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Criminal Justice or Public Health: A Comparison of the Representation of the Crack Cocaine and Opioid Epidemics in the Media

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Keywords

Media narratives, public health model of substance use, criminal justice model of substance use, crack cocaine epidemic, opioid epidemic

Abstract

CONTEXT: The opioid epidemic is a major American public health crisis. Its scope prompted significant public outreach, but this response triggered a series of journalistic articles comparing the opioid to the crack cocaine epidemic. Some authors claimed that the political response to the crack cocaine epidemic was criminal justice rather than medical in nature, motivated by divergent racial demographics.

METHODS: We examine these assertions by analyzing the language used in relevant newspaper articles. Using a national sample, we compare word frequencies from articles about crack cocaine in 1988-89 and opioids in 2016-17 to evaluate media framings. We also examined articles about methamphetamines in 1992-93 and heroin throughout the three eras to distinguish between narratives used to describe the crack cocaine and opioid epidemics.

FINDINGS: We find support for critics' hypotheses about the differential framing of the two epidemics: articles on the opioid epidemic are likelier to use medical than criminal justice terminology while the reverse is true for crack cocaine articles.

CONCLUSIONS: Our analysis suggests that race and legality may influence policy responses to substance-use epidemics. Comparisons also suggest that the evolution of the media narrative on substance-use cannot alone account for the divergence in framing between the two epidemics.

Introduction

The opioid epidemic is one of the most significant public health crises in America today. Of the more than 70,200 drug overdose deaths in 2017, around 68% were attributed to opioid abuse (CDC 2018). The statistical trends regarding the epidemic are equally alarming; in 2017, the number of overdose deaths involving opioids was six times higher than in 1999 (CDC 2018). The worrying scope of the epidemic has prompted significant public outreach, including the White House declaring the epidemic a public health emergency while calling for better controls of

prescription medications and access to substance-use treatment facilities (Davis 2017). Congress likewise allocated funding to treat the opioid epidemic as a public health concern and not a criminal justice issue in the 21st Century Cures Act, enacted in December 2016. State governments have also responded to the opioid epidemic through public health initiatives. For example, in 2017 Illinois released an Opioid Action Plan not through its law enforcement agencies but through its Department of Public Health, noting “[t]he focus of our efforts is to save lives” (Rauner 2017). The messaging is clear: substance use is a medical, not a law enforcement, issue.

The rise in public health-focused responses to the opioid epidemic triggered a series of journalistic articles and opinion pieces comparing the epidemic to the earlier crack cocaine epidemic. Titles of these pieces included “America’s Racist Response to the Crack Epidemic Must Inform the Way We Tackle Opioids” (Sharpton 2018), and “Why Didn’t My Drug-Affected Family Get Any Sympathy?” (Bailey 2018). The authors of these pieces compared the criminal justice response to the crack cocaine epidemic of the 1980’s with the public health approach to the current opioid epidemic and concluded that the differences in framing and public policy solutions were motivated by racism. Specifically, they were concerned that the differential responses were due to an association between crack cocaine and African-Americans while the opioid epidemic is now seen as a problem afflicting white communities.

This paper examines these assertions by analyzing the language used in newspaper articles from each period. Drawing upon newspapers across the country, we compare word frequencies from articles about crack cocaine in 1988-89 and opioids in 2016-17 to evaluate how each epidemic was framed in public discourse. We particularly examine language indicating a medical model of addiction, such as “health” and “treatment,” as compared to terms of social control, such as “police,” “enforcement,” and “arrest.” We find support for the critics’ hypothesis about the differential framing of the two substance-use epidemics: articles on the opioid epidemic are more likely to use medical or public health terminology – and evince concern about “people.” By contrast, articles on the crack cocaine epidemic utilize criminal justice terms and evoke concerns about “drugs” more frequently. To better understand the role that type of substance and race of users associated with the epidemic plays, we also examined articles about the methamphetamines epidemic from 1992-93, as this is an epidemic that has been associated with white users (as with opioids) but focuses on a stimulant (similar to crack cocaine). To better trace shifts in narratives, we pulled articles focusing specifically on heroin use from 1988-89, 1992-93, and 2016-2017. The framing of the two epidemics, especially in contrast to articles written during these two periods about heroin, suggests that the evolution of understanding substance abuse disorders is not the sole explanation for the different in media narratives. Instead, another factor, such as street drug status or race, may play a role in the public policy response and outreach to substance-use epidemics.

Public Policy, Substance Use, and Media Narratives

The media influences public policy agendas by prioritizing some news topics over others and therefore influencing which issues the public consider important (McCombs 1993). The media

also has the ability to frame issues by influencing the perceptions the public and key policymakers have on topics as well as suggesting appropriate responses and solutions (Scheufele 2007; Busby, Flynn, and Druckman 2018; Bennett 1990; 2016). This influence may be particularly strong on complicated public policy issues, such as poverty and welfare programs. For example, there is evidence that media framing connecting social welfare programs to race can shift public opinion and, in turn, public policies on the best way to address poverty alleviation (Winter 2006).

The media's effectiveness in setting agendas and framing issues is well documented in public responses to health issues (Brodie 2003). The ability of media to influence the perceptions of substance users and drive policy is no exception. As early as 1961, Howard Becker illustrated the role that media played in shaping the perception of drug users—in his case marijuana users—as deviant (Becker 1963). Criminal justice historians have documented that politicians and media often construct a narrative of drug use that presents substance use as a criminal act rather than one that arises from a medical disorder. Although the “just say no” era of the 1980s and 1990s is the most popular example of the criminalization model of substance use, it is prevalent throughout American political history. For example, the enactment of harsh mandatory minimum sentencing laws for marijuana and heroin occurred in the 1950s when the dominant narrative around substance use was that foreign pushers were inflicting substances on defenseless Americans (Lassiter 2015).

The model used to frame a substance abuse epidemic is crucial because it not only shapes public perception of the epidemic but also the public policy responses. By linking substance use and crime, the criminalization model drives draconian and drastic solutions to the use of illicit substances. Examples of these public policy interventions include mandatory sentencing, “three strikes and you’re out” policies, and even the use of the death penalty in some substance abuse cases (Krisberg 2015). These policies are often promoted under a “get tough on crime” campaign that can also drive the rise of a police state, with more funding to law enforcement, more criminal prosecutions, and higher rates of incarceration (Messner and Rosenfeld 2007). Unfortunately, the public policy interventions often justified by the criminalization model have been shown to have little impact on rates of serious crime (Messner and Rosenfeld 2007). They do come with important concerns regarding civil rights and liberties, however. For example, likely due to rhetoric based in the criminalization model of substance abuse in the 1980s, the percentage of Americans who felt that testing workers for substance use in general would be an unfair invasion of privacy declined from 44 percent in 1986 to 24 percent in 1989 (Beckett 1994).

The medical model of substance abuse calls for very different interventions. Instead of adopting a “tough on crime” stance, policy makers influenced by the medicalization model respond with offers of help, including resources for treatment and prevention (Netherland and Hansen 2017). Treatment interventions include diverting substance users from prisons to rehabilitation facilities, sometimes through drug courts. Prevention policies include prescription drug monitoring programs to limit the number of opioid prescriptions in a community as well as educational efforts around substance use. There is an understanding

under this model that substance users are “victims of their own biology.” Blame may be shifted from the user to the supplier—either the pharmaceutical industry, physicians who are careless with their prescriptions, or illicit drug sellers (Macy 2018). A telling outgrowth of the focus on the supply side of substance use is the rise of prescription drug monitoring programs, funded by the 2005 National All Schedules Prescription Reporting Act and present in forty-nine states (Oliva 2018). These programs are intended to reduce the availability of opioids by requiring prescribers to report the number of opioid prescriptions they write for patients, suggesting a perception that overeager providers – and not users seeking out opioids – are the driver of opioid use. Overall, the medicalization model is “kinder” to substance users in that it encourages policy makers to provide health care resources to support recovery rather than harsher criminal justice interventions.

Race, Substance Use, and Media Narratives

Layered on top of media narratives and frames around substance use in the United States is the role of race. Evidence suggests that the nature of racial content influences which media framing resonates most strongly with the public and becomes the dominant narrative. While some of this response may be motivated by explicitly racist biases, most is likely a result of implicit (Beckett, Nyrop and Pfingst 2006, 106) and structural biases (Bobo and Thompson 2006). Racial cues can feed into the perception of the severity of a crime or social problem (Beckett, Nyrop and Pfingst 2006, 107). In the case of substance use, associating addiction with communities of color can persuade the public and policymakers that substance use causes violence, crime, and other problematic behaviors. An association between race and addiction can give media narratives that emphasize the criminalization model of substance use greater resonance among policy makers and the public alike.

