactive Drugs, 46*(4), 263–272.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362.
- Hartig, H., & Geiger, A. W. (2018, October 8). About six-in-ten Americans support marijuana legalization. *Pew Research Center*. Retrieved from <https://medium.com/@pewresearch/about-six-in-ten-americans-support-marijuana-legalization-5585e92cd80c>
- Hides, L., Lubman, D. I., Cosgrave, E. M., Buckby, J. A., Killackey, E., & Yung, A. R. (2008). Motives for substance use among young people seeking mental health treatment. *Early Intervention in Psychiatry, 2*(3), 188–194.
- Järvinen, M., & Ravn, S. (2011). From recreational to regular drug use: Qualitative interviews with young clubbers. *Sociology of Health & Illness, 33*(4), 554–569.
- Kandel, D. (1975). Stages in adolescent involvement in drug use. *Science, 190*, 912–914.

- Klingemann, H. K. H. (1992). Coping and maintenance strategies of spontaneous remitters from problem use of alcohol and heroin in Switzerland. *International Journal of the Addictions, 27*(12), 1359–1388.
- Kosterman, R., Bailey, J. A., Guttmanova, K., Jones, T. M., Eisenberg, N., Hill, K. G., & Hawkins, J. D. (2016). Marijuana legalization and parents' attitudes, use, and parenting in Washington State. *Journal of Adolescent Health, 59*(4), 450–456.
- Lankenau, S. E., Fedorova, E. V., Reed, M., Schragar, S. M., Iverson, E., & Wong, C. F. (2017). Marijuana practices and patterns of use among young adult medical marijuana patients and non-patient marijuana users. *Drug and Alcohol Dependence, 170*, 181–188.
- Lankenau, S. E., Jackson Bloom, J., & Shin, C. (2010). Longitudinal trajectories of ketamine use among young injection drug users. *International Journal of Drug Policy, 21*, 306–314.
- Lankenau, S. E., Kioumarsis, A., Reed, M., McNeeley, M., Iverson, E., & Wong, C. F. (2018). Becoming a medical marijuana user. *International Journal of Drug Policy, 52*, 62–70.
- Lankenau, S. E., Sanders, B., Hathazi, D., & Jackson Bloom, J. (2008). Subjective experiences on ketamine: The impact of drug, set, and setting. *Addiction Research & Theory, 16*, 273–287.
- Lankenau, S. E., Teti, M., Silva, K., Bloom, J. J., Harocopos, A., & Treese, M. (2012). Initiation into prescription opioid misuse amongst young injection drug users. *International Journal of Drug Policy, 23*(1), 37–44.
- Lankenau, S. E., Wagner, K., Jackson Bloom, J., Sanders, B., Hathazi, D., & Shin, C. (2010). The first injection event: Differences among heroin, methamphetamine, cocaine, and ketamine initiates. *Journal of Drug Issues, 40*, 241–262.
- Lau, N., Sales, P., Averill, S., Murphy, F., Sato, S. O., & Murphy, S. (2015a). A safer alternative: Cannabis substitution as harm reduction. *Drug and Alcohol Review, 34*(6), 654–659.
- Lau, N., Sales, P., Averill, S., Murphy, F., Sato, S. O., & Murphy, S. (2015b). Responsible and controlled use: Older cannabis users and harm reduction. *International Journal of Drug Policy, 26*(8), 709–718.
- Levy, K. B., O'Grady, K. E., Wish, E. D., & Arria, A. M. (2005). An in-depth qualitative examination of the ecstasy experience: Results of a focus group with ecstasy-using college students. *Substance Use & Misuse, 40*(9–10), 1427–1441.
- Liebrechts, N. (2015). *Cannabis changes: Understanding dynamics of use and dependence*. Universiteit van Amsterdam.
- Liebrechts, N., van der Pol, P., van Laar, M., de Graaf, R., van den Brink, W., & Korf, D. J. (2013). The role of parents, peers and partners in cannabis use and dependence trajectories among young adult frequent users. *Contemporary Drug Problems, 40*(4), 531–568.
- Lloyd, C. (1998). Risk factors for problem drug use: Identifying vulnerable groups. *Drugs: Education, Prevention and Policy, 5*(3), 217–232.
- Lord, S., Brevard, J., & Budman, S. (2011). Connecting to young adults: An online social network survey of beliefs and attitudes associated with prescription opioid misuse among college students. *Substance Use & Misuse, 46*(1), 66–76.
- Lucas, P., Reiman, A., Earleywine, M., McGowan, S. K., Oleson, M., Coward, M. P., & Thomas, B. (2013). Cannabis as a substitute for alcohol and other drugs: A dispensary-based survey of substitution effect in Canadian medical cannabis patients. *Addiction Research & Theory, 21*(5), 435–442.
- Lucas, P., Walsh, Z., Crosby, K., Callaway, R., Belle-Isle, L., Kay, R., Capler, R., & Holtzman, S. (2016). Substituting cannabis for prescription drugs, alcohol and other substances among medical cannabis patients: The impact of contextual factors. *Drug and Alcohol Review, 35*(3), 326–333.
- McCabe, S. E., Cranford, J. A., & Boyd, C. J. (2016). Stressful events and other predictors of remission from drug dependence in the United States: Longitudinal results from a national survey. *Journal of Substance Abuse Treatment, 71*, 41–47.
- McEwen, B. S. (2000). Allostasis and allostatic load: Implications for neuropsychopharmacology. *Neuropsychopharmacology, 22*(2), 108–124.
- Mikuriya, T. H. (1970). Cannabis substitution. An adjunctive therapeutic tool in the treatment of alcoholism. *Medical Times, 98*(4), 187–191.
- Mikuriya, T. H. (2004). Cannabis as a substitute for alcohol: A harm-reduction approach. *Journal of Cannabis Therapeutics, 4*(1), 79–93.

