



Data, Damn Lies, and Cannabis Policy: Reefer Madness and the Methodological Crimes of the New Prohibitionists

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Abstract

The rapid pace of cannabis legalization in North America has provoked a backlash that is predictable and discouraging. The New Prohibitionists, distinct but related to their predecessors, the Old Prohibitionists, have offered scholarship rife with conceptual errors, methodological flaws, and practical oversights. While their advice would likely hasten that which they seek to decrease, they overlook the costs of returning to practices associated with prohibition. To counter simplistic research interpretations and ill-considered policy, we present a critically informed research program on cannabis and crime based on previous scholarship. Our work is designed to apply replacement discourse and refocus research to withstand the tendency for justice systems to subvert, rather than embrace, reform. Cannabis legalization has been decades in the making and serious questions remain for proponents, opponents, and policymakers. Society, however, will be far worse off if the mistakes of reefer madness are repeated.

Introduction

The speed at which cannabis legalization in the United States (US) has proceeded is staggering. Once grown as a crop in early America, hemp soon became synonymous with psychoactive cannabis which had higher levels of tetrahydrocannabinol (THC) that supposedly caused violence and crime. Cannabis was prohibited in the 1930s, based in part on a campaign designed to scapegoat, label, stigmatize, and criminalize “dangerous” Mexican immigrants (Tosh 2019: 333). The US government official, Harry J. Anslinger, who served as the first commissioner of the US Treasury Department’s Federal Bureau of Narcotics, famously associated it with evil, non-White populations, and Jazz music:

There are 100,000 total marijuana smokers in the U.S., and most are Negroes, Hispanics, Filipinos, and entertainers. Their Satanic music, jazz, and swing result from

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marijuana use. This marijuana causes white women to seek sexual relations with Negroes, entertainers and any others.¹

While some states decriminalized personal use in the 1970s, others began legalizing medical use in 1996. This pace has increased dramatically since 2012 and, at the time of this writing, cannabis for medical or recreational use is now legal in thirty-three of the fifty American states and in the District of Columbia.² While this trend continued in 2020, the stigma remains.

Legalization has proceeded along a number of paths since 1990. Consistent with the “normalization thesis” (Parker 2005),³ popular culture often portrayed cannabis use as common, mocked its status as a Schedule I drug, and associated smoking pot with subcultures from surfing to hip hop, and from skateboarding to jam bands.⁴ During this period, some states began legalizing medical cannabis through citizen-led ballot initiatives. This further de-stigmatized use among a subset of the population and increased the supply of cannabis through diversion to illegal markets (Nussbaum et al. 2015). In the past decade, several states have legalized recreational cannabis. Washington and Colorado were the first to do so in 2012, and between 2014 and 2016, Alaska, California, Maine, Massachusetts, Nevada, and Oregon all legalized cannabis. Since 2018, Illinois, Michigan, and Vermont have continued this trend. In some of these states, regulatory systems have been established to standardize the sale of non-medical (retail) cannabis for people twenty-one years of age and older. Possessing cannabis remains a federal crime, however, and efforts to criminalize, stigmatize, and control its use remain.

In 2018, Canada became the second country, after Uruguay, to formally legalize cultivation, possession, and consumption of cannabis and its by-products; provinces and municipalities have allowed dispensaries to open at varying rates. For example, in Nova Scotia, cannabis is sold through the Nova Scotia Liquor Corporation (NCLS), although not in the same location as alcohol. By contrast, many municipalities in British Columbia (BC), a province known for its cannabis, have allowed very few shops to operate. As a result, revenue from cannabis sales in BC was among the lowest of any province with a mere CA\$19.52 million in sales in 2019. Sales in Alberta were the highest of any province at CA\$123.6 million, topping Ontario, which brought in CA\$121.6 million in cannabis sales (Ward 2019).

There is evidence of an impending backlash against legalization. In a highly publicized article in *The New Yorker*, Malcolm Gladwell (2019), argued that cannabis is not as safe as we think and suggested that amid the hype surrounding the benefits of cannabis legalization, serious risks are being overlooked:

the few studies we do have were done mostly in the nineteen-eighties and nineties, when cannabis was not nearly as potent as it is now. Because of recent developments in plant breeding and growing techniques, the typical concentration of THC, the psychoactive ingredient in marijuana, has gone from the low single digits to more than twenty per cent—from a swig of near-beer to a tequila shot.

¹ For a useful summation of many of Anslinger’s statements in his 1937 testimony to US Congress supporting Marihuana Tax Act, see <https://fee.org/articles/the-racist-roots-of-marijuana-prohibition/>.

² In other states, the legal status of cannabis remains mixed.