Indeed, Michelle Alexander (2012) argues that today’s mass incarceration of African-Americans originates in a deliberate strategy of the Reagan Administration to link substance abuse, criminality, and race in media narratives in order to drum up public and Congressional support for the War on Drugs, announced in 1982. Capitalizing on backlash against the Civil Rights Movement of the 1960s, conservative politicians beginning with Richard Nixon and his Southern Strategy had realized the political utility of using racial appeals to attract white voters (see also Mendelberg 2001). When it came into power, the Reagan Administration deliberately sought to shape perceptions of drug users and views on drug policy, announcing the War on Drugs at a time when illegal drug use was actually declining (Alexander 2012, 6). The announcement predated the crack epidemic, but provided the pretext for mass imprisonment once crack began to spread in poor black neighborhoods.

The impact of the criminalization model of substance use on the African-American community is significant. African-Americans are incarcerated at more than five times the rate of whites (NAACP 2019). While African-Americans and whites use illicit drugs at similar rates, imprisonment rates for drug related offenses are almost six times higher for African-Americans than whites, and while African-Americans represent only 12.4% of illicit substance users, they constitute 33% of those incarcerated in state facilities for drug related offenses (NAACP 2019).

The mass incarceration of African-Americans for drug related offenses also has serious collateral consequences, including exclusion from social supports such as financial aid and housing benefits, and challenges in achieving employment and financial security (National Research Council 2014), what Alexander terms “a new racial caste system” (2012, 3).

Even when white users fall under the criminalization model, they are often protected by their racial privilege. For example, when there was an outbreak of heroin use among white high school and college students in the Dallas area in the 1990s, the law enforcement response was to prosecute the Mexican cartels “preying on this community” (Lassiter 2015, 126). As a result, although whites represent a sizable majority of substance users and drug dealers in America, they comprise only one-quarter of drug offenders in state prisons (Lassiter 2015, 127). Similarly, methamphetamines have been linked to white users, and therefore its users are often portrayed as more sympathetic and less linked to violence than crack cocaine users (Murakawa 2011). An analysis of media depictions of drug use during the 2000s found that prescription opioid users were typically portrayed as white, suburban or rural, and sympathetic, while heroin users were usually described as black or Latino, urban, and criminal (Netherland and Hansen 2016).

Methods

To assess the extant hypothesis that the opioid and crack cocaine epidemics were differentially framed in the media, we drew articles from major U.S. newspapers, including the *Chicago Tribune*, *Los Angeles Times*, *Newsday*, *St. Louis Post-Dispatch*, *The Boston Globe*, *The New York Times*, *The Wall Street Journal*, and *The Washington Post*. We had originally intended to use several regional newspapers, including from areas with high crack cocaine or opioid abuse, but were limited to the set of papers whose digital archives extended back sufficiently.

We narrowed our searches to two time periods, 1988-89 and 2016-17, to maximize similarities between the two epidemics. In 1988, during George H.W. Bush’s election year, there was a surge in reporting on crack cocaine that continued into the first year of his Administration (Reinarman and Levine 1997, 21). Because the 2016 election of another Republican candidate, Donald Trump, coincided with media attention to the opioid epidemic, we chose the years 2016-17 for comparison. To search for articles we used the search engine Lexis Advance. One search was for articles that included “crack cocaine” and that were published between January 1, 1988 and December 31, 1989. This search resulted in 2,055 articles from the selected newspapers. The other search was for articles that included “opioid” and that were published between January 1, 2016 and December 31, 2017. This search resulted in 4,026 articles.

We also pulled articles focusing on methamphetamines and heroin, to better capture a variety of factors and to serve as comparisons to the crack cocaine and opioid epidemics. Methamphetamines were selected as a drug epidemic that focused on a stimulant—similar in that respect to crack cocaine—but also as an epidemic that has often been associated primarily with white users (Murakawa 2011)—akin to the opioid epidemic. To search for articles on methamphetamines, we focused on 1992-93, because those years encompassed a presidential

election and the start of a new Administration under President William J. Clinton. We separated heroin from our opioid search, even though heroin is an opioid, in order to track the trajectory of a longer running epidemic and well as to compare the narratives around a street drug to a broader category of substances that include prescription medications.¹ Our searches for articles that focused on heroin use encompassed 1988-89, in order to serve as a temporal comparison to our crack cocaine search, 1992-93, to serve as a comparison to our methamphetamines search, and 2016-17, to serve as a comparison to our broader opioid search. There were 391 articles for the methamphetamine sample, 3956 articles for heroin 1988-89, 2865 for heroin 1992-93, and 4112 articles for heroin 2016-17.

We compared the word frequencies in our samples using a variety of methods, including looking at relative word frequency and creating a topic model using Latent Dirichlet Allocation (LDA). LDA (Blei et al 2003, Pritchard et al 2000) is a generative statistical model that posits that each document (newspaper article in our case) is a mixture of a number of topics and that each word in the document can be attributed to a particular topic. When using LDA, the distribution of topics is assumed to have a sparse Dirichlet prior, reflecting an assumption that documents cover only a small set of topics and that topics use only a small set of words frequently. In our case, such an assumption is reasonable because newspaper articles are generally narrowly focused and use common language. In LDA, topics are not semantically strongly defined and words may co-occur across different topics. A topic model allows us to see how topics vary across the 1988-89, 1992-92, and 2016-17 samples. Before running the model, the samples were cleaned as follows: Stop words (“and, the, it, etc...”)², punctuation, and numbers were removed and all words were converted to lowercase.³

Findings

The most frequently occurring words in the 1988-89 crack cocaine sample (see Table 1) included language relating to criminal justice such as police, law, enforcement, and crime. The emphasis on criminal justice continued through our bigram analysis of the 1988-89 crack cocaine sample, with “law + enforcement,” “substances + crime,” “drug + trafficking,” “drug + dealers,” and “illegal + drugs” constituting half of the top ten. The trend continued in the trigram analysis of this sample, with “controlled + substances + crime,” “special + investigative + forces,” “law + enforcement + officials,” and “law + court + tribunals.”

¹ One might worry that separating heroin from opioids would bias the results in favor of a medical frame. At the suggestion of a helpful anonymous reviewer, we conducted an analysis of the combined sample of opioids and heroin articles for 2016-2017. While the language in this combined sample does shift slightly towards a law enforcement frame the medical theme continues to dominate as can be seen from the results in Appendix A.

² We developed a custom list of stop words that included words associated with newspaper formatting (e.g., “section”, “byline”, “graphic”) in addition to three common libraries of stop words (onix, SMART, and snowball) found in the R package “stopwords” (Benoit, Muhr, and Watanabe 2017).

³ We chose not to “stem” or “lemmatize” the words (i.e., substance and substances could be reduced to “substanc”) for ease of interpretation and integrity to the original texts, especially for bigrams and trigrams.

TABLE 1: TOP WORDS IN 1988-89 CRACK COCAINE SAMPLE (UNIGRAM, BIGRAM, AND TRIGRAM)

Language relating to criminal justice flagged in dark gray

Rank	Word	Frequency
1	drug	4650
2	cocaine	2584
3	police	2226
4	drugs	1924
5	crack	1764
6	people	1388
7	abuse	892
8	law	889
9	enforcement	841
10	crime	828

Rank	Word	Word	Frequency
1	law	enforcement	468
2	substance	abuse	406
3	substances	crime	369
4	controlled	substances	352
5	crack	cocaine	349
6	drug	trafficking	306
7	drug	dealers	263
8	drug	abuse	248
9	illegal	drugs	200
10	drug	policy	171

Rank	Word	Word	Word	Frequency
1	controlled	substances	crime	343
2	drug	enforcement	administration	113
3	special	investigative	forces	83
4	law	enforcement	officials	69
5	law	courts	tribunals	54
6	substance	abuse	treatment	43
7	students	student	life	39
8	national	football	league	38
9	substance	abuse	facilities	38
10	regional	local	governments	33

By contrast, the most frequently occurring word in the 2016-17 opioids sample (see Table 2) was health. Our bigram analysis of this sample also emphasized the rise of medical

terminology, with “health + care,” “public + health,” and “health + departments” included in the top ten. The trigram analysis was the most heavily weighted towards medical language, with “affordable + care + act,” “health + care + reform,” “public + health + administration,” “health + care + policy,” “substance + abuse + treatment,” and “health + care + law” comprising the majority of the top ten. Criminal justice terms did linger somewhat, including abuse, “law + enforcement,” and “controlled + substances + crime,” but were much less prevalent in the 2016-17 opioid sample than in the earlier crack cocaine sample.