- Mojarrad, M., Samet, J. H., Cheng, D. M., Winter, M. R., & Saitz, R. (2014). Marijuana use and achievement of abstinence from alcohol and other drugs among people with substance dependence: A prospective cohort study. *Drug and Alcohol Dependence, 142*, 91–97.
- Quintero, G. (2009). Rx for a party: A qualitative analysis of recreational pharmaceutical use in a collegiate setting. *Journal of American College Health, 58*(1), 64–72.
- Reiman, A. E. (2007). Medical cannabis patients: Patient profiles and health care utilization patterns. *Complementary Health Practice Review, 12*(1), 31–50.
- Reiman, A. E. (2009). Cannabis as a substitute for alcohol and other drugs. *Harm Reduction Journal, 6*, Article 35.
- Sexton, R., Carlson, R., Leukefeld, C., & Booth, B. (2008). Trajectories of methamphetamine use in the rural South: A longitudinal qualitative study. *Human Organization, 67*(2), 181–193.
- Sifaneck, S. J., & Kaplan, C. D. (1995). Keeping off, stepping on and stepping off: The steppingstone theory reevaluated in the context of the Dutch cannabis experience. *Contemporary Drug Problems, 22*(3), 483–512.
- Stone, A. L., Becker, L. G., Huber, A. M., & Catalano, R. F. (2012). Review of risk and protective factors of substance use and problem use in emerging adulthood. *Addictive Behaviors, 37*(7), 747–775.
- Teruya, C., & Hser, Y. I. (2010). Turning points in the life course: Current findings and future directions in drug use research. *Current Drug Abuse Reviews, 3*(3), 189–195.
- Walters, G. D. (2000). Spontaneous remission from alcohol, tobacco, and other drug abuse: Seeking quantitative answers to qualitative questions. *The American Journal of Drug and Alcohol Abuse, 26*(3), 443–460.
- Wasserman, D. A., Weinstein, M. G., Havassy, B. E., & Hall, S. M. (1998). Factors associated with lapses to heroin use during methadone maintenance. *Drug and Alcohol Dependence, 52*(3), 183–192.
- Zinberg, N. E. (1984). *Drug, set and setting*. Yale University Press.

## Author Biographies

**Ekaterina V. Fedorova** is a postdoctoral researcher in the Department of Community Health and Prevention at Drexel University. Over the past 10 years, her research has been focused on the role of individual-, social-, and structural-level factors in substance use, HIV risk behaviors, and mental health.

**Alexis M. Roth** is an assistant professor in the Department of Community Health and Prevention at Drexel University. Her research is focused on understanding how individual, social, and environmental factors influence health disparities with the goal of translating this information to policies and programs to address disparities.

**Alice Cepeda** is an associate professor in the School of Social Work at University of Southern California. She focuses on the social epidemiology of drug use and the related health risk behaviors affecting urban Mexican-origin populations.

**Carolyn F. Wong** is an assistant professor at Children's Hospital Los Angeles, Keck School of Medicine at University of Southern California. Her research focuses on better understanding the impact of psychosocial risk and resilient factors of young adults at high risk for mental health problems and substance use/misuse.

**Ellen Iverson** is an assistant research professor at Children's Hospital Los Angeles, Keck School of Medicine at University of Southern California. For over 25 years, she has designed and conducted mixed-method research focusing on multilevel factors that have an impact on health and health care utilization, especially among vulnerable populations.

**Stephen E. Lankenau** is a professor in the Department of Community Health and Prevention at Drexel University. He is a sociologist who combines public health concerns and mixed methods to the study of substance use and health outcomes associated with use, including homelessness, infectious diseases, and overdose, as well as healing and recovery.