

A Decade in Drug Policy and Research: Evaluating Trends from 2010 to 2020 and Presenting Major Policy Developments

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The War on Drugs still structures much of U.S. drug policy, but recent trends toward liberalization indicate a shifting policy landscape and a corresponding shift in drug policy research. Though 2020-21 will forever be remembered for the global COVID-19 pandemic, it has also been a significant time in the development of U.S. drug policy. Some developments are directly tied to the pandemic; others are part of larger trends that have predated it. Using a scoping review and reflexive thematic analysis, this article captures both the trajectory of research on drug policy over the past decade and substantial drug policy developments within the United States in 2020-2021. The results of our analysis indicate four major research areas of interest: drugs and substances, policy advocacy and appraisal, governance and regulation, as well as treatment and interventions. Within each area, emerging subthemes indicate research preferences that closely follow policy developments. The movement of states and countries toward more liberal drug policies is reflected in the growing body of literature on decriminalization and legalization. Scholarly interest in opioids has remained predominant over the decade as the opioid crisis has unfolded in waves, while interest in cannabis was most prominent in the years following its legalization across several states. Recent developments in cannabis, psychedelics, broader decriminalization, opioid overdose deaths, treatment, and the increasing centrality of social equity in drug policy reforms are reviewed with a focus on the issues that continue to plague the drug policy landscape (i.e., restrictions on research, surging overdose deaths, restrictions on evidence-based treatments, and equity concerns in a newly legal cannabis industry).

Keywords: Drug Policy 2020-2021, Cannabis, Opioids, Scoping Review, United States, War on Drugs, Trends in Drug Policy Research, Policy Advocacy, Drug Decriminalization.

Una década en políticas e investigación sobre drogas: evaluación de las tendencias de 2010 a 2020 y presentación de los principales avances en materia de políticas

La Guerra contra las Drogas todavía estructura gran parte de la política de drogas de Estados Unidos, pero las tendencias recientes hacia la liberalización indican un panorama político cambiante y un cambio correspondiente en la investigación de políticas de drogas. Aunque 2020-21 será recordado para siempre por la pandemia mundial de COVID-19, también ha sido un momento importante en el desarrollo de la política de drogas de EE. UU. Algunos desarrollos están directamente relacionados con la pandemia, mientras que otros son parte de tendencias más amplias que la han precedido. Utilizando una revisión del alcance y un análisis temático reflexivo, este artículo captura tanto la trayectoria de la investigación sobre políticas de drogas durante la última década como los desarrollos sustanciales de políticas de drogas en los Estados Unidos en 2020-2021. Los resultados de nuestro análisis indican cuatro áreas principales de investigación de interés: drogas y sustancias, promoción y evaluación de políticas, gobernanza y regulación, así como tratamiento e intervenciones. Dentro de cada una de estas áreas, los subtemas emergentes indican preferencias de investigación que siguen de cerca los desarrollos de políticas. El movimiento de los estados y países hacia políticas de drogas más liberales se refleja en el creciente cuerpo de literatura sobre despenalización y legalización. El interés académico en los opioides ha seguido predominando durante la década a medida que la crisis de los opioides se ha desarrollado en oleadas, mientras que el interés en el cannabis ha sido más prominente en los años posteriores a su legalización en varios estados. Los desarrollos recientes en el cannabis, los psicodélicos, la despenalización más amplia, las muertes por sobredosis de opioides, el tratamiento y la creciente centralidad de la equidad social en las reformas de las políticas de drogas se revisan con un enfoque particular en los problemas que continúan plagando el panorama de las políticas de drogas (es decir, las restricciones a la investigación). , el aumento de las muertes por sobredosis, las restricciones a los tratamientos basados en la evidencia y las preocupaciones sobre la equidad en una industria del cannabis recientemente legal).

Palabras clave: Política de drogas 2020-2021, Cannabis, Opioides, Revisión de alcance, Estados Unidos, Guerra contra las drogas, Tendencias en la investigación de políticas de drogas, Promoción de políticas, Despenalización de las drogas.

毒品政策和研究十年：評估 2010 年至 2020 年的趨勢並介紹主要政策發展*

毒品戰爭仍然構成了美國毒品政策的大部分內容，但最近的自由化趨勢表明政策格局正在發生變化，毒品政策研究也相應發生了變化。儘管全球 COVID-19 大流行將永遠銘記 2020-21 年，但它也是美國藥物政策發展的重要時期。一些事態發展與大流行直接相關，而另一些事態發展則是早於大流行的更大趨勢的一部分。本文使用範圍界定和反思性主題分析，捕捉了過去十年毒品政策研究的軌跡和美國 2020-2021 年毒品政策的實質性發展。我們的分析結果表明了四個主要的研究領域：藥物和物質、政策倡導和評估、治理和監管，以及治療和乾預。在這些領域中的每一個領域內，新興的子主題表明密切關注政策發展的研究偏好。越來越多的關於非刑事化和合法化的文獻反映了國家和國家朝著更自由的毒品政策發展的趨勢。十年來，隨著阿片類藥物危機的爆發，學術界對阿片類藥物的興趣仍然占主導地位，而在大麻在多個州合法化後的幾年裡，對大麻的興趣最為突出。審查了大麻、迷幻劑、更廣泛的去罪化、阿片類藥物過量死亡、治療以及社會公平在毒品政策改革中日益重要的最新發展，特別關注繼續困擾毒品政策格局的問題（即對研究的限制、過量用藥死亡人數激增、對循證治療的限制以及新近合法的大麻產業的公平問題）。

關鍵詞：2020-2021 年毒品政策，大麻，阿片類藥物，範圍審查，美國，毒品戰爭，毒品政策研究趨勢，政策倡導，毒品非刑事化。

The landscape for drug policy in the United States has been both shifting and stuck over the last three decades. In many ways, the War on Drugs still structures much of U.S. drug policy. However, its foundation is eroding, especially in the states. Nixon's War turned 50 in 2021, but U.S. drug policy has shifted substantially. In recent decades, decriminalization and legalization of Schedule I controlled substances have proliferated at the state level, in a departure from federal prohibition (Mosher and Akins 2019). California emerged as a pioneer in legalizing medical marijuana in 1996, while Colorado and Washington spearheaded the legalization of recreational marijuana in 2012. Other states have followed suit with a patchwork of drug policy reforms across the United States, presenting a complex and disjointed policy environment.

Globally, drug policy has been informed by the United Nations (UN) drug control conventions of 1961, 1971, and 1988. While most nations, being parties to these conventions, are pledged to prohibitory stances, the relatively ambiguous nature of such “political compromises” (Bewley-Taylor, Blickman, and Jelsma 2014, 44) offers considerable discretion for nations to pursue their own agendas (Chatwin 2017). Reminiscent of state vs. federal divergence, drug policies vary across UN member states with many favoring a more pragmatic and nonpunitive approach to drug policy rather than the zero-tolerance approach expressly negotiated in international treaties (Bewley-Taylor 2013). Canada and Uruguay were the first to legalize recreational cannabis nationwide. Countries like the Netherlands have been home to decriminalization policies since the 1970s, and still others have adopted various forms of national decriminalization in the past two decades (Rosmarin and Eastwood 2012). Despite the prominent existence of moves toward decriminalization worldwide, critics still abound arguing against progressive drug policy and its potential societal harms.