³ Parker (2005) suggested that the use of drugs had become the norm especially among young people. He argued that if current trends continued, non-drug-trying adolescents would be in the minority, as opposed to the “normal” adolescents who had used drugs.

⁴ Schedule I chemicals, drugs, or substances, are those with no currently accepted medical use and with a high potential for abuse. Schedule I drugs face the strictest regulations and are effectively illegal for anything outside of research.

It is worth noting that while the potency of has increased in recent years, the magnitude of the increase is often blown out of proportion. The alcohol analogy is particularly misguided because tequila is normally 40% alcohol, or roughly 80 times stronger than near beer (0.5% alcohol content). Gladwell's thinking is based on journalist Alex Berenson's (2019) recent book that suggests a link between cannabis and mental illness: increased use will result in psychosis and violent crime. Even then-candidate Joe Biden had to correct the record after repeating the notion—long dispelled—that marijuana serves as a “gateway drug” (Cummings 2019).

After the release of Berenson's book, over 100 drug experts and clinicians signed a letter outlining concerns with his scientific claims. They noted with dismay that his book ignored the serious harms associated with prohibition and exaggerated those associated with personal use of cannabis (Drug Policy Alliance 2019). Berenson is but one of a growing group of reporters, commentators, and scholars leading a backlash against legal cannabis. In the interest of brevity, we refer to this group as the “New Prohibitionists.”

The New Prohibitionists, like the “Old Prohibitionists” (those from the Prohibition era in the US (1920–1933)), believe that cannabis causes mental illness and thus leads to violence and crime. They can be distinguished from the Old Prohibitionists by several defining features, however. First, the New Prohibitionists are more adept at using scientific research to support their arguments. Second, when compared to the Old Prohibitionists, their motives appear to be less harsh and more enlightened because of the veneer of scientific authority and their commitment to drug treatment. These differences have allowed the New Prohibitionists to be taken more seriously by modern media outlets.

Third, and finally, the New Prohibitionists reject imprisonment and other harsh penalties for cannabis possession. Instead of relying on moralistic arguments, appeals to law and order, and deterrence, they have adjusted their tactics, couching prohibition in public health mantras and non-punitive (but sometimes coercive) approaches. Indeed, the New Prohibitionists are more associated with the “treatment-industrial complex” rather than the “prison-industrial complex” (Issacs 2014). Boeri (2017: 162–163) describes how this approach to treatment is used to quell concerns about drug prohibition and stifle reform:

Alone, the prison industrial complex and treatment industrial complex were in competition—together they were a gargantuan Trojan horse that could stop the tiny force of intellectuals and activists who were demanding an end to the War on Drugs. But how did treatment gain so much legitimacy in the public mind? Perhaps because the construction of addiction as a disease was legitimized by biomedical science....

This is the medical model resurgent. People who use drugs are not rational, but “sick” because addiction is a disease; they need help in the form of experts who can treat them. The New Prohibitionists portray such a view as the pinnacle of scientific thought around drug use. There are, however, competing points of view that have considerable empirical support (Lewis 2015).

In this article, we begin by identifying conceptual and methodological flaws in the claims of the New Prohibitionists. Next, we consider the consequences should their policy advice be adopted. Finally, we propose a research program on cannabis and crime based on previous research (Wheeldon and Heidt 2007). Our approach builds on academic work that has demonstrated how activists, the media, and politicians manipulate and distort social science data (Best 2001; Robinson and Scherlen 2014). We hope to refocus attention on critically-informed questions for proponents, opponents, and policymakers. Unless criminologists begin to reframe research in this area, the methodological crimes of the New Prohibitionists may undermine rather than enlighten future drug policy.

Conceptual and Methodological Issues

Anti-legalization groups, such as Smart Approaches to Marijuana (SAM), have long claimed that cannabis is dangerous and should not be legalized under any circumstances.⁵ Some high profile and otherwise “liberal” commentators, however, have returned to older tropes about cannabis in which the link between cannabis and mental illness is unquestioned. Berenson (2019: xi–xiv) offers some terrifying anecdotes:

In the early morning hours of December 19, 2014, in Cairns, Australia, a subtropical city of 160,000, Raina Thaiday stabbed eight children to death. Seven of the kids were hers, the eighth was her niece. She was 37 years old. And she was very, very sick. The case was among the worst incidents of maternal child killing ever recorded.... Judge Dalton determined that when she murdered her kids, Thaiday “was suffering from a mental illness, paranoid schizophrenia, and that she had no capacity to know what she was doing was wrong”....She found Thaiday’s illness was no accident. Marijuana had caused it.