TABLE 2: TOP WORDS IN 2016-17 OPIOID SAMPLE (UNIGRAM, BIGRAM, AND TRIGRAM)
Language relating to health and medicine flagged in light gray

Rank	Word	Frequency
1	health	10652
2	drug	8987
3	opioid	6955
4	people	6045
5	care	5817
6	trump	4580
7	drugs	4364
8	public	3975
9	law	3713
10	abuse	3625

Rank	Word	Word	Frequency
1	health	care	3444
2	substance	abuse	1846
3	public	health	1832
4	opioid	crisis	1227
5	law	enforcement	1143
6	presidential	candidates	1066
7	health	departments	945
8	opioid	epidemic	883
9	white	house	836
10	donald	trump	753

Rank	Word	Word	Word	Frequency
1	affordable	care	act	560
2	health	care	reform	454
3	public	health	administration	443
4	controlled	substances	crime	442
5	health	care	policy	365
6	health	care	professionals	359

7	substance	abuse	treatment	352
8	health	care	law	334
9	special	investigative	forces	246
10	drug	enforcement	administration	237

Although the unigram analysis of the 1992-93 methamphetamine sample only includes two criminal justice words (police and court), the bigram analysis is largely dominated by criminal justice phrases, including “law + enforcement,” and “pleaded + guilty.” The trigram analysis consists entirely of criminal justice phrases, both ones that appear in the 1988-89 crack cocaine sample (“law + enforcement + officials”) and ones that are unique to this sample (“fourth + reich + skinheads”). Nevertheless, some key criminal justice words and phrases that dominate the crack cocaine word frequency analysis, such as “crime,” “substance crime,” “drug trafficking,” “drug dealers,” and “illegal drugs” are missing from the methamphetamine word frequency analysis. There was an absence of public health or medical terms in all three analyses used for the methamphetamine sample.

TABLE 3: TOP WORDS IN 1992-1993 METHAMPHETAMINE SAMPLE (UNIGRAM, BIGRAM, AND TRIGRAM)

Language relating to criminal justice flagged in dark gray

Rank	Word	Frequency
1	drug	838
2	nov	686
3	oct	677
4	police	624
5	methamphetamine	554
6	sep	397
7	court	393
8	drugs	368
9	people	365
10	time	352

Rank	Word	Word	Frequency
1	child	abuse	69
2	law	enforcement	69
3	superior	court	62
4	antelope	valley	58
5	pleaded	guilty	57
6	dist	atty	52
7	sheriff's	department	49
8	court	judge	46
9	santa	ana	46
10	task	force	45

Rank	Word	Word	Word	Frequency
1	deputy	dist	atty	39
2	superior	court	judge	33
3	district	attorney's	office	22
4	drug	enforcement	administration	22
5	law	enforcement	officials	19
6	fourth	reich	skinheads	15
7	chula	vista	police	14
8	u.s	district	court	13
9	u.s	attorney's	office	12
10	handler	unknown	materials	11

The evolution of language in the samples of heroin articles from 1988-89, 1992-93, and 2016-17 shows elements observed in both the opioid sample and the crack cocaine sample. The unigram analyses of these three samples (see Table 4) include two criminal justice terms in 1988-89, only one criminal justice term in the next two samples, and no public health or medical terms. This stands in contrast to the 2016-17 opioid sample, which included four public health terms and no criminal justice terms (see Table 2). The bigram analysis of the 1988-89 heroin sample (see Table 5) does include one public health term (“drug + treatment”) but five criminal justice terms, similar to the 1988-89 crack cocaine bigram analysis (see Table 1) which includes five criminal justice terms although no public health language. The 1992-93 and 2016-17 bigram analyses (see Table 5) are closer to balanced with three criminal justice terms and two public health terms. Interestingly, the 1988-89 heroin trigram analysis (see Table 6) includes two public health terms, although the majority of the other top ten terms are criminal justice terms, whereas the 1992-93 trigram analysis includes no public health terms and is weighed heavily to criminal justice terms. The 2016-17 trigram analysis breaks down along similar lines to the 1988-89 trigram for heroin. This is in sharp contrast to the trigram analysis of the 2016-17 opioid sample (see Table 2), which is majority public health terms.

TABLE 4: TOP WORDS IN 1988-89, 1992-93, and 2016-17 HEROIN SAMPLES (UNIGRAMS)
Language relating to criminal justice flagged in dark gray

1988-89

Rank	Word	Frequency
1	drug	22523
2	drugs	9767
3	heroin	8417
4	police	8169
5	people	7798
6	cocaine	7504
7	time	5425
8	crack	4306

9	document	4063
10	federal	4062

1992-93

Rank	Word	Frequency
1	drug	11017
2	heroin	5860
3	people	5749
4	police	5634
5	drugs	4626
6	time	4214
7	life	3275
8	document	2931
9	cocaine	2719
10	home	2595

2016-17

Rank	Word	Frequency
1	drug	13688
2	people	10833
3	police	10264
4	heroin	10111
5	drugs	6159
6	opioid	5995
7	time	5846
8	addiction	5108
9	health	4776
10	treatment	4622

TABLE 5: TOP WORDS IN 1988-89, 1992-93, and 2016-17 HEROIN SAMPLES (BIGRAMS)
Language relating to criminal justice flagged in dark gray, language relating to health and medicine flagged in light gray

1988-89

Rank	Word	Word	Frequency
1	law	enforcement	1434
2	drug	abuse	1312
3	drug	dealers	953
4	drug	treatment	815
5	drug	enforcement	789
6	drug	users	671
7	drug	related	565

8	drug	trafficking	561
9	anti	drug	554
10	police	officers	491

1992-93

Rank	Word	Word	Frequency
1	law	enforcement	960
2	drug	abuse	451
3	drug	enforcement	446
4	drug	dealers	422
5	task	force	363
6	police	officers	344
7	series	occasional	330
8	drug	treatment	329
9	health	care	311
10	drug	users	294

2016-17

Rank	Word	Word	Frequency
1	law	enforcement	960
2	drug	abuse	451
3	drug	enforcement	446
4	drug	dealers	422
5	task	force	363
6	police	officers	344
7	series	occasional	330
8	drug	treatment	329
9	health	care	311
10	drug	users	294

TABLE 6: TOP WORDS IN 1988-89, 1992-93, and 2016-17 HEROIN SAMPLES (TRIGRAMS)
Language relating to criminal justice flagged in dark gray, language relating to health and medicine flagged in light gray

1988-89

Rank	Word	Word	Word	Frequency
1	drug	enforcement	administration	472
2	law	enforcement	officials	397
3	intravenous	drug	users	185
4	drug	treatment	programs	166
5	u.s	district	court	164
6	u.s	drug	enforcement	139

7	world	war	ii	132
8	law	enforcement	agencies	129
9	substance	abuse	services	118
10	federal	drug	enforcement	114

1992-93

Rank	Word	Word	Word	Frequency
1	drug	enforcement	administration	262
2	law	enforcement	officials	261
3	u.s	attorney's	office	119
4	u.s	district	judge	116
5	world	war	ii	116
6	assistant	u.s	attorney	89
7	district	attorney's	office	80
8	u.s	district	court	78
9	criminal	justice	system	73
10	farrar	straus	giroux	71

2016-17

Rank	Word	Word	Word	Frequency
1	drug	enforcement	administration	320
2	law	enforcement	officials	267
3	district	attorney's	office	184
4	criminal	justice	system	180
5	affordable	care	act	165
6	degree	criminal	possession	159
7	drug	overdose	deaths	146
8	anthony	lamar	smith	129
9	public	health	officials	126
10	law	enforcement	agencies	119