Considering the increasingly complex and fragmented drug policy environment, we identify the need for a more in-depth understanding of the state of the research on drug policy. This article captures both the trajectory of research on drug policy over the past decade and recent noteworthy changes in U.S. drug policy. In doing so, we highlight and explain the trends in scholarly research over time and relate these trends to recent policy developments. The results of our analysis indicate research preferences that closely follow policy developments. For instance, the movement of states and countries toward more liberal drug policies is reflected in the growing body of literature on decriminalization and legalization. Though prohibition is represented most consistently across all regulatory regimes throughout the decade, research on decriminalization and legalization has shown a steady rise since 2012—corresponding with the legalization of recreational cannabis in Colorado and Washington. Similarly, scholarly interests in opioids and cannabis over the decade parallel the significance of these drugs in the overall policy environment (i.e., the waves of opioid overdose deaths, and states’ legalization of recreational and medical cannabis).

Recent developments in cannabis, psychedelics, broader decriminalization, opioid overdose deaths, treatment, and social justice are expanded upon with a focus on the issues that continue to plague the drug policy landscape (e.g., restrictions on research pertaining to the medicinal value of drugs, surging overdose deaths, restrictions on evidence-based treatments, and equity concerns in a newly legal cannabis industry). In this study, we highlight key legislative changes and advancements while emphasizing the work that still needs to be done. This article is structured as follows. First, we describe our approach to a scoping review and reflexive thematic analysis of drug policy research published from 2010 to 2020. Next, we present a review of the trajectory of that research. We then present major

policy developments in the United States that were highly visible in 2020-21. Finally, we offer concluding remarks and directions for future research.

Methodological Approach

We conducted a scoping review to evaluate the trends in drug policy research over the past decade. This methodology enabled us to determine the range of the body of literature, the volume of research published on this topic, and an impression of key areas of focus (Munn *et al.* 2018). Figure 1 shows a visual mapping of the process used to find relevant articles.

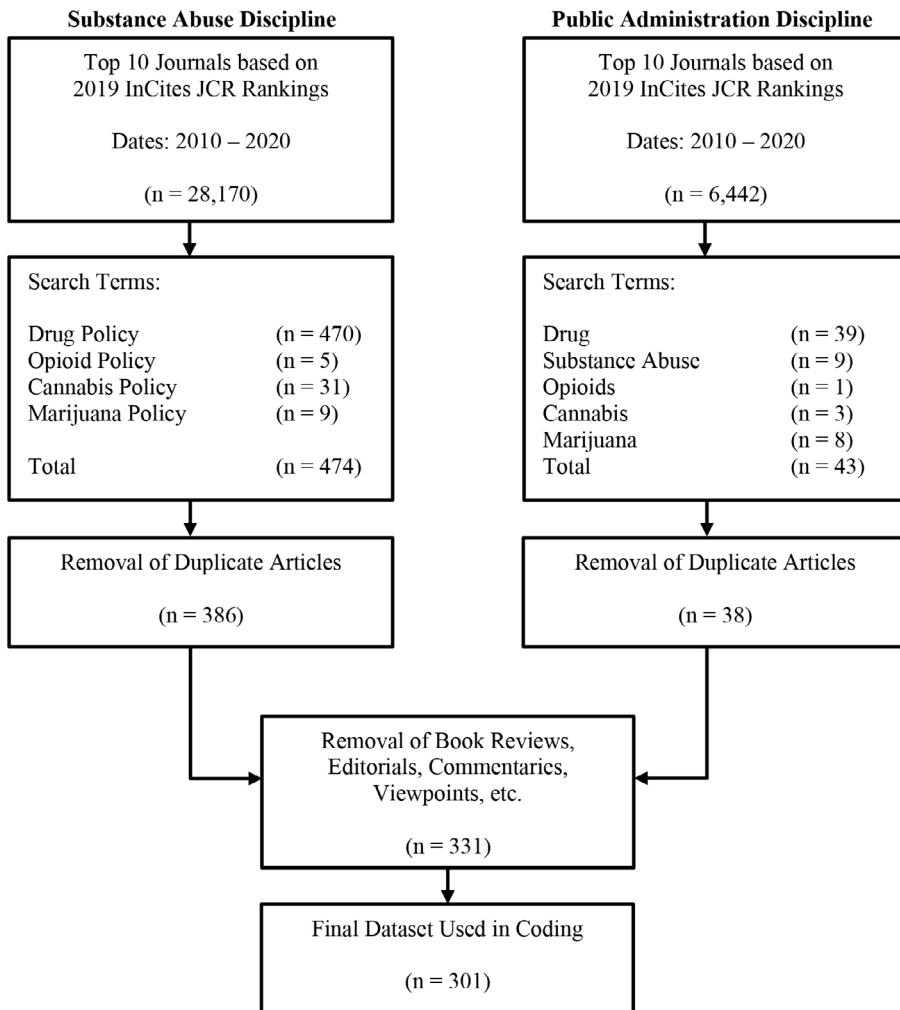


Figure 1. Visual Mapping of Search Protocol Process

We conducted our search using ProQuest (Multiple Databases). Using 2019 InCites Journal Citation Reports (JCR), we determined the top ten journals in the

“public administration” and “substance abuse” disciplines (see Table 1). First, we searched for peer-reviewed articles published in these 20 journals between 2010 and 2020. This generated 28,170 and 6,442 articles in the substance abuse and public administration disciplines, respectively. Next, we narrowed the results using distinct search terms for each discipline. For substance abuse journals, we searched “all subjects and indexing” for four key terms: (1) drug policy, (2) opioid policy, (3) cannabis policy, and (4) marijuana policy.¹ For public administration journals, we used five key terms: (1) drug, (2) substance abuse, (3) opioids, (4) cannabis, and (5) marijuana. Then, duplicates were removed yielding 386 substance abuse and 38 public administration articles. Further removal of book reviews, commentaries, etc., resulted in 331 articles. We then read all abstracts to identify any studies that were not relevant to our research and excluded these.² Our exclusion and inclusion criteria resulted in a final database of 301 articles.