The resemblance here to the Reefer Madness propaganda of the 1920s and 1930s, as described by Becker (1963: 142), is hard to miss:

An entire family was murdered by a youthful [marihuana] addict in Florida. When officers arrived at the home, they found the youth staggering about in a human, slaughterhouse. With an ax, he had killed his father, his mother, two brothers, and a sister...The officers knew him ordinarily as a sane, rather quiet young man; now he was pitifully crazed...The boy said he had been in the habit of smoking something which youthful friends called “muggles”, a childish name for marihuana.

Berenson’s claim that increased cannabis use will lead to more violent crime is based on a report from the National Academy of Science, Engineering, and Medicine’s (2017) review of cannabis research and the work of a cluster of psychiatric researchers in the United Kingdom (UK), led by Robin Murray (Murray et al. 2017) and Maria Di Forti (Di Forti et al. 2019).⁶ Dr. Ziva Cooper, Research Director of UCLA’s Cannabis Research Initiative and an investigator with the study cited by Berenson, has stated publicly that the claim that cannabis causes psychosis is wrong and misrepresents her position and that of her colleagues.⁷

Like Cooper, Murray and Di Forti note that their work does not prove a causal relationship between cannabis and mental illness. Unfortunately, media outlets have seized upon their research, and politicians have used it as a justification for inaction on reform measures in the UK and parts of Europe. Unlike Cooper, Murray and Di Forti have done little to correct the record when their research is misinterpreted. In fact, both spoke with Berenson (2019) while he was writing his book, and both seem to have failed to properly explain their research to him. Best (2001: 15) notes that this process is not new and follows a pattern:

⁵ For more, see Smart Approaches to Marijuana (SAM) (<https://learnaboutsam.org/>) and Clear the Air Now (<http://www.cleartheairnow.org/>).

⁶ We have included a small sample of their recent research. Their entire catalog of studies would be impossible to document here because a great deal of their careers has been spent attempting to uncover a link between cannabis use and mental illness. So far, proving such a link exists has been stubbornly elusive.

⁷ For an interview with Dr. Cooper about this subject, see Martin (2019).

Often activists also enlist the support of experts—doctors, scientists, economists, and so on—who presumably have special qualifications to talk about the causes and consequences of some social problem. Experts may have done research on the problem and can report their findings. Activists use experts to make claims about social problems seem authoritative, and the mass media often rely on experts' testimonies to make news stories about a new problem seem more convincing. In turn, experts enjoy the respectful attention they receive from activists and the media.

Perhaps Murray and Di Forti see no advantage in correcting the record. After all, the more serious the problem, the more research funding becomes available. As Savelsberg and colleagues (2004) note, when research topics under investigation are defined by the prevailing political perspectives of the time, findings that support partisan dogma can create a fortuitous nexus between ideology and funding. While an honest accounting of research would concede that there are other explanations for observed patterns in the data (Ksir and Hart 2016), there is little acknowledgment in the New Prohibitionist approach that their findings appear *sui generis*. Indeed, all cannabis research ought to note that concerns about the quality of the data currently available complicate research on cannabis, crime, and social harm (Farley and Orchowsky 2019).

Unfortunately, this lack of clarity has not stopped commentators who have rushed into this data-limited area and drawn conclusions based on dubious analyses. First, methodological decisions and misuse of statistics grant a false sense of security around the topic. Second, there are numerous logical inconsistencies and practical problems associated with the New Prohibitionist approach. While cannabis legalization is certainly worthy of more study, society will be worse off if the mistakes of reefer madness are repeated. Finally, efforts to document the dangers of legalization must contend with the harms of prohibition; these are significant and multifaceted, and often dismissed or simply not considered. One fear is that research distortion is being used to manipulate public understanding (Best 2001).

What is an “Occasional User”?

Best (2001) describes one difficulty known as “defining.” Problems arise when researchers attempt to define social problems, especially when formulating concepts for studies about people who use drugs. More specifically, definitions may seem uniform at first glance because they have similar names. In addition, there are also ethical dilemmas created by attempting to develop control groups in studies. Ponto and Boles (2006: 1082) describes these challenges:

Ideally, the comparison group should be completely drug naive. For acute response studies, it is considered to be unethical to introduce a potential drug of abuse to a naive subject or to reintroduce the agent to an abstinent user. As a result, comparative groups are generally ‘occasional’ users. Hence, the nature of the comparison group is highly dependent on definition of the user group.

In other words, the definition of “occasional users” may vary across studies causing inconsistencies in the findings. According to Ponto and Boles (2006), many studies rely on self-reports of users to assess levels of drug use, making the research dependent on the accuracy and reliability of the memories of the research subjects. This might even hold true

in areas with legal cannabis because there is still stigma attached to the activity; in some cases, employment can be negatively impacted because of legal cannabis use.