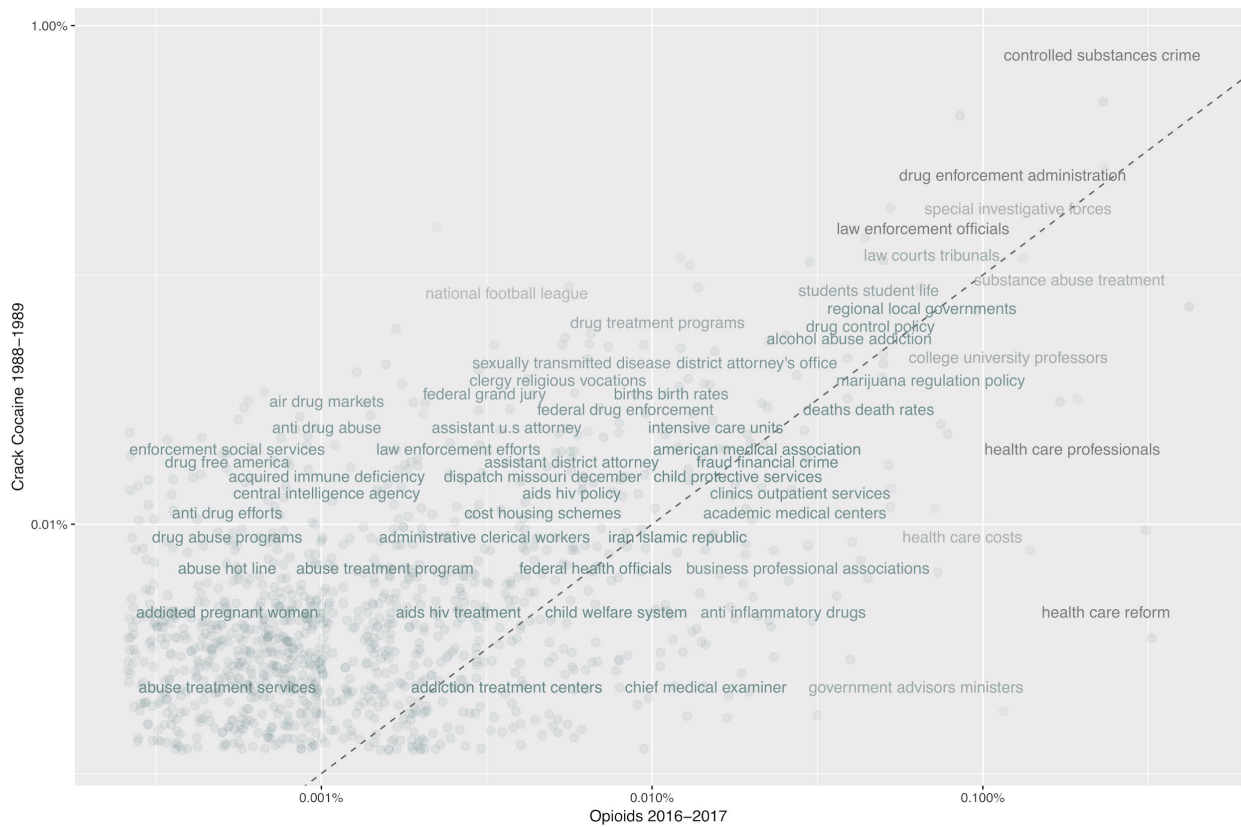
By comparing the relative frequencies of words in these samples, we can more clearly observe similarities and differences in the media narratives around these substance use epidemics. In the following figures, words that occur with similar frequency in both samples appear closer to the 45-degree line, words that are more prominent in the first named sample occur above the line, and words that are more prominent in the second named sample occur below the line.

High-frequency words in Figures 1-3, almost uniformly suggest a criminalization model while high-frequency words more prominent in the opioids sample (below the 45 degree line) suggest a medicalization model.

In the Unigram analysis (Figure 1), high frequency words drawn from articles written about the opioid epidemic include “arrested” and “police”, while words drawn from articles about crack

cocaine include “health,” “care,” “addiction,” “medical aid,” and “fentanyl.” The criminalization model is further seen in the Bigram analysis (Figure 2) with words such as “law enforcement” and “drug trafficking” from the crack cocaine articles, in comparison with the medicalized language of “doctors” and “pain” for the opioid sample. In the Trigram analysis (Figure 3), expressions such as “controlled substances crime” stand out as associated with the crack cocaine epidemic as compared to “health care professionals,” which occurs with higher relative frequency in the opioids sample. Assertions that public discourse on the crack cocaine and opioid epidemics was different are upheld in this analysis of media coverage from each period.

FIGURE 3: RELATIVE FREQUENCIES OF WORDS IN 1988-89 CRACK COCAINE AND 2016-17 OPIOID SAMPLES TRIGRAMS



The trend away from criminal justice to public health and medical terms found in the relative frequencies comparisons between the crack cocaine and opioid samples was also found in the comparison of the relative frequencies of words in the 1988-89 and 2016-17 heroin samples (see Figure 4). Although these samples cover the same substance, the terminology used in 2016-17 was much more medical, such as addiction treatment, than the 1988-89 sample, which includes terms such as crime family and court judge. This suggests that the narrative around substance abuse overall was shifting during this time period. This shift is also suggested by Figure 5, which is the relative frequencies of words in the 1988-89 crack cocaine and 1988-89 heroin samples. In this figure, the words are clustered tightly around the dividing line, suggesting relatively little difference in the terminology used. The comparison between the 2016-17 heroin and opioid samples shows a little more divergence, on the other hand, with heroin being associated slightly more with criminal justice terminology and opioids being associated with health care terms.

FIGURE 4: RELATIVE FREQUENCIES OF WORDS IN 1988-89 AND 2016-17 HEROIN SAMPLES (BIGRAMS)