Table 1. List of Journals in Dataset

Journal Title	2019 Impact Factor	Articles Collected	Total Articles	% of Articles Focused on Drug Policy
Substance Abuse Journals				
<i>Tobacco Control</i>	6.726		2,170	0.0%
<i>Addiction</i>	6.343	50	9,243	0.5%
<i>International Journal of Drug Policy</i>	4.444	182	1,751	10.4%***
<i>Alcohol Research: Current Reviews</i>	4.214		238	0.0%
<i>Nicotine & Tobacco Research</i>	4.079		2,346	0.0%
<i>Drug and Alcohol Dependence</i>	3.951	16	4,976	0.3%
<i>Harm Reduction Journal</i>	3.818	13	639	2.0%
<i>Addictive Behaviors</i>	3.645	6	4,884	0.1%
<i>Addiction Science & Clinical Practice</i>	3.088	2	263	0.8%
<i>Journal of Substance Abuse Treatment</i>	3.083		1,660	0.0%
* <i>European Addiction Research</i>	2.269	6	440	1.4%
* <i>Addiction Research & Theory</i>	2.223	3	685	0.4%
* <i>International Journal of Mental Health and Addiction</i>	1.648	2	1,143	0.2%

- 1 We chose to include specific search terms for opioid, cannabis, and marijuana policy because of the high degree of policy attention paid to these areas over the last decade. We did not search every possible drug name, which may bias the results of the search in favor of these topics, but we argue that this bias is almost imperceptible. As key words are not mutually exclusive (e.g., an article can be indexed as both “drug policy” and “cannabis policy”), the use of other specific drug names expanded the scope of our search by four articles in the substance abuse discipline and one in the public administration discipline—a difference of .9 percent and 2.3 percent, respectively.
- 2 Articles that focused on alcohol solely—not polysubstance—were excluded from the database.

<i>*Journal of Addiction Medicine</i>	**3.014	1	523	0.2%
Public Policy & Administration Journals				
<i>Journal of Policy Analysis and Management</i>	4.018	13	501	2.6%
<i>Public Management Review</i>	4.221		727	0.0%
<i>Journal of European Public Policy</i>	4.177		938	0.0%
<i>Public Administration Review</i>	4.063		1,566	0.0%
<i>Climate Policy</i>	4.011		782	0.0%
<i>Policy Studies Journal</i>	3.797	4	762	0.5%
<i>Policy Sciences</i>	3.609		267	0.0%
<i>Regulation & Governance</i>	3.375		258	0.0%
<i>Journal of Public Administration Research and Theory</i>	3.289	2	253	0.8%
<i>Policy and Politics</i>	3.069	1	388	0.3%
Total		301	37,403	0.8%

Notes: * Journals that do not rank in the top ten SSCI journal rankings per 2019 InCites JCR, but were captured in our sample by keyword search parameters.

** *The Journal of Addiction Medicine* is not ranked in the SSCI. The SCIE Ranking is given instead.

*** *The International Journal of Drug Policy* (IJDP) provides a multidisciplinary forum for research that extends beyond drug policy and includes research on drug use topics in a wide range of disciplines (epidemiology, modelling, economics, criminology and law, psychology, sociology, anthropology, etc.). Consequently, our research topic captures 10.4 percent of the articles published in IJDP from 2010 to 2020.

The journals represented in our dataset are listed in Table 1 along with 2019 journal impact factors, the number of articles captured in our review, and the total number of articles published by each journal from 2010 to 2020. Notably, of the top ten journals in each discipline, four substance abuse journals and six public administration journals did not return any articles focused on drug policy.³ Further, our search parameters yielded articles from journals outside the top ten SSCI ranking. Thus, the final collection of relevant articles represents ten substance abuse and four public administration journals. The bulk of the articles captured in our review belong to substance abuse journals (93.4 percent), indicating that drug policy research has low representation in top public administration (and policy) journals (6.6 percent).

3 The use of specific search terms narrowed our selection of articles, and journals, considerably as the journals included in our analysis are multidisciplinary and feature a broad scope of material that extends beyond our research topic (pharmacological and behavioral addictions, patterns of drug use, epidemiology, psychosocial research, etc.) or are overwhelmingly clinical in nature (Drug and Alcohol Dependence, Addictive Behaviors, Addiction Science & Clinical Practice, etc.).

Reflexive Thematic Analysis

We evaluated the aggregate literature on drug policy using a reflexive thematic analysis.⁴ This method includes six recursive phases: familiarization, code generation, theme generation, theme review and development, theme definition, and reporting results. With this approach, themes emerge and are refined, split, or merged as papers are reviewed. Two researchers worked independently to review and code the articles, met to discuss thematic developments, and conducted a cross-party review of coded articles to ensure consensus. This method facilitated an inductive approach whereby reviewers familiarized themselves with the dataset, coded the articles, refined the codes through a recursive process of data engagement and interpretation, developed themes from the codes, and further refined these to develop comprehensive core themes (Braun and Clarke 2021). Results of our scoping review and thematic analysis are reported next.

Trends in Drug Policy Research

In the following section, we discuss the themes emerging from our analysis focusing on three key areas: research themes and subthemes, methodological approaches, and the geospatial distribution of research.

Research Themes

Major Areas of Interest

The research themes emerging from our analysis are listed in Table 2. As each of the articles represented multiple themes, the classifications illustrated in Table 1 are not mutually exclusive. It is fitting that Drugs & Substances emerged as the most dominant theme, represented in 93.7 percent of all articles. Other predominant topics in the literature were Policy Advocacy and Appraisal (82.1 percent), Governance & Regulation (71.8 percent), and Treatment & Interventions (63.5 percent). A clustering of topics focused on the microeconomics of drug policy, including Drug Supply/Cultivation (20.9 percent), Drug Demand/Consumption (20.3 percent), and Drug Markets (11.3 percent). Adverse consequences of drug use were an additional focal area with articles exploring Harms & Risks (20.6 percent), Disease (14.6 percent), Addiction & Substance Abuse (13.3 percent), Crimes & Incarceration (8.3 percent), and Mortality & Overdose (8.0 percent). Another group of topics focused on users (22.6 percent) and user behaviors (5.6 percent). Other represented research themes were attitudes toward drugs (i.e., public opinion, stigma, and consumer attitudes) (20.6 percent), Social Equity Issues (16.3 percent), Research & Education (15.9 percent), and Contextual Factors (5.3 percent).

4 Reflexive thematic analysis is a recursive approach to thematic analysis—an analytic method for detecting and extracting meaning-based patterns (or themes) from qualitative data (Braun and Clarke 2006; Braun *et al.* 2019).

Table 2. Research Themes of Published Articles

Key Themes	Frequency	Percentage
Drugs & Substances	282	93.7%
Policy Advocacy & Appraisal	247	82.1%
Governance & Regulation	216	71.8%
Treatment & Interventions	191	63.5%
Drug Users	68	22.6%
Drug Supply/Cultivation	63	20.9%
Attitudes Toward Drugs	62	20.6%
Harms & Risk	62	20.6%
Drug Demand/Consumption	61	20.3%
Social Equity	49	16.3%
Research & Education	48	15.9%
Disease	44	14.6%
Addiction & Substance Abuse	40	13.3%
Drug Markets	34	11.3%
Crimes & Incarceration	25	8.3%
Mortality & Overdose	24	8.0%
User Behavior	17	5.6%
Contextual Factors	16	5.3%

Thematic Trends over Time

Annual trends in major research themes are displayed in Figure 2. We focus on those themes that are represented in over 50 percent of the articles analyzed: (1) Drugs & Substances, (2) Policy Advocacy & Appraisal, (3) Governance & Regulation, and (4) Treatment & Interventions. These four research themes represent over 60 percent of the articles analyzed. Over the decade, Drugs & Substances was generally the most prominent theme, making up the bulk of the research in the early 2010s and continuing to be prominent throughout the latter half of the decade. Policy Advocacy & Appraisal was most prominent in 2014 and 2018, accounting for a third of the research across major themes in both years. Treatment & Interventions was the leading theme in 2013, albeit the least represented in the following years, from 2014 through 2018.