Given that Berenson (2019) has focused exclusively on studies that use this method of classification, his observations will be distorted. For example, in many of these studies, participants were sorted into several categories: never used, occasional users, used more than once a week, and daily use. Furthermore, participants were also asked to identify the strength of the illegal, unregulated cannabis that they commonly ingested (Di Forti et al. 2019). It is not hard to see how under-reporting, or misreporting could impact these findings.

Overreliance on Observational Studies and Anecdotal Accounts

Berenson and the other New Prohibitionists rely primarily on one type of research design to support their position: observational case control studies. By focusing on results from one research design, they are committing the methodological sin of *selection bias*. Case control studies draw inferences about a larger population based on a small sample, and the results should not be viewed in isolation from other forms of research. For example, there is ample evidence of increased cannabis use since the 1970s; data on schizophrenia, however, indicate that admissions and diagnoses have remained stable—and have fallen in some areas (Gage et al. 2013). This is surprising because in recent years, stigma against mental illness has lessened and people (e.g., athletes, celebrities, musicians) are increasingly open about mental illness and are encouraged to seek help.

Another type of selection bias is evident in Berenson's work—a point that was made in a letter signed by over 100 drug experts and clinicians:

Berenson is guilty of selection bias. When he looks to anecdotes provided by his wife, a forensic psychiatrist, he has pre-selected a population that is skewed toward exhibiting the sorts of symptoms and behaviors seen by forensic psychiatrists. These are not random effects and should not elicit warnings and fear mongering directed at the general population. [Drug Policy Alliance 2019]

Instead of relying exclusively on one approach and a few anecdotes, a variety of research methodologies should be considered when attempting to understand the relationship between psychosis and cannabis use (Ksir and Hart 2016).

Correlation, Causation, and Confounding Variables

The most prominent error made by the New Prohibitionists is treating *correlation* as *causation*. Gage and colleagues (2013) state that residual confounding variables could be at play in at least some of the research. They note that drug use is often associated with other risk factors for psychosis, such as certain personality types, early-life trauma, and family adversity. These factors may be just as responsible for psychosis.

Few studies adjust for tobacco use, and other drug use is not always taken into account. Interestingly, some researchers have gone so far as to posit a causal relationship between tobacco use and disorders on the schizophrenia spectrum (Scott et al. 2018). In addition, Ksir and Hart (2016) note that, in many cases, cannabis users also smoke tobacco making the relationship particularly difficult to untangle. They also identify several confounding variables, including early alcohol use, early sexual activity, poor school performance,

less involvement in religion, and “general deviant behavior” (e.g., fighting, lying, stealing, truancy).

Logical Issues

In addition to the methodological issues outlined above, there are numerous logical issues connected to the practical problem of enforcing cannabis laws. In this part, we review the literature regarding legalization and crime. Given that crime rates are often used as evidence, it is important to consider the dynamics behind these numbers. Finally, an extension of the law of demand from economics, known as the Alchian-Allen theorem (Alchian and Allen 1967), illustrates how drug prohibition and the trend toward cannabis normalization (Parker 2005) may affect cannabis potency.

Has Cannabis Legalization led to More Crime?

Several studies can provide insight into how legalization may impact crime. Using a quasi-experimental design, Dragone and colleagues (2017) compared crime rates in both Washington and Oregon from 2010 to 2014, finding small drops in rates of rape and theft. They concluded that while cannabis use rates increased during this time period, rates of alcohol use (including binge-drinking) and use of other illegal drugs also dropped. Likewise, Lu and colleagues (2019), using a time-series design to examine changes in crime rates after cannabis legalization in Colorado and Washington, found that legalization had minimal to no effects on major crimes and observed no significant effects on violent or property crime rates.

Chang and Jacobsen (2017) arrived at similar conclusions using regression analysis. They monitored crime trends in areas where closure orders were given to dispensaries and found that in some cases, property crime and theft in these areas *increased* after the dispensaries closed, likely because of reduced foot traffic and fewer bystanders in the area. Another analysis found that while there were some increased incidents involving driving under the influence (DUI) associated with dispensaries, there seemed to be no relationship between dispensaries and violent crime. Researchers also found no relationship between countries that permit legal dispensaries and violent crime, and a negative relationship between dispensary openings and property crime (Hunt et al. 2018).

In a wide-ranging review of the research on crime and cannabis legalization, Morris (2018) noted that studies consistently found reductions in both property and violent crime. Furthermore, the findings varied by geographical location, with the most significant drop in crime occurring in areas close to the Mexican border due to reduced activities of gangs and drug-trafficking organizations. Finally, this analysis found that people were more commonly substituting cannabis for other more dangerous drugs (e.g., opioids) and that this could indirectly reduce crime given the association between opioid addiction and property crime.