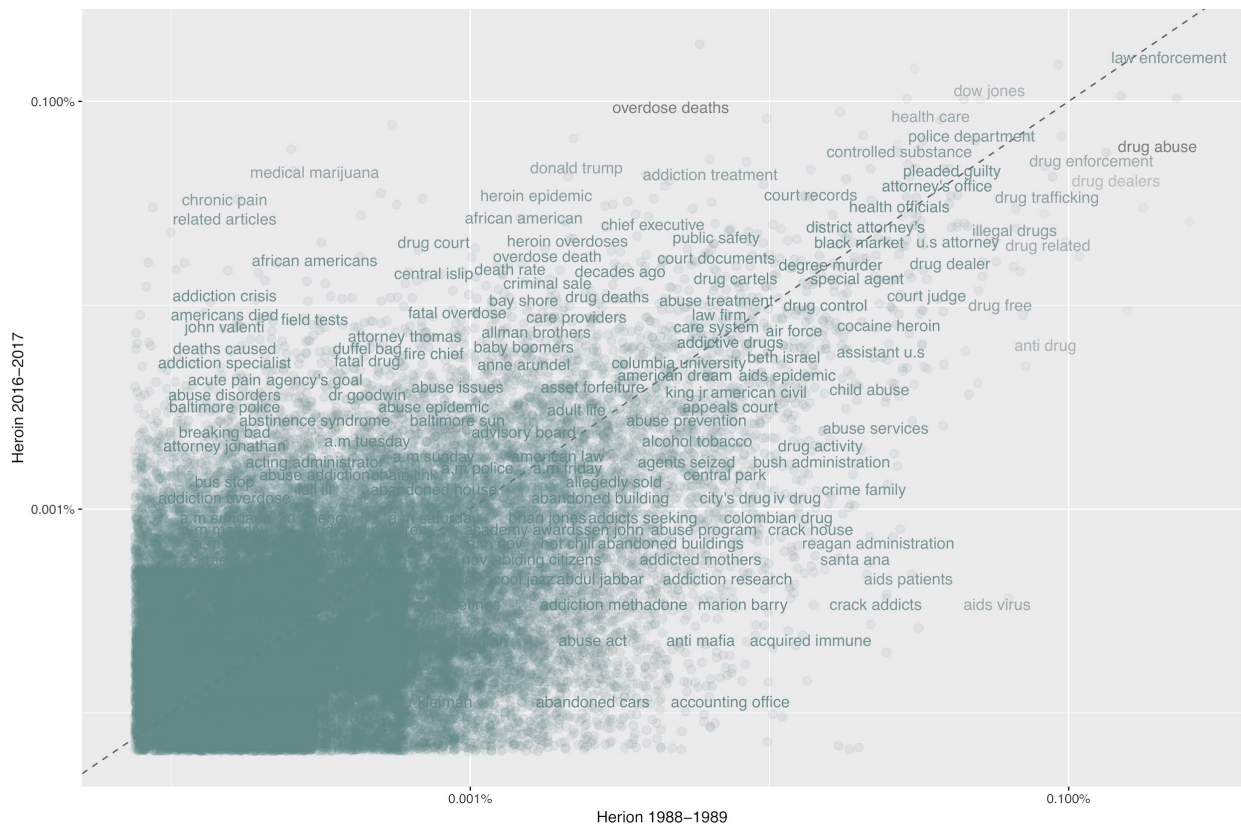
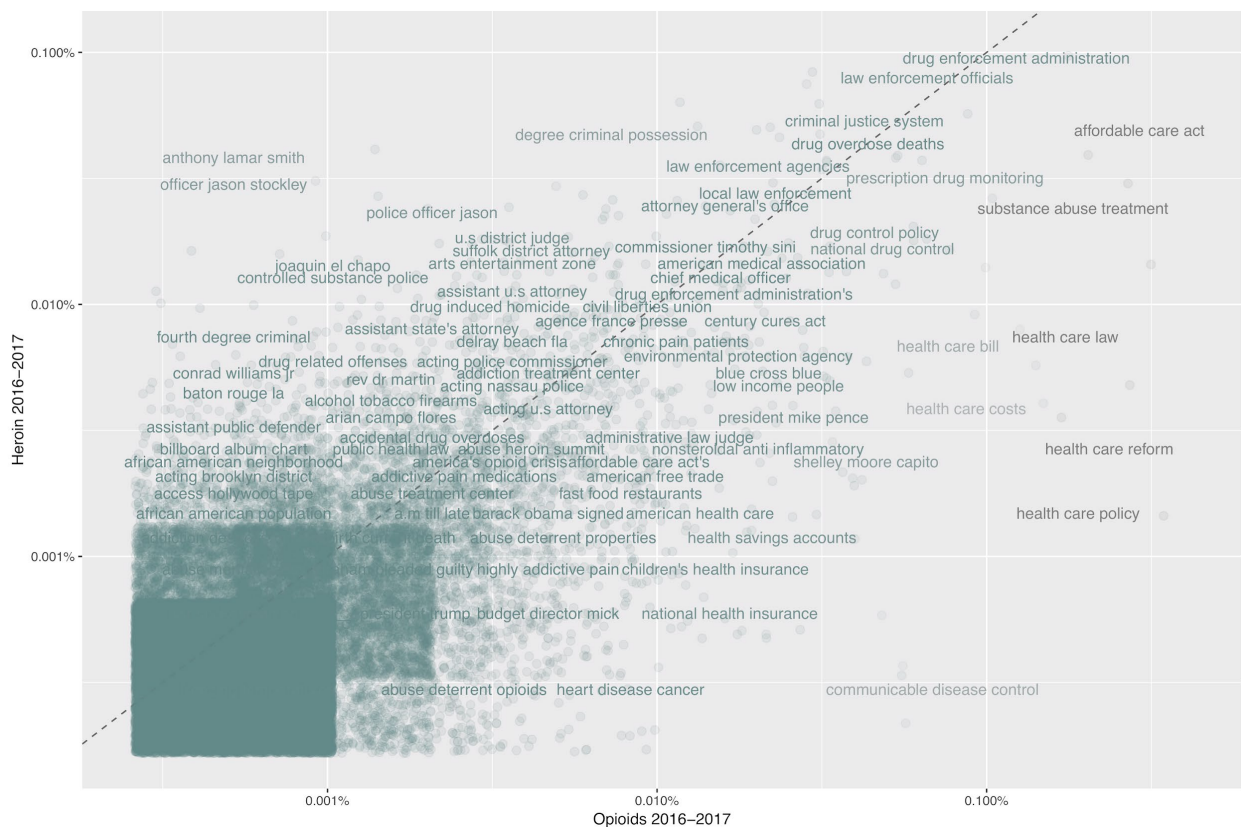


FIGURE 6: RELATIVE FREQUENCIES OF WORDS IN 2016-17 HEROIN AND OPIOID SAMPLES (TRIGRAMS)



Topic Models

Another way to see the divergence in rhetoric between the 1988-89 and 2016-17 samples is to use a topic model. As stated above, a topic model posits that each article is a mixture of a number of topics and that each word in the document can be attributed to one of the article's topics. Figures 7-10 show the results of topic models generated using Latent Dirichlet Allocation (LDA) on the two samples. After repeated tests we chose to set the model to find three topics. This choice is also justified by analyzing the Bayesian Information Criterion (BIC) associated with each model, which is an indicator of the tradeoff between complexity and parsimony (Soleimani and Miller (2014)). The BIC was minimized by either a two-topic model (for the crack cocaine 1988-89, opioids 2016-17, and methamphetamines 1992-3) or a three-topic (for heroin 1988-89 and heroin 2019-17). To facilitate comparability, a three-topic models were used for all, with the understanding that the third topic will vary in its coherence, often resembling a "remainder" category. The values in Figures 7-10 are betas, which reflect the concentration of words in the topic.

In Figure 7 (1988-89 Crack Cocaine Sample) the three topics include two that are relatively coherent—topic 1 is a clear law and order topic with words such as “law,” “enforcement,” “crime,” and “arrested.” Topic 2 is centered around communities and families but includes the interesting additions of “black” and “white,” which are likely to touch on race. Topic 3 is less coherent, but seems to touch on government policy.

FIGURE 7: TOPIC MODEL FOR 1988-89 CRACK COCAINE SAMPLE

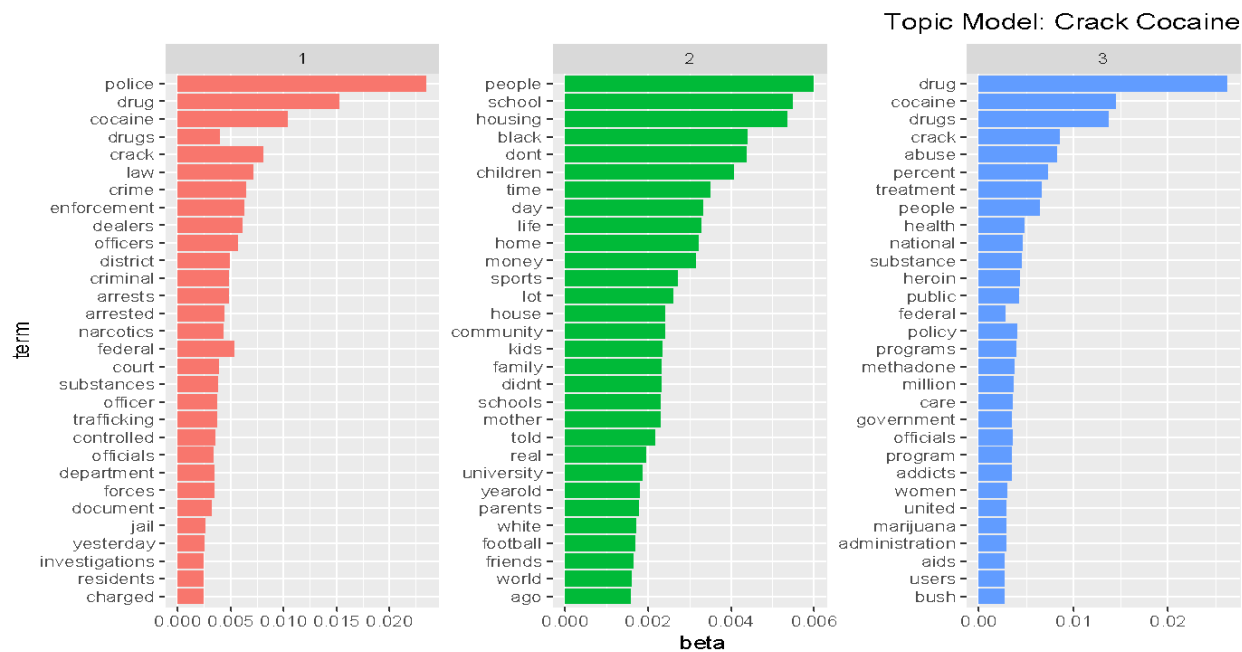
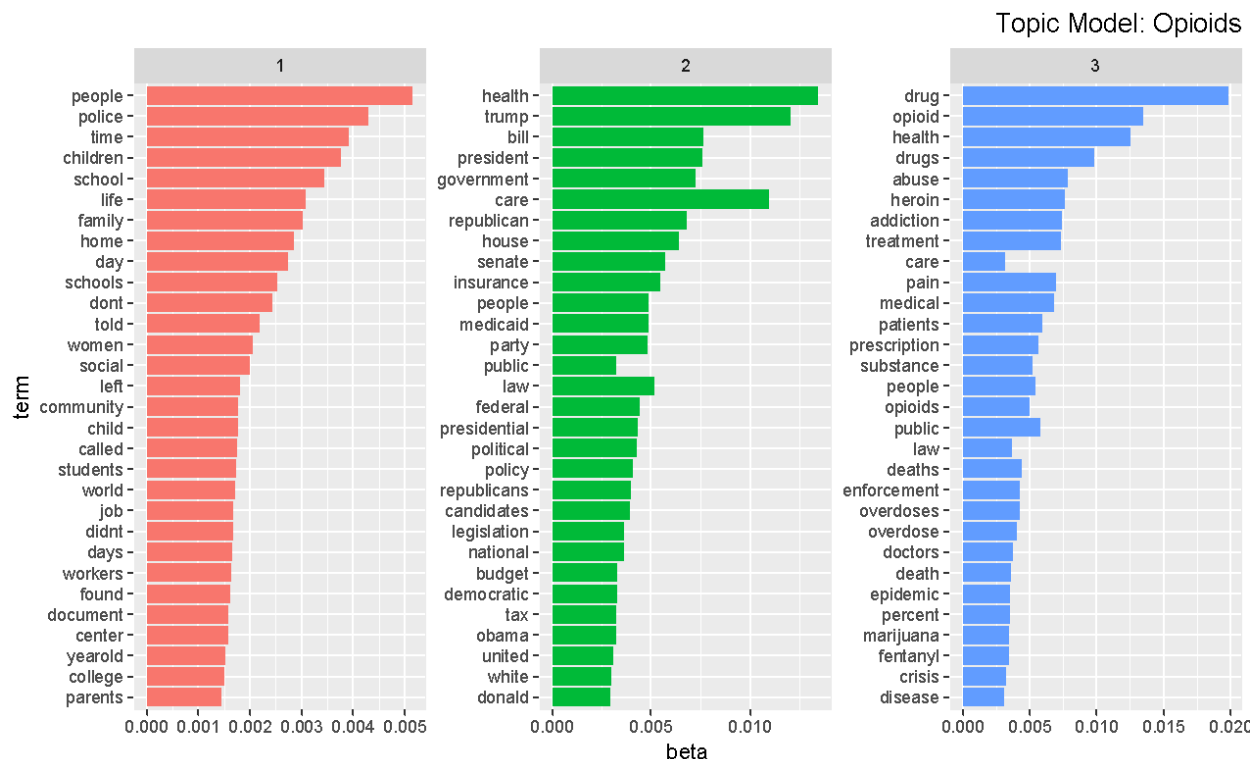