We also evaluate annual research interest in drugs and substances over time, shown in Figure 3. Here, we focus on those drugs that are represented in over 5 percent of articles: (1) cannabis, (2) opioids, (3) stimulants, and (4) psychoactive drugs. Opioids and cannabis make up the bulk of the research on drugs and substances, with research on opioids dominating the beginning (2010-12) and end of the decade (2018-20). Within opioids research, 25 percent of articles focus on heroin, 22 percent on prescription opioids (buprenorphine and oxycodone), and

10 percent on opioid antagonists (methadone and naloxone). Research interest in opioids in the beginning of the decade corresponds with the second wave of opioid overdose deaths in the United States (CDC 2021). This wave is partly attributable to increases in the supply of heroin and the introduction of synthetic opioids like illicitly manufactured fentanyl (IMF) into drug markets in the same year (CDC 2021; O'Donnell, Gladden, and Seth 2017). Research interest in opioids at the end of the decade shows a delayed response to the third wave of opioid overdose deaths in the United States. This wave began in 2013 and continues through the COVID-19 pandemic (CDC 2021, 2020).

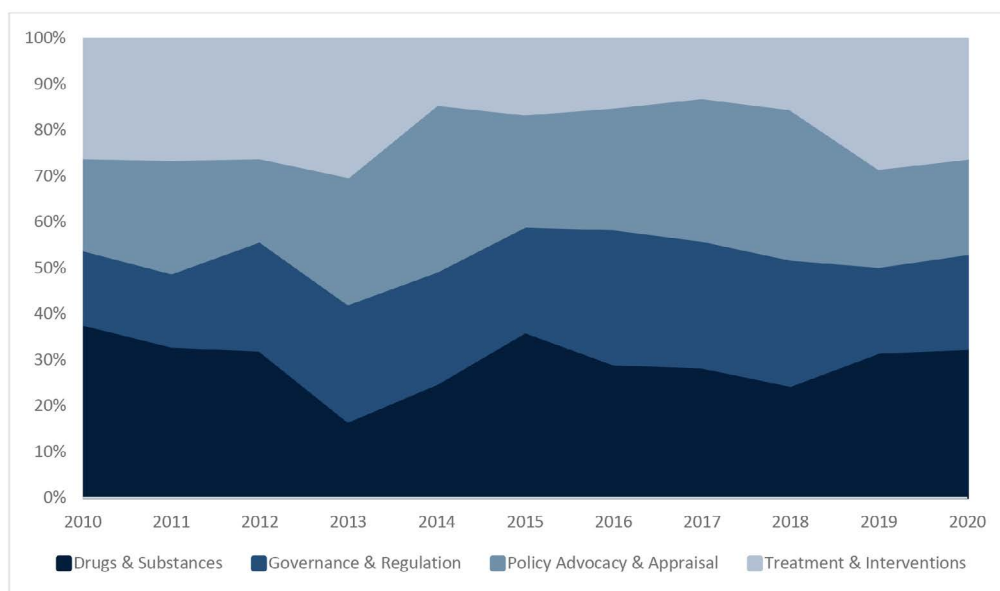


Figure 2. Annual Trends of Major Themes

Research on cannabis was most pronounced during the mid-decade (2014–18), with 21 percent of cannabis studies focusing on medical cannabis and 11 percent on adult-use recreational. The growth in cannabis-specific research from 2014 to 2018 came two years after Colorado and Washington became the first states to legalize recreational cannabis (2012) and two decades after the steady march of states adopting medical cannabis began in California (1996).

Research interest in stimulants was greater in the early half of the decade, highest in 2016, and diminished thereafter as studies on cannabis and opioids dominated the field. Stimulant research focused primarily on cocaine (27 percent), followed by methamphetamines (22 percent), amphetamines (11 percent), benzylpiperazine (11 percent), mephedrone (8 percent), and ecstasy (MDMA) (5 percent). Research on psychoactive drugs⁵ was most prominent in the early 2010s

⁵ As the term “psychoactive drugs” refers to a broad range of chemical substances that alter nervous system function (i.e., alcohol, caffeine, nicotine, cannabis, ecstasy, amphetamines, methamphetamines, opioids, heroin, and cocaine), those articles that focused on drugs in general without

and diminished in the second half of the decade, likely attributable to the shift of research from generic drug topics to more targeted studies on specific drugs (e.g., cannabis and opioids.).

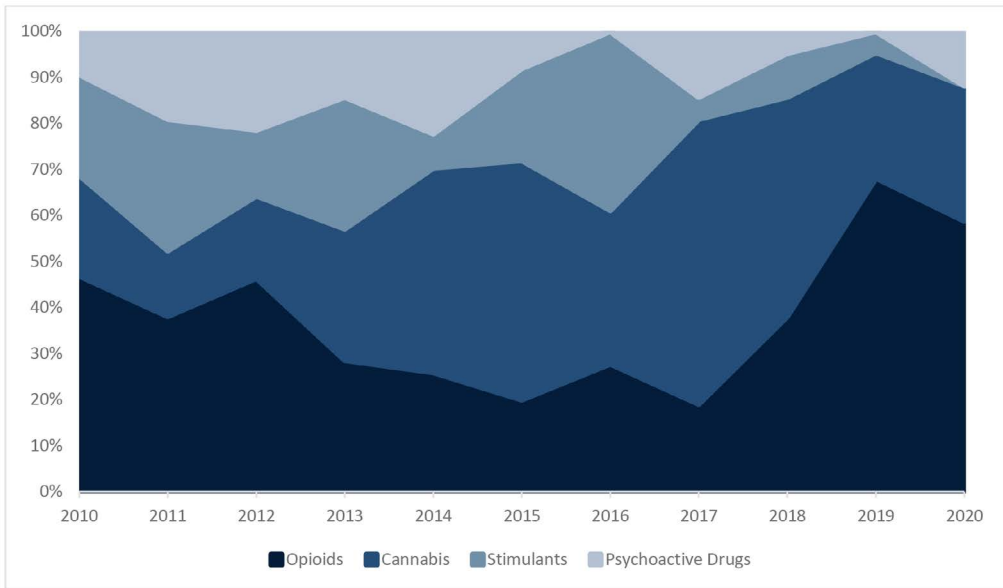


Figure 3. Annual Trends of Drugs and Substances

Subthemes

Next, we disaggregated each broad research theme to determine the scope of research within each major area of interest. Figure 4 illustrates the breakdown of major research themes into subthemes.

Drugs and Substances

Opioids received the greatest attention in the Drugs & Substances theme, accounting for a third of the articles in this category, followed closely by cannabis (29 percent), stimulants (13 percent), and psychoactive drugs (10 percent). Drugs with a lesser research focus were tobacco and nicotine (5 percent), and new psychoactive substances (NPS)⁶ (4 percent). Other drugs and substances including alcohol (polysubstance), hallucinogens, and sedatives comprise the remaining 6 percent of research in this area.

identifying specific types (i.e., cannabis, opioids) or classes (i.e., stimulants, hallucinogens), were categorized as psychoactive drugs.