Older studies suggested that there may be a relationship between dispensaries and crime, but others have noted that the association “may be tied to dispensaries’ lack of banking access and regulation, necessarily making them a cash economy and possibly inviting a criminal element to blocks hosting these facilities” (Contreras 2016: 1088). In other words, an absence of regulation can contribute to criminal opportunities. Because possession of cannabis remains a federal crime in the US, dispensaries must deal with large of amounts

of cash, making them an attractive target for criminals. Likewise, a longitudinal study conducted in Norway over fourteen years revealed no association between cannabis and crime once drug-crimes were controlled for (Pedersen and Skardhamar 2009).

The differences in the results of these studies and the studies cited by Berenson (2019) are important. First, none of the studies cited found clear positive associations between crime and cannabis legalization. Second, the studies examined different levels of analysis, not just the macro-level. It is troubling that work with such reach fails to acknowledge the conflicting findings of other research based on robust methodological designs.

The Myth of the One Factor Crime Rate

Despite evidence suggesting that legalization does not impact crime rates—and that legalization, in certain circumstances, may *lower* them—the New Prohibitionists claim that crime rates are rising in areas that have legalized cannabis use (Berenson 2019). In some cases, they manipulate statistics and research in ways described earlier. In other cases, however, they are correct: some states with legal cannabis have seen crime rates rise. That said, crime rates are influenced by countless factors, and it is unlikely that an increase in cannabis use, alone, would have a significant impact. Despite intensive efforts to provide insight into how and why the crime rate dropped in North America and Europe during the 1990s, there is little mention of cannabis (or drug use, more generally) found in the entire body of criminological research in this area.⁸

The New Prohibitionists suggest that cannabis will have a dramatic impact on crime rates after it has been legalized. If one accepts the “normalization thesis,” however—the notion that cannabis use increased greatly among young people during the 1990s—alongside research demonstrating a dramatic crime drop, it would seem counter-intuitive to argue that legalization will create more crime. Indeed, some have argued that a shift in drug preference occurred among young adult arrestees and gang members in the 1990s. Prior to this decade, the preference was for more dangerous, harder drugs (e.g., crack, heroin). In the 1990s, however, use shifted to cannabis (Golub and Johnson 2001). There are clear logical inconsistencies with the cannabis-crime claim, and these problems become more apparent if one considers how prohibition has affected potency.

Cannabis Normalization Revisited and The Iron Law of Prohibition

Robinson and Scherlen (2014) present evidence that the so-called “War on Drugs” has failed to achieve most of its goals. More specifically, they claim that drugs are more available, cheaper, and stronger now than previously. This claim is bolstered by Parker’s (2005) findings, which suggests cannabis use has increased to the point of a non-deviant activity. Di Forti and colleagues (2019) are particularly concerned about what they refer to as “skunk” or cannabis that is bred to have high levels of THC.

Combined, these findings suggest that drug prohibition has failed to control cannabis use and has likely contributed to the emergence of more potent cannabis products. This pattern is not surprising if one is familiar with the Alchian-Allen theorem. This economic

⁸ For example, a review of the leading research in this area (e.g., Blumstein and Wallman 2006; Farrell 2013; Farrell, Tilley, and Tseloni, 2014; Tcherni-Buzzeo 2019; Zimring 2007) reveals very little mention of less cannabis use (or drug use) as a factor related to the decline in crime.

theory claims that when the prices of substitute goods are increased by fixed per-unit amounts, the consumption of higher-grade products will increase because of costs associated with transportation, storage, and other factors. This phenomenon occurs because higher-grade products with fixed per-unit amounts will retain their value over comparable lower-grade products.

Cowan (1986) applied this idea to drug policy and posits an “Iron Law of Prohibition.” This refers to the tendency of drugs to become stronger and more dangerous when prohibited, and when laws around them are strictly enforced. For example, consider the preferences of dealers and users of prohibited substances. On the one hand, users need less of the stronger substance to get high and can more easily conceal use. On the other hand, suppliers will make revenue faster and can easily store a more potent product. To put it differently, more concentrated drugs simply provide “more bang for the buck” (Cowan 1986). Beletsky and Davis (2017: 157) explain how this happened during alcohol prohibition:

Imposing substantial barriers and costs to the illicit drug supply chain creates direct pressure to minimize volume while maximizing profit. More bulky products become more expensive relative to less bulky ones, incentivizing increases in potency. Indeed, relative to products with lower alcohol content like beer (Prohibition-era cost increase: over 700%), the price of spirits rose much more slowly (Prohibition-era cost increase: 270%).