Figure 8, which shows the same analysis for the opioid sample (2016-17) has some overlap with the 1988-89 crack cocaine analysis in its topics—Topic 1 a community and home category (“family,” “home,” “children”) and Topic 2 is still political (“trump,” “republican”, “government”, “policy”) but Topic 3 is clearly more medical than law enforcement (“health”, “pain,” “addiction”, “patients,” “epidemic”).⁴ This analysis shows that when a three-topic model is considered the two samples differ strongly on Topic 3 with the 1988-89 crack cocaine sample including a law enforcement topic and the 2016-17 opioid sample including a medical topic.

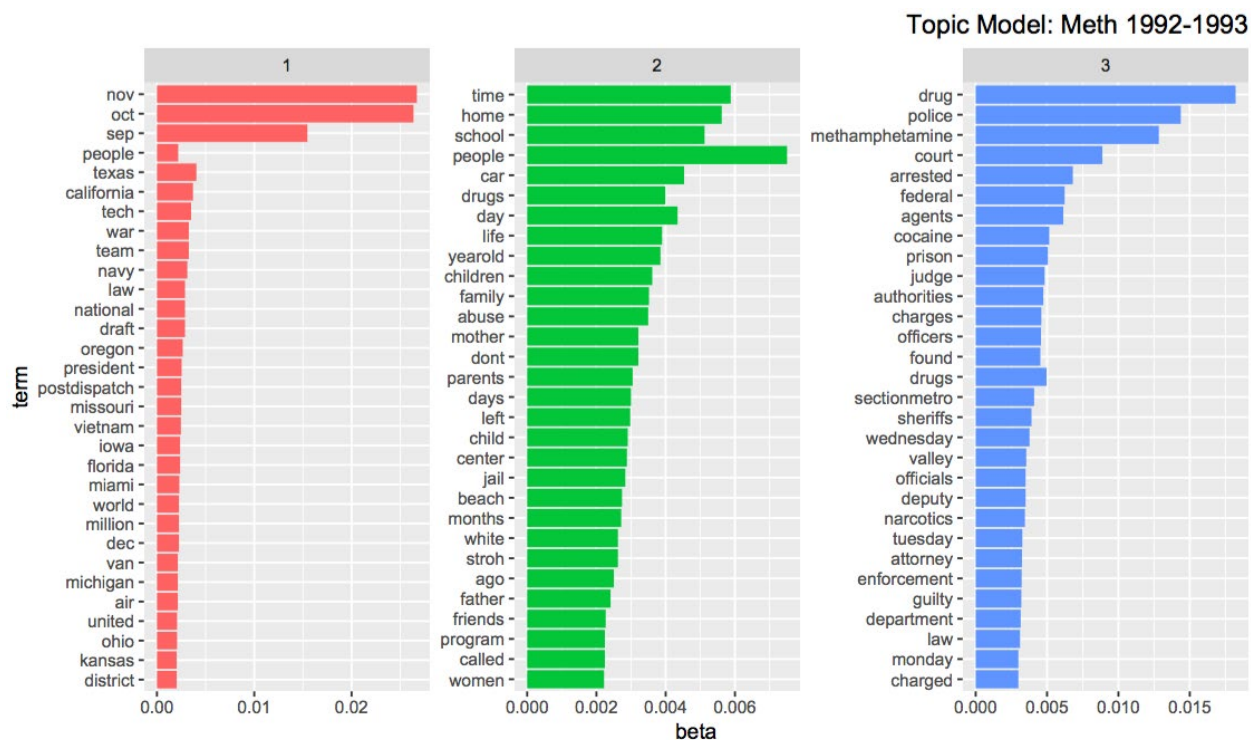
⁴ This is not to say that law enforcement is entirely absent, merely that it is a less prominent topic than health or politics. Adding a fourth topic to the model reveals a law enforcement-focused topic, but with relatively low values of beta (i.e., words that occur less frequently) and at the expense of a higher (less desirable) BIC.

FIGURE 8: TOPIC MODEL FOR 2016-17 OPIOID SAMPLE



Performing the LDA topic model analysis for the 1992-93 methamphetamine sample (see Figure 9), resulted in a very clear criminal justice topic (topic 3), a family and community topic that leaned in an interestingly negative direction, including words such as “jail” (topic 2), and a “remainder” topic that was relatively incoherent as can be seen from the low values of beta (topic 1). Therefore, the topic model analysis for the methamphetamine sample was closer to the crack cocaine sample than the opioid sample, despite the perception of both opioids and methamphetamine as “white” drugs. A key difference, however, between the topic model analyses for crack cocaine and for methamphetamine was that the criminal justice topic was topic 1 in the crack cocaine model but only topic 3 in the methamphetamine model, indicating that this topic was more prevalent in the framing of crack cocaine coverage.

FIGURE 9: TOPIC MODEL FOR 1992-93 METHAMPHETAMINES SAMPLE



We performed the same analysis for the 1988-89 heroin sample and the 2016-17 heroin samples, both to compare to the crack cocaine and opioid samples but also to compare to each other to get a sense of any evolution in the media narrative between these two time periods. Figure 10 shows the analysis for the 1988-89 heroin sample. Topic 1 is very clearly a criminal justice topic with terms such as “prison,” “crime,” and “criminal.” Topic 2 again appears to be a community focused topic, although similar to the crack cocaine sample and not the opioid sample, it includes the term “black” suggesting race. Topic 3 is focused around public health (with both “public” and “health” making an appearance) and treatment, which more closely aligns with the 2016-17 opioid analysis than the 1988-89 crack cocaine analysis. Figure 11 performs the sample analysis for the 2016-17 heroin sample. Topic 1 is a public health topic, while topic 3 appears to be a criminal justice topic. Topic 2 suggests a community and family focus with words such as “school” and “mother” and “children.”