6 NPSs are distinct from psychoactive drugs. They are manufactured to mimic the effects of illicit drugs by replacing banned chemicals with new and legal, though unregulated, chemicals (i.e., synthetic cannabis).



Figure 4. Disaggregation of Research Themes into Subthemes

Policy Advocacy and Appraisal

Articles focusing on policy advocacy and appraisal ran the gamut of policy cycle stages from problem construction to policy evaluation. Policy costs and benefits emerged as the largest subtheme with 17 percent of the articles in this category evaluating the economic costs, health benefits, efficacy, and unintended consequences of drug policy. Policy subsystems were also predominant, the 16 percent of studies in this area focused on advocacy coalitions, policy entrepreneurs, and diverse policy actors (i.e., civil society stakeholders, government officials, etc.). Closely related to policy subsystems, policy advocacy made up 15 percent of articles with topics including drug discourse and policy development. Evidence-based policy was a focal point of 14 percent of articles with many articles

identifying the marginal role evidence plays in drug policy formulation (Lancaster 2014; Monaghan 2014) and the need for evidence-based interventions (Guerrero *et al.* 2014; Miclette *et al.* 2018). Policy and program barriers made up 13 percent of articles, followed by problem construction (12 percent). Other topics under this thematic umbrella were policy reform (9 percent) and policy innovation and diffusion (3 percent).

Governance and Regulation

Prohibition was a prominent subtheme within governance and regulation studies, with 21 percent of articles exploring drug control practices (i.e., drug scheduling, repressive policing, etc.). Regulation and legalization were the focus of 20 percent and 14 percent of articles, respectively. Articles exploring regulation with respect to legalization underscored regulating drug markets to ensure drug quality and potency (Manthey 2019). Research on regulation with respect to prohibition stressed supply-side interventions (i.e., restricting medical cannabis prescriptions) (Fischer, Kuganesan, and Room 2015). International drug treaties represented 12 percent of the articles in this thematic group, followed by governance (10 percent), decriminalization (8 percent), and funding (6 percent). Other subthemes were law enforcement (4 percent) and federalism (4 percent).

Treatment and Interventions

While treatment of substance abuse disorders was expected to be the most prominent subtheme within the Treatment & Interventions thematic group, harm reduction was the second most researched topic (22 percent) with articles focusing on methadone maintenance therapies, syringe exchange programs, and HIV/AIDS prevention (Csete and Grob 2012; Järvinen and Miller 2014; Torre, Lucas, and Barros 2010). Drug substitution treatments, demand-side interventions, and behavioral interventions were each represented in 13 percent of articles, followed by supply-side interventions (5 percent) and treatment access (3 percent).

Methodological Approaches

Tables 3 and 4 list the data collection and analysis methodologies used across all articles. Our review indicates that qualitative methods were used more often than quantitative ones, both for data collection and analysis. Over half of drug policy articles used qualitative methods of data collection and analysis while only about a third of the articles employed quantitative methods.

Table 3. Frequency of Data Collection Methodologies

Data Collection Methods	Frequency	Percentage
Conceptual	8	2.7%
Literature Review	19	6.3%
Literature Review	9	3.0%
Systematic Literature Review	7	2.3%
Scoping Review	3	1.0%
Mixed Methods	11	3.7%
Qualitative	163	54.2%
Discussion	30	10.0%
Interviews	28	9.3%
Document Analysis	22	7.3%
Case Study	21	7.0%
Description	13	4.3%
Multi Method	12	4.0%
Ethnographic Study	10	3.3%
Exploratory Study	6	2.0%
Derived/Compiled Data	5	1.7%
Focus Groups	5	1.7%
Critical Analysis	3	1.0%
Field Study	3	1.0%
Delphi	2	0.7%
Secondary Data	2	0.7%
Phenomenology	1	0.3%
Quantitative	100	33.2%
Survey	30	10.0%
Secondary Data	19	6.3%
Experiment	17	5.6%
Longitudinal Study	13	4.3%
Derived/Compiled Data	11	3.7%
Simulation	3	1.0%
Document Analysis	2	0.7%
Field Study	2	0.7%
Cost of Illness Study	1	0.3%
Multi Method	1	0.3%
Twins Study	1	0.3%
Total	301	100.0%

Table 4. Frequency of Data Analysis Methodologies

Data Analysis Methods	Frequency	Percentage
Qualitative	186	60.4%
Qualitative Analysis (General)	108	35.1%
Content/Thematic/Textual Analysis	36	11.7%
Descriptive Research	11	3.6%
Discourse Analysis	7	2.3%
Critical Analysis	6	1.9%
Inductive Analysis	6	1.9%
Historical Analysis	3	1.0%
Narrative Analysis	2	0.6%
Participatory Evaluation	2	0.6%
Integrative Data Analysis (IDA)	1	0.3%
Interpretive Description	1	0.3%
Multiple Criteria Decision Analysis (MCDA)	1	0.3%
Situational Analysis	1	0.3%
Template Analysis	1	0.3%
Quantitative	119	38.6%
Regression Analysis & ANOVA	53	17.2%
Non-Regression Statistical Analysis	20	6.5%
Descriptive Analysis	18	5.8%
Event History Analysis	5	1.6%
Time-Series Analysis	4	1.3%
Comparative Analysis	3	1.0%
Mathematical Modelling	2	0.6%
Meta-analysis	2	0.6%
Narrative Analysis	2	0.6%
Sensitivity Analysis	2	0.6%
Area under the Curve (AUC) Analysis	1	0.3%
Attributable Fraction Analysis	1	0.3%
Cost of Illness Analysis	1	0.3%
Herfindahl-Hirschman index (HHI)	1	0.3%
Markov Model	1	0.3%
Spatial Temporal Analysis	1	0.3%
Survival Analysis	1	0.3%
Threshold Analysis	1	0.3%
Mixed Methods Analysis	3	1.0%

Geospatial Distribution of Research

Figure 5 presents the geospatial distribution of research. For those articles with a global focus or without an identified geographical area of interest, locations were determined by author affiliations. The United States was the most prominent country of focus, represented by 21.4 percent of articles. Other countries with prolific research were the United Kingdom (11.3 percent), Australia (8 percent), and Canada (5.1 percent). Notably, scholars conducting drug policy research in these countries paid relatively more attention to cannabis topics than opioids. This difference was most pronounced in Canada as 52.2 percent of research focused on cannabis compared to 34.8 percent on opioids. A closer look at drug specific research by region indicates that opioids research is most pronounced in North America, Europe, and Asia, while cannabis research is concentrated in Europe, North America, and South America.