The history of drug prohibition is littered with examples of increases in potency, such as those seen during alcohol prohibition. During the 1980s, society witnessed the rise of crack, a concentrated and cheaper form of cocaine. This phenomenon has been readily apparent in the shift to increasingly stronger opioid drugs, like fentanyl and carfentanil, that have led to the overdose crisis currently sweeping North America (Beletsky and Davis 2017). This trend can be seen in cannabis use: strains have become increasingly strong, and high THC products, like butane hash oil and concentrates (e.g., shatter and wax) have become widespread.

Practical Ramifications of the New Prohibitionist Approach

Whatever the dangers presented by greater availability of cannabis products, the effort by New Prohibitionists to focus on the harms of cannabis often ignores the harm caused by criminal justice systems. As noted elsewhere (Wheeldon and Heidt 2012), the US criminal justice system is plagued by institutional racism, has high rates of recidivism, and is inefficient considering the constantly rising costs of the system. In a report for the American Civil Liberties Union (ACLU), Beckett and Herbert have documented the failure of prohibition, and offer three findings (2008: 53–54):

- Intensified enforcement of marijuana laws does not achieve the stated goals of marijuana prohibition.
- The collective costs of marijuana prohibition for the public are significant; the personal costs to individuals and their families are also substantial, even in the absence of incarceration
- Decriminalizing marijuana and deprioritizing enforcement of marijuana laws leads to no significant increase in marijuana use.

As they note, a complete accounting of prohibition requires consideration of monetary and non-monetary costs alike. The enforcement of the cannabis laws consumes fiscal and organizational resources that could be allocated toward other public safety goals. In addition, cannabis arrests are imposed disproportionately on minorities. This has been shown to result in a range of social, psychological, and familial costs (see, e.g., Western 2006).

Legalizing drugs cannot fully address popular punitiveness or the mantras about “getting tough on crime” (Feeley and Simon 1992; Garland 2001). Those critical of the widespread use of prison have noted unequal treatment based on race and ethnicity. Rather than representing true offending patterns, the incarceration of minority groups is often due to shifts in policing, prosecution, and sentencing. These inequities have long appeared in analyses of sentencing following drug arrests (Blumstein 1982; Tonry 2011), but today, the inter-generational effects of such policies and their impact on communities over time are becoming increasingly recognized (Western 2006).

Toward a Meaningful Cannabis Research Program

For researchers interested in assessing the impact of cannabis policies, a starting place is defining the questions that ought to be asked (Wheeldon, Heidt, and Dooley 2014). This process includes thinking about how research is likely to be used within the legal, political, and social realities of the time. As we (Wheeldon and Heidt 2007: 323) suggested more than a decade ago:

new critical criminological initiatives must take seriously the challenges represented by the rise of neo-conservative public policy approaches and individualized notions of responsibility, media representations of crime and the greater focus on the administration and management of crime and criminals.

Critically-informed research programs must better specify how different dimensions of crime are conceived and described, and they should be designed to push back against the external realities of policymaking in an era of public punitiveness.

Internal Dimensions: Replacing Harms of Pot with Harms of Prohibition

The shift in public attitudes regarding cannabis has been faster than many expected and is an excellent example of how replacement discourses can transform the understanding of harm (Henry and Milovanovic 1996). As the harms of prohibition have become more widespread (Beckett and Herbert 2008), the high cost of enforcement of cannabis laws cannot justify the low impact on rates of consumption (Reinarman et al. 2004). If consumption rates remain constant, even after enforcement regimes change, a better set of questions might be related to how best to use criminal justice resources.

A project funded by the National Institute of Justice is the most comprehensive to date. Designed to assess data from eleven states, the project intended to identify and collect quantitative and qualitative data to assess the impacts of cannabis policy on criminal justice in those states and the impacts on criminal justice resources in states that border them. These states were selected because they: (1) legalized cannabis for recreational use; (2) have decriminalized cannabis; or (3) share a border with states that have legalized or decriminalized cannabis (Farley and Orchowsky 2019).

While the authors reported that legalizing cannabis resulted in *fewer* cannabis-related arrests, the qualitative data, though limited, provided more nuance than the quantitative analysis could capture. For example, they pointed to a disconnect between anecdotal information provided through interviews with law enforcement and the empirical data. In general, while cannabis arrests were down, methamphetamine and heroin arrests had risen. Perceptions of the dangers of cannabis remain common among participants in this study, however (Farley and Orchowsky 2019: 26–27).