The presence of both criminal justice and public health topics for both the 1988-89 and 2016-17 heroin samples is an interesting contrast to the topics for the crack cocaine and opioid samples. With the heroin and crack cocaine samples, which both deal with illegal drugs purchased outside the medical system, we find criminal justice topics well represented. On the other hand, the opioid topic analysis does not yield a criminal justice topic. Using heroin in the two time periods as a “control,” we can see that the change from crack cocaine (with a criminal justice but no public health topic) to opioids (with no criminal justice but with a public health topic) is not merely due to some secular change in increasing public health framings of drug

epidemics. Heroin was around in both eras, and had a public health framing in both eras. But opioids appear to be framed differently than crack, because crack had no public health framing back in 1988-89

FIGURE 10: TOPIC MODEL FOR 1988-89 HEROIN SAMPLE

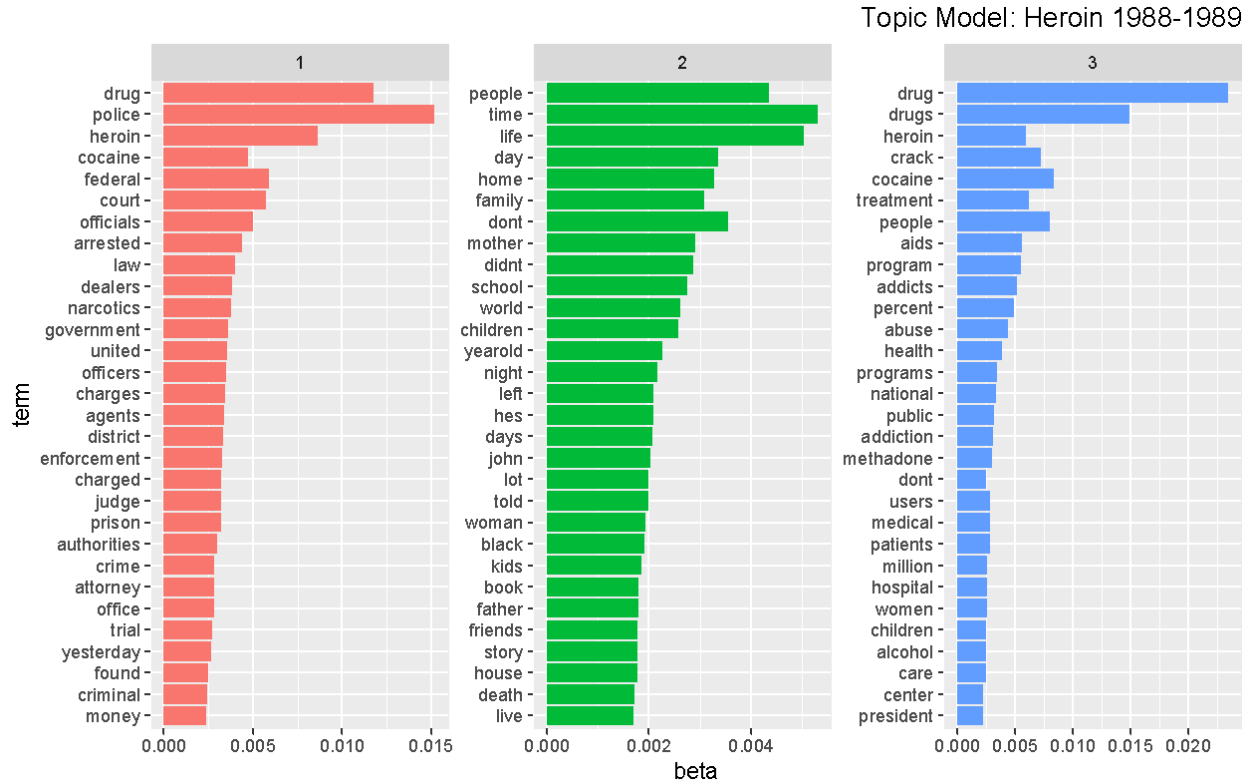
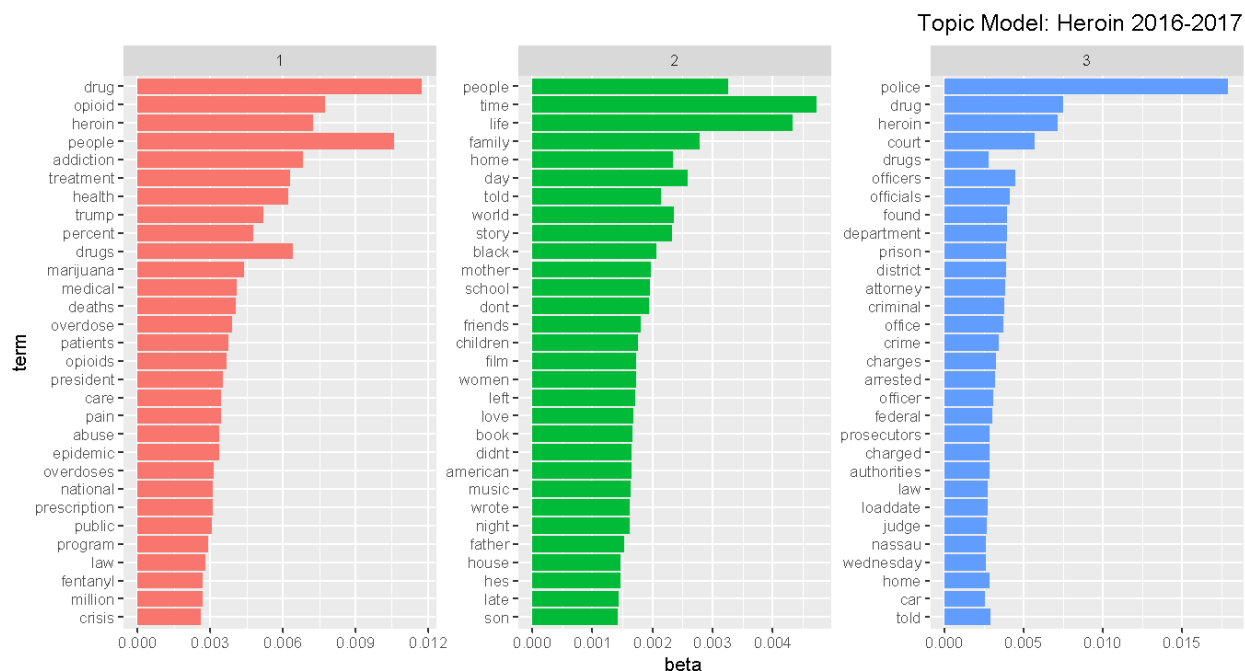


FIGURE 11 TOPIC MODEL FOR 2016-17 HEROIN SAMPLE



Conclusions

The word frequency patterns in the samples analyzed suggest a shift in the media narrative between the crack epidemic of the late 1980s to the more recent opioid epidemic. The 1988-89 crack cocaine sample demonstrates a strong criminalization focus, while the 2016-17 opioid sample illustrates the rise of the medicalization model. The analysis of the 1992-93 methamphetamine sample suggests that the criminalization narrative around substance use was still strong then. Tracing the narrative around heroin from 1988-89 through 1992-93 to 2016-17 provides an interesting contrast to the narratives utilized in the crack cocaine and opioid epidemics. The analysis of the 1988-89 heroin sample demonstrates that a public health framing was available during that time period and indeed appears in the topic models for 1988-89 heroin, but was not similarly used in the crack cocaine sample. While we observed both criminal justice and public health topics for heroin in both the earliest and latest heroin samples, we did not observe criminal justice or law enforcement topics appearing in the 2016-17 opioid sample. This suggests that the tone and content of media coverage of the opioid epidemic has indeed been different from both that of crack cocaine and of heroin. Comparing the media narrative around heroin to the media narrative on the broader opioid epidemic in both 2016-17 samples indicates that the opioid epidemic has been consistently represented in more medicalized terms than other substance use epidemics.

While the framing around the epidemics has differed in public health versus law enforcement/criminal justice content, it is difficult to conclusively state whether the difference in narratives between the opioid epidemic and other substance use epidemics stems from the

perception that the opioid epidemic is uniquely “white.” The heavy criminal justice narrative found in the 1992-93 methamphetamine sample, which was also a substance use epidemic associated with Caucasians, suggests otherwise. Furthermore, topic modeling indicating that criminal justice framing was more prevalent for the crack cocaine sample than the methamphetamine sample, although it was present in both. Additionally, there is a distinction between opioid use and heroin use, which may reflect who we expect to be using each substance or our perception between users of prescription and illegal drugs. It could be that in order for the media narrative to shift two factors were needed: an overall reframing of substance use as a public health issue that occurred at some point after 1992-93 and a perception that most users of the particular substance are white.