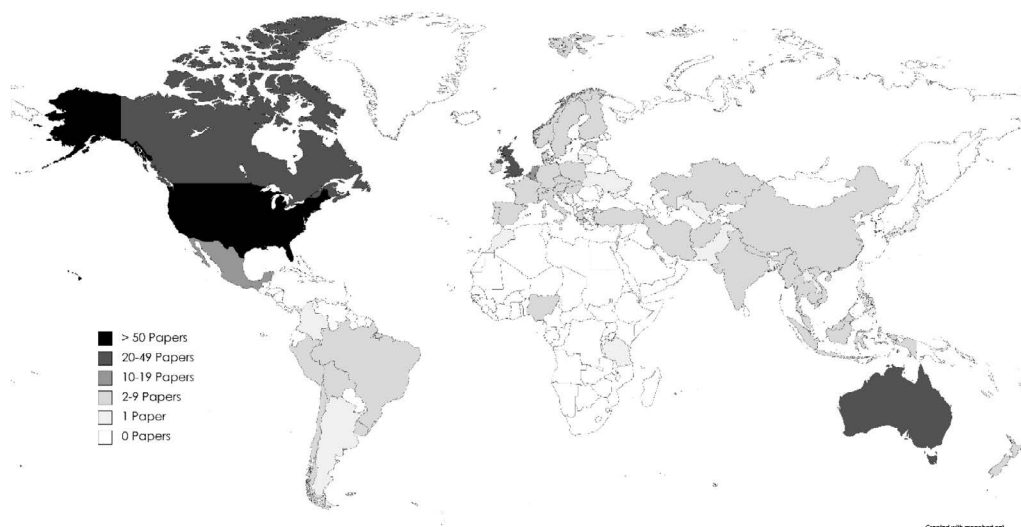


Figure 5. Countries and Regions of Research Focus

Below we discuss the implications of the above trends for the future of drug policy research, but first, we examine major policy developments that occurred in 2020-21. Not only does this provide a sense of how policy is changing, but we can later evaluate how well prevailing research trends match these developments.

Major Policy Developments

While 2020-21 will forever be remembered for the global COVID-19 pandemic, it was also a significant year in the development of U.S. drug policy. Some developments were directly tied to the pandemic, while others were part of larger trends that predated it. This section reviews developments in cannabis, psyc-

delics, broader decriminalization, overdose deaths, treatment, and the increasing centrality of social equity and justice in drug policy debates and reforms.

From Reefer Madness to Essential Service

Cannabis has a long and fraught history in the United States. It was one of the earliest substances to be demonized and controlled and has a particularly discriminatory history of regulation (Anguelov 2018). The tide in cannabis policy began to shift in 1996 when California adopted the first statewide comprehensive medical marijuana program via a ballot initiative. Medical cannabis has spread widely in defiance of federal prohibition under the Controlled Substances Act of 1970 (Hannah and Mallinson 2018; Mallinson and Hannah 2020). It is being followed by the spread of adult-use recreational cannabis. Recreational cannabis use has been legalized in 18 states and the District of Columbia as of June 2021 and decriminalized in an additional 13 states, where although illegal, violations by first time offenders are met with fines rather than incarceration (Ballotpedia 2021).

Something both practical and profoundly symbolic occurred for cannabis policy during the COVID-19 pandemic. As all U.S. states declared emergencies and many shut down broad swaths of their economies to stem the initial tide of infections, governors had discretionary authority over defining which essential services would remain available. Figure 6 shows that of the U.S. states that had operational recreational and/or medical marijuana programs in spring 2020, all either deemed their programs to be essential services or did not issue blanket closures and left dispensaries open (North Dakota and Arkansas). Many states also relaxed stringent rules for controlling how customers access recreational and medical cannabis. To prevent indoor gatherings in dispensaries, states allowed home delivery and curbside service, in a pronounced shift from the typical regime of purchasing cannabis behind closed doors. States also expanded the number of days' supply that patients could purchase at one time and allowed caregivers to buy medical cannabis for patients. Many of these changes are becoming permanent as states like Pennsylvania reform their cannabis statutes. The decision to deem marijuana an essential service was not completely rooted in epidemiological science. Governors relied on a mixture of scientific, political, and economic factors in making these decisions (Opp and Mosier 2020). Nonetheless, the symbolic importance cannot be denied. With state action, cannabis has transitioned from the status of a stoner subculture to a government-recognized essential service.

The steady march of cannabis liberalization in the states did not halt during the pandemic. South Dakota adopted both medical and recreational cannabis, New Jersey adopted recreational, and Mississippi adopted medical all via the ballot in 2020.⁷ Connecticut, New York, Virginia, and New Mexico all adopted recreational cannabis in the first half of 2021. However, the federal government

⁷ South Dakota's recreational and Mississippi's medical laws were subsequently deemed unconstitutional.

remains a fickle partner for states on cannabis liberalization (Mallinson, Hannah, and Cunningham 2020). Significant legislation like the MORE Act, which would address the industry’s banking problems, or the STATES Act, which would explicitly leave cannabis regulation to the states, has been introduced, but faces slim hope of passage in the near term. Other bills are circulating that would go much further in decriminalizing many or all drugs, but it is unclear how these will navigate the sharply divided Senate.

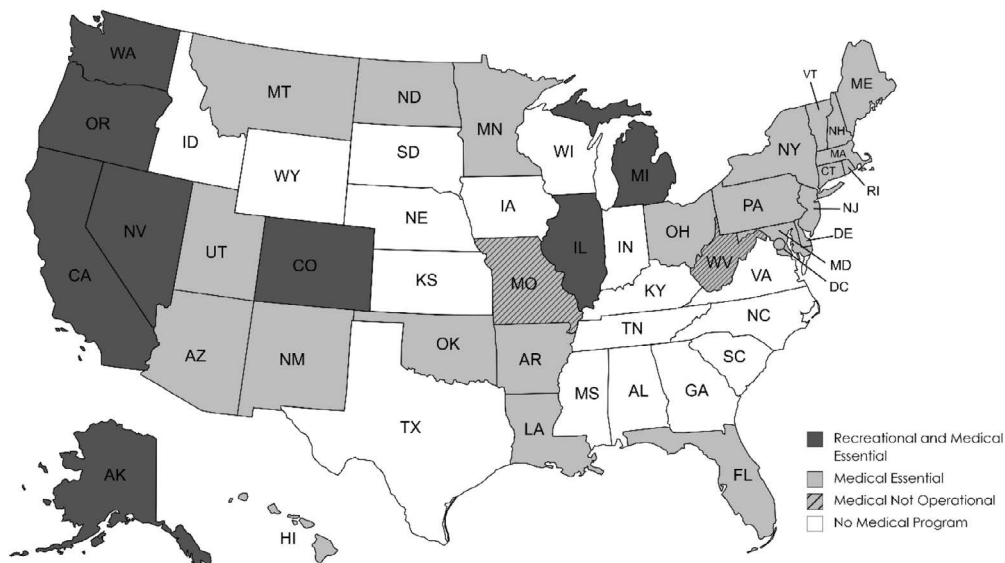


Figure 6. States That Deemed Recreational and/or Medical Marijuana an Essential Service During COVID-19

One significant advancement in federal policy occurred quietly, though not fully willingly, through administrative action. The Drug Enforcement Agency (DEA) announced in 2021 that it was following through on an Obama-era regulatory change that would allow additional growers for cannabis research. Since 1968, the University of Mississippi has been the sole grower for DEA-approved cannabis research. However, there is longstanding criticism that its cannabis is not near the potency or purity of that being sold in state-legal programs (Wadman 2021). Effective research is important for not only better establishing the specific medicinal value of cannabis, but also for overcoming the chicken-and-egg debate over that value. Opponents of medical cannabis argue that the science is not there, but the highly controlled nature of cannabis research, poor quality of research in cannabis, and the fact that most federal research funding related to cannabis goes to addiction—not medical—research (O’Grady 2020), makes assembling such evidence difficult.