Farley and Orchowsky (2019) noted the lack of data that made assessment of the second research question concerning impact on border states impossible to address. Based on the limited data, however, there was no evidence that legalization impacted neighboring states. These findings contrast with anecdotal data that suggested drug trafficking increased in these areas. This is also consistent with studies showing that cannabis use or possession can be employed as a means to deny benefits or initiate deportation proceedings for immigrants to the US, even in states where cannabis possession or use is legal (Tosh 2019). It is a useful reminder that changing policies cannot easily overcome decades of moral panic about immigrant criminality.

Three lines of research emerge related to replacement discourses. All three must contend with the concept of “cultural lag.” As defined by Ogburn (1922), this “cultural lag” occurs with shifts in technology that give rise to improvements to existing items or, in some cases, completely new products. Reinerman (2014) points to two drivers of cultural lag with regard the drug war in the US. The first is what he calls the “drug-control industrial complex,” in which institutional interests have played a role in limiting drug policy. The second refers to how stigmatizing drug use amplifies deviant behavior and makes it more dangerous. As Reinerman (2014: 73) explains, the “War on Drugs” has “help[ed] produce conditions and contexts in which drug use takes more problematic forms and appears to be associated with feared effects. In this way criminalization creates its own constituency.”

These observations can inform a three-pronged research program. The first concerns how best to document and disseminate the continued harm faced by cannabis users as a result of its proscription under federal law. The second relates to how best to frame the justice system savings as a result of legalization. The third concerns the challenge for police and other law enforcement trained in one legal regime to adapt to the nascent regime of legalization. The use of prohibition era myths to “educate” young people suggests the culture of policing in North America is unlikely to adjust easily. Shifting attitudes among law enforcement may be as important as public perceptions of cannabis use, given the discretion they enjoy. These attitudes must be documented, debated, discussed, and disseminated.

External Dimensions: Managing Cannabis, Mental Illness, and Markets

In addition to research designed to replace conventional discourses, efforts should be undertaken to attempt to respond preemptively to the tendency in criminal justice to present crime in unsophisticated terms with simplistic solutions (Wheeldon and Heidt 2007). This “commonsense approach” results in justice actors essentially *administering* crime rather than thinking through the complex social realities in which it emerges (Shicor 2000). It is worth considering the following questions: If the New Prohibitionists were right, how many cases of psychosis would a cannabis ban prevent? How many cases would need to be prevented to make an impact on crime and save lives? According to figures compiled by Gage and colleagues (2013:3), the impact of laws, *even when they work*, would be minimal in preventing cases described by the New Prohibitionists:

although cannabis is a modifiable factor, estimates of the number of people that need to stop heavy cannabis use to prevent one case of schizophrenia are in the thousands (e.g., between 3000 and 5000 heavy cannabis users and between 10,000 and 20,000 young men and women with any cannabis use, respectively). Furthermore, current interventions to reduce dependence are of limited effectiveness, so for an intervention that was 20% effective, the “number needed to treat” would be in the tens of thousands. In terms of a public health message, there is no doubt that the potential harms from cannabis use should be highlighted, but even a large-scale campaign to reduce cannabis use may have a limited effect on reducing rates of schizophrenia.

Despite this—and even if cannabis becomes legal under federal law—desire to manage use will remain. Indeed, today a complex web of regulations, policies, and procedures has emerged in states when cannabis markets have been established. These are not based on rigorous research because inconsistent supply issues confound rather basic questions about the impacts of cannabis.

As Schwabe and colleagues (2019) note, most federally funded research, where participants consume cannabis for medicinal purposes, relies on research grade cannabis. This is genetically distinct from cannabis available in states with cannabis legalization. Consequently, findings based on federally funded research may not be replicable in states with legal cannabis. If such a basic error has tainted more than a decade of research on medical cannabis, what have recreational cannabis researchers missed and misinterpreted? An emerging question in these markets concerns potency.

Di Forti and Murray (2019) have warned that higher THC cannabis is more likely to trigger psychosis. Given the dynamics around normalization and trends toward stronger cannabis predicted by the “iron law of prohibition,” one would think the obvious solution is cannabis regulation to ensure people have access to less dangerous products (Thornton 1998). In some cases, people ingest stronger cannabis because prohibition prevents access to less potent products—and thus, it seems that this would increase the likelihood of psychoses in using populations. Some even predict increasing demand for lower THC products as legalization goes forward (Smart 2019).

Another avenue for research related to external realities would be to assess how legalization impacts the black market and organized crime groups. States neighboring those that have legalized cannabis complain of increases in organized criminal activity. It would be interesting to see how federal legalization impacts this situation. In Canada, cannabis legalization has not impacted the black market as Statistics Canada reports that the majority of cannabis sales across Canada during the fourth quarter of last year occurred on the black market. Legal cannabis still has a long way to go before it outsells its illicit counterpart (Ligaya 2019).