Interestingly, previous work analyzing the portrayal of the opioid epidemic may explain the shift in models between the opioid epidemic and other substance use epidemics. Emma McGinty et al. conducted an analysis of media coverage of opioid abuse from 1998 to 2012, focusing on whether law enforcement solutions (suggesting a criminalization model) or prevention-oriented solutions (suggesting a medicalization model) were proposed. Prior to 2007, news stories were much more likely to focus on law enforcement solutions to opioid use. The gap between the two types of solutions narrowed in 2007-09, and in 2010-12 the two types of solutions were represented with near equal frequency. We know that between 1993 and 2009 prescription opioid overdose admissions for whites increased 7.5 times, outstripping the rates of increase for African Americans (3.3) and Hispanics (3.2), and that since 2008, heroin related overdose hospitalization rates for whites exceeded that of African-Americans (Unick 2013). While the shift in media narratives documented from 1998 to 2012 by McGinty and then suggested in 2016-17 in our own work may be attributable to a variety of causes, it is likely that the changed demographics of addiction during this time period helped shift the trend away from law enforcement solutions to prevention-oriented solutions.

Media narratives matter because they shape and are bellwethers of solutions to public policy problems. A dominant narrative that substance use is a criminal justice issue is problematic because it can escalate law enforcement interventions that are ineffective and that raise serious civil rights concerns. Furthermore, a criminalization model of substance use reinforced by racial bias can contribute to the high rates of incarceration of people of color, especially African-Americans. By contrast, a medicalization model of substance use promotes more effective public health interventions. In the samples we reviewed, the contrast of models was noticeable and lends credence to the popular hypothesis that the opioid epidemic is perceived and framed differently because of the demographic groups it impacts. This is especially notable when contrasted to previous works that documented a shift from criminalization to medicalization in the opioid epidemic media narratives at the same time that the rates of use among white Americans began to skyrocket. These findings, reinforcing the connection between race and public policy responses, may also have implications for other complex public policy issues that involve structural factors and are framed differently depending on the racial group most impacted, such as education policies including bussing and welfare programs to address poverty.

Appendix A --- Analysis of combined Opioid and Heroin coverage in 2016-2017

Unigrams

Rank	Word	Frequency
1	drug	22675
2	people	16878
3	health	15428
4	heroin	13609
5	opioid	12950
6	police	12544
7	drugs	10523
8	addiction	8623
9	care	8450
10	time	8446

Bigrams

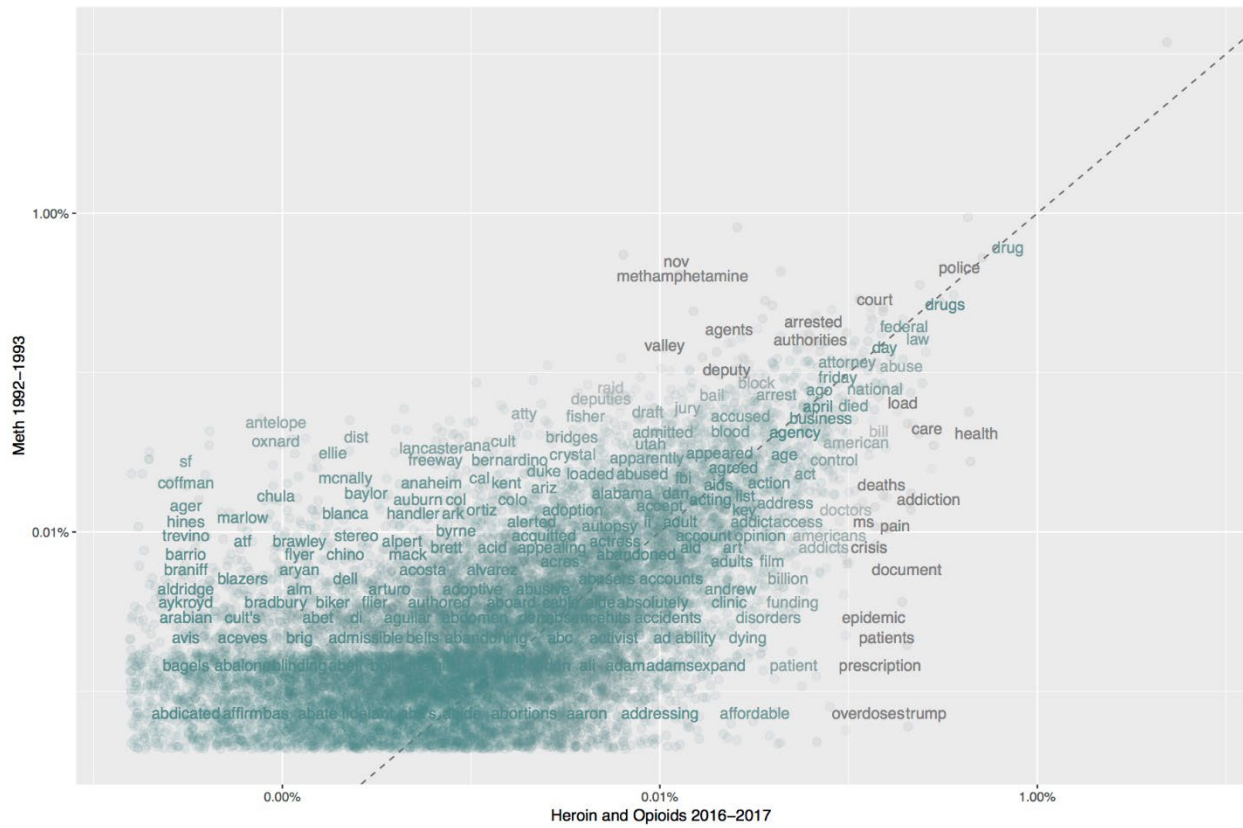
Rank	Word	Word	Frequency
1	health	care	4186
2	public	health	2673
3	law	enforcement	2586
4	substance	abuse	2489
5	opioid	crisis	1853
6	dow	jones	1719
7	opioid	epidemic	1716

8	mental	health	1435
9	overdose	deaths	1353
10	white	house	1342

Trigrams

Rank	Word	Word	Word	Frequency
1	affordable	care	act	725
2	drug	enforcement	administration	557
3	health	care	reform	463
4	public	health	administration	443
5	controlled	substances	crime	442
6	substance	abuse	treatment	433
7	law	enforcement	officials	394
8	health	care	professionals	382
9	health	care	policy	370
10	health	care	law	359

Opioids (including heroin 2016-2017) vs. Methamphetamine 1992-1993



Works Cited

Alexander, Michelle. 2012. *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*. Revised edition. New York: The New Press.

Bailey, Issaac J. 2018. "Why Didn't My Drug-Affected Family Get Any Sympathy?" *Politico*, June 10.

Becker, Howard. 1963. *Outsiders: Studies in the Sociology of Deviance*. New York: The Free Press.

Beckett, Katherine. 1994. "Setting the Public Agenda: "Street Crime" and Drug Use in American Politics." *Social Problems* 41, no. 3: 425-447.

Beckett, Katherine, Kris Nyrop, and Lori Pflingst. 2006. "Race, Drugs, and Policing: Understanding Disparities in Drug Delivery Arrests." *Criminology* 44, no. 1: 105-137.

Bennett, W. Lance. 1990. "Toward a Theory of Press-State Relations in the United States." *Journal of Communication* 43 (4): 103-27.

Bennett, W. Lance. 2016. "Indexing Theory." In *The International Encyclopedia of Political Communication*, edited by Gianpietro Mazzoleni, Kevin G. Barnhurst, Ken'ichi Ikeda, Rousily C. M. Maia, and Hartmut Wesler, New York: John Wiley and Sons.

Benoit, Kenneth, David Muhr and Kohei Watanabe. 2017. "stopwords: Multilingual Stopword Lists." R package version 0.9.0. <https://CRAN.R-project.org/package=stopwords>

Blei, David M., Andrew Y. Ng, and Michael I. Jordan. 2003. "Latent Dirichlet Allocation." *Journal of