Rise of Psychedelics

The paradox of banning substances for having no perceived medicinal value and high potential for abuse while also restricting high quality research on their

medicinal value is not limited to cannabis. In a 2014 call to end the ban on psychedelics research, the editors of *Scientific American* stated “these drugs are banned because they have no accepted medical use, but researchers cannot explore their therapeutic potential because they are banned” (Editors 2014).

Psilocybin mushrooms, LSD, and MDMA—like cannabis—are Schedule I drugs, but show potential for treating several psychiatric disorders (Vollenweider and Preller 2020; Carhart-Harris *et al.* 2016; Fuentes *et al.* 2020). Like the early cannabis successes, advocates have scored initial wins in decriminalizing or legalizing mushrooms via local and state ballot initiatives. The city of Denver was the first to decriminalize in 2019, followed by Oakland and Santa Cruz in California. Ann Arbor, MI, followed suit in 2020 and Cambridge and Northampton, MA, joined in 2021. It is notable that these city ordinances do not legalize mushroom possession or sale, they simply prevent local prosecution for possession. Of even greater significance was Oregon’s 2020 legalization of psilocybin mushrooms for medical use through Measure 109.

Research on the medical potential for psychedelics is also advancing. There has been a rapid growth in clinical trials for mushrooms, MDMA, and LSD over the past decade (Tullis 2021). Positive results of an FDA-approved Phase 3 clinical trial for MDMA-assisted treatment of PTSD were recently published (Mitchell *et al.* 2021) and another large-scale FDA-approved trial of the combination of MDMA and LSD has begun Phase 1. In 2017, FDA granted MDMA “break-through therapy” status for PTSD and assisted psychotherapy, which expedites research, development, and possible approval for treatment. It did the same for psilocybin mushrooms for the treatment of major depression in 2019.

State Decriminalization

Some states are further expanding the front in pushing back on the War on Drugs. In 2020, Oregon became the first state to decriminalize possession of small amounts of *all* drugs via a ballot initiative (Measure 110). Since then, states like Washington, Virginia, California, and Maine have seriously debated and voted on similar measures (Adlin 2021a; Jaeger 2021). One must always bear in mind that decriminalization is not legalization. Drug possession remains illegal in Oregon, but the penalty for it has been reduced to a \$100 fine with stiffer penalties for selling. Essentially, decriminalization laws reallocate policing resources by reducing the emphasis on combating drug possession. Expansion of this policy is not guaranteed, however, as evinced by Washington. The state’s Supreme Court struck down the state’s possession law in February 2021, forcing legislators to fill the gap. Instead of moving decriminalization forward, the Washington Senate amended a decriminalization bill to *add* jail time and a fine to possession (Adlin 2021b).

Increasing Overdose Deaths

Overdoses that were already surging in the United States in 2019 contin-

ued to do so during the pandemic (CDC 2020). Evidence suggests the increased rates of overdoses and deaths are due to synthetic opioids (e.g., fentanyl) (Appa *et al.* 2021; CDC 2020). The direct effects of the pandemic, however, are not clear. Emergency department visits for overdose initially fell in March during the first lockdowns, but grew thereafter (Holland *et al.* 2021). Evidence from San Francisco suggests that lockdowns themselves increased overdoses (Appa *et al.* 2021). Further, research from Ontario found that 17,843 more years of life were lost in opioid-related deaths in the first six months of 2020 compared to 2019 (Gomes, Kitchen, and Murray 2021). Based on preliminary estimates, in the United States overdose deaths are predicted to have been as high as 90,000 in 2020, compared to 70,000 in 2019 (Baumgartner and Radley 2021). While COVID-19 dominated the attention of government and public health agencies in 2020, overdoses have surged back to the forefront of their agendas in 2021.

The path forward in the long, grinding opioid epidemic is challenging for governments at all levels. Overdoses continue to rise even in the face of over a decade of increased policy responses. In a positive development, state and local governments are deciding how to appropriate a flood of resources: \$4.25 billion in emergency substance abuse and mental health funding from the Consolidated Appropriations Act of 2020 and \$3.5 billion more from the American Rescue Plan Act of 2021. A related, and long-demanded, policy advancement came in 2021: the relaxation of buprenorphine prescription rules.

Relaxing Buprenorphine Rules

Buprenorphine and methadone are two effective evidence-based treatments for opioid use disorder (West, O’Neal, and Graham 2000). Methadone must be administered in a clinical setting, but buprenorphine can be prescribed in doctors’ offices. Providers are restricted, however, in prescribing it unless they hold an “X-waiver,” which requires additional education (an eight-hour course). It has long been noted that doctors are not similarly limited in prescribing opioids for pain in the first place but are restricted in prescribing for medication-assisted treatment. This dissonance, combined with the ongoing opioid epidemic in the United States, has prompted calls for reform.

President Biden included relaxation of the X-waiver rules in his campaign platform⁸ and the Department of Health and Human Services (2021) altered the waiver requirement in April 2021. Now, doctors, physician’s assistants, and nurses can prescribe buprenorphine to a maximum of 30 patients before requiring an X-waiver. The waiver initially raises the cap to 100, and eventually 275, patients. If a state requires, however, physician’s assistants and nurses would still need to work with a DEA-registered physician when prescribing. While there are still questions regarding why the limits are necessary in the first place, the change will undoubtedly lower the barrier to medication-assisted treatment.

8 See <https://joebiden.com/opioidcrisis/>

Social Justice

It is impossible to look back at policy advances in 2020-21 without considering the larger movement for black lives. Drug control in the United States is tightly woven with racial inequity and the growth of mass incarceration (Alexander 2010). Thus, drug policy reform has likewise been linked with larger movements for justice and equity. Social equity has become a key part of the framing of cannabis legalization efforts and debates over the details of legislation. In fact, it was inadequate attention to social equity concerns that held New York and New Jersey back from adopting recreational cannabis prior to the pandemic (Peltz 2019). While later adopters of medical cannabis, like Pennsylvania, started to address equity in their programs, equity concerns were elevated with full legalization for adult use. Essentially, a substance for which possession or sale resulted in fines and prison for many, largely BIPOC, Americans is now being legalized and sold widely, largely by wealthy white Americans (Danquah-Brobby 2016). Strict rules preventing persons with a criminal record from obtaining a dispensary or grower/processor permit, combined with substantial capital requirements, have prevented the very people most harmed by the War on Drugs from benefiting directly from a newly legal cannabis industry.