Finally, more qualitative research is required, including interviews with users, growers, and others who have first-hand experience with cannabis use, production, and sales. There is an emerging trend in drug research toward gaining insight by interviewing people who use drugs (Lewis 2015). Efforts to establish policy based on evidence must include subject matter experts. Hopefully, the trend of engaging with users will also inform research on cannabis policy.

The external issues around cannabis regulation require a different set of research questions about the real and still unknown health impacts. According to the most comprehensive review undertaken to date, despite increased access to cannabis, there is still no conclusive evidence regarding the short- and long-term health effects of use (NASEM 2017). Few believe inhaling burnt plant matter into one’s lungs is a uniformly healthy

undertaking, and problematic use patterns may develop, especially if heavy use starts at an early age. Some comparative and longitudinal studies on beneficial and harmful health effects of using different forms of cannabis (smoked or vaporized vs. oral cannabis, such as edibles and concentrates, or topicals) lend themselves to quantitative analysis; other issues may require a more qualitative lens.

For example, credibly assessing the impact of products with differing levels of potency and their unique interactional effects using only quantitative approaches may be difficult. Questions surrounding how regular use impacts lifestyle, such as mood, purchasing habits, sleep, social dynamics, and work performance, may require more in-depth, narrative explorations to be meaningful. Of specific and immediate interest are issues related to use, potency, and markets. For example, do users faced with higher potency cannabis reduce their use? Does access increase tolerance and lead to a market for products with ever-higher levels of THC? If black markets exist everywhere cannabis is legal, how does black market control of cannabis affect crime rates? Can price, availability, and choice of products play a role?

Conclusion

In this article, we situated the current era of cannabis legalization and noted the inevitability of the backlash. By focusing on the claims of the New Prohibitionists, we highlighted oversights and misunderstandings (if not outright misrepresentations). We also identified two central assumptions that might inform future research programs. The first is that critically informed research can succeed in replacing simplistic and harmful discourses around crime. The second is that research can be designed to counter the tendency of the system to engage in “research capture,” co-opting policy to serve bureaucratic and administrative ends (Wheeldon and Heidt 2007).

There are significant questions for proponents, opponents, and policymakers to consider about legal cannabis. Any meaningful research program must recognize how activists, the media, and politicians have often manipulated social science data, and must acknowledge how fractured media reports on scientific research in numerous problematic ways. As different jurisdictions experiment with different approaches, good data, justified analyses, and modest inferences must be prized over “quick and dirty” analyses designed to provide politically useful findings.

Questions remain about how best to undertake cannabis research. One concern is whether available data are accurate, reliable, or useful enough to draw conclusions to guide policy. Despite significant challenges, New Prohibitionists have used the inevitable backlash against cannabis legalization to further a moral panic based on high methodological crimes and misdemeanors. Policy should never be based on findings that emerge from studies rife with various forms of bias, analyses that conflate correlation with causation, and misrepresentation of data. Unless scholars become better at communicating their findings, justice systems will continue to co-opt research rather than engage in true reform. True reform requires expunging all criminal records associated with cannabis and pardoning all prisoners convicted solely of cannabis-related offenses.⁹ In addition, legal protections

⁹ There are exceptions. For example, a charge of cannabis-impaired driving would not be eligible because impaired driving is still illegal.

should be explored to protect legal cannabis consumers from being wrongfully terminated for use during non-work hours. Serious researchers will benefit from policies that incentivize data collection, research that asks more nuanced questions, and analysis that considers the unintended consequences of any social policy.

While questions remain about how best to regulate cannabis, plenty is known about the substantial and intersectional harms of prohibition. Proponents of drug prohibition speculate that cannabis legalization and decriminalization of other drugs will result in a variety of disastrous social problems (e.g., increased rates of use and addiction, more drug-related deaths). That said, several countries, most notably Portugal, have had success replacing prohibition with an approach that emphasizes mental health and social connections. This merits further study.

Researchers have a responsibility to identify attempts at knowledge distortion that could negatively impact social policy and result in more harm. This includes reminding policymakers and wider society about the harms associated with and the general ineffectiveness of drug prohibition. As Currie (1999:13) put it more than twenty years ago,

For too long, we've been accustomed to being in a one-down position, always lamenting the fact that politicians pay no attention to us and ignore what we know. I think that could change. But it will change only if, and when, we develop the organizational capacity to raise public consciousness on these issues to a level that neither politicians, nor anyone else, can ignore.

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