In response, states have developed programs to increase the social equity of license awarding. Pennsylvania's early approach to addressing social equity was to simply add points to license applications for evidence of diversity in the applicant's leadership. Such approaches have been criticized for inducing token levels of diversity into the industry. After the first round of licenses in Illinois's recreational program (adopted in 2019) went to all white male applicants, the state instituted a special lottery system whose point-based entry included additional points for racial minority applicants.⁹ Lawsuits by applicants dogged this second round, leading to its suspension, and the Illinois legislature acted in 2021 to try to fix problems in the process. Of course, ensuring equity and social justice includes more than diversity in the industry. It also includes robust expungement, appropriate sanctions for cannabis-related offenses, providing funding for communities disproportionately harmed by the War on Drugs, and mitigating the downsides of recreational legalization (Adinoff and Reiman 2019). Much work remains in achieving these aims.

Discussion and Future Research Directions

From the above review, several useful insights on the trajectory of drug policy research and the current state of practice can be teased out. While research on drug policy has been prolific and wide-ranging in the past decade, recent trends toward liberalization indicate a shifting drug policy landscape—and a corre-

9 See <https://www.civiced.org/blog/what-state-illinois-cannabis-social-equity-program-and-how-will-new-legislation-reform-it>

sponding shift in drug policy research. This parallel change can be attributed to the following. First, policy begets research as the information generated by policy discourse (i.e., legislative bills, official statements, press releases, etc.) is publicly accessible and provides data for social science researchers to study. Second, as drugs are a prominent concern, both in domestic and foreign policy, the availability of research funding also provides an added impetus (O'Grady 2020). As policy has shifted, social scientists have followed suit to explore previously uncharted territory in the research domain, shifting their attention from the study of prohibitory policy to decriminalization and legalization. Our analysis contributes to the body of work on drug policy by developing an improved understanding of the state of the research and evaluating how well prevailing research trends match policy developments.

The results of our analysis indicate four major research areas of interest: Drugs & Substances, Policy Advocacy & Appraisal, Governance & Regulation, and Treatment & Interventions. Within each of these areas, emerging subthemes indicate research preferences that closely follow policy developments. This is most pronounced in the Drugs & Substances policy and research domain. For instance, scholarly interest in opioids and cannabis has corresponded with waves of opioid overdose deaths and shifts in the cannabis policy environment. Each of these drugs differ in their societal impact and both the literature and policy developments reflect these differences. For instance, research on opioids has tended to focus on Treatment & Interventions for drug abuse (Himmich and Madani 2016; Uchtenhagen 2010), Virus Transmission (Andresen and Boyd 2010; Bartholomew *et al.* 2020), and Prescribing Patterns (Kiang *et al.* 2020). This research corresponds with recent policy developments, particularly the relaxation of buprenorphine prescription rules. In contrast to opioids research, research on cannabis policy has focused less on use-reduction and more on the effects of legalization (Caulkins and Kilmer 2016) and regulation of drug markets (Caulkins *et al.* 2018). Policy developments around cannabis resonate with these research interests as an increasing number of states joined the steady march toward cannabis liberalization, state governments relaxed stringent regulations to cannabis access during the pandemic, and the DEA took action to expand cannabis cultivation for research.

Given that prohibition has been the historically preferred regulatory regime, both in the United States and internationally, the predominant research focus on prohibitory drug policy is expected. However, research on decriminalization and legalization is burgeoning, with more studies highlighting the positive implications of liberalized drug policies (e.g., health benefits, harm reduction, tax revenues, etc.) (Amroussia, Watanabe, and Pearson 2020; Hall and Kozłowski 2018). This is not to say that scholars are largely in support of decriminalization and legalization regimes. As states and countries implement liberal drug policies, the unintended public health or social effects of these policy shifts remain to be seen (Weiss, Howlett, and Baler 2017).

Despite erosion in the prohibitionist policy regime, the drug policy space continues to be sharply divided. Perhaps most surprising is the marginal role played by evidence in policy development (Lancaster 2014; Monaghan 2014). While it is understood that policy making would benefit from a stronger nexus between science and policy, gaps between research and practice remain problematic (Tieberghien 2014) and establishing this linkage is fraught with challenges. For one, policy making is an iterative process involving interactions and relationships between diverse policy actors (Ritter and Lancaster 2013) and a powerful *status quo* bias. Also, the media plays a large role in influencing public opinion, and subsequently, policy decision making—and this influence can work against science when scientific knowledge is misrepresented or selectively utilized (Ritter and Lancaster 2013; Tieberghien 2014). Finally, the academic literature may not always be correctly interpreted or accessible to policy makers (Ritter and Lancaster 2013; Bennett and Holloway 2010).

While scholars agree on the need for evidence-based policy, science and practice continue to operate in silos with drug policy being “articulated through metaphors” (Moore *et al.* 2015, 420) and informed by competing ideologies (Marlatt 1996). Future research would benefit from bridging the gaps between science and practice through evaluating the ways in which evidence-based policy can be brought to bear on policy making. One approach is to conceptualize policy making as a process of social construction, in which participants engage in discourse and vie for influence and, through this influence, evidence is rendered valid and useful in the policy-making process (Lancaster 2014). By critically analyzing policy making through a social construction framework, scholars can better understand how evidence is interpreted and contested in the policy making space, and thereby be better equipped to facilitate evidence-based interventions.

Our study highlights the shifting and complex drug policy landscape. Recent changes in drug policy will undoubtedly bring new opportunities and challenges as policy makers grapple with the immediate and long-term effects of liberalized drug policies. Future studies will benefit from evaluating immediate, medium-term, and long-term policy consequences—both intended and unintended. Further, the coexistence of opposing regulatory regimes (i.e., federal prohibition vs. state liberalization) and the implications for public health and criminal justice are worth exploring.

This study also demonstrates the need for public policy and administration researchers to engage more on drug policy. While some are contributing to niche outlets like the *International Journal of Drug Policy*, drug policy presents myriad policy and governance questions that warrant greater attention within the pages of policy and administration journals. For example, the evolution of U.S. drug policy reveals important complexities about American federalism. Defiant innovation by the states is now not limited to medical marijuana (Hannah and Mallinson 2018), but is expanding to other substances. States are acting in a vacuum produced by

the national government that federalism scholars have noted for years (Rose and Bowling 2015), but state drug policy liberalization goes beyond simply resisting federal mandates or filling federal inaction. The national government remains active in prohibitionist policies. This fractured policy landscape is expanding and has implications not only for governance, but also for new industries and individuals.

Public administration scholars can also speak to the ethical and social justice components of drug policy reform. Since the 1970s, social equity has been a pillar of public administration (Frederickson 1990). Scholars have wrestled with the social equity implications of numerous policies and public service delivery mechanisms, but drug policy has received scant attention. A search of *Public Integrity*, a cornerstone journal for topics of ethics and social equity, yields no pieces examining drug policy. This is a substantial missing voice in the debate over drug policy. Beyond ethics, drug policy presents ample opportunities to explore theories of the policy process, advocacy coalitions, networked governance, and more. Not only can policy and administration research contribute to better understanding drug policy, studying drug policy can advance theory and praxis.

Another notable gap in the research evaluated in this study is the scarcer attention to drugs beyond opioids and cannabis. Policy scholars should not limit themselves to the two substances that elicit the greatest attention but should expand their reach into drugs like psilocybin mushrooms and MDMA, which are advancing in clinical trials and at the forefront in emerging efforts to loosen state-level drug prohibitions.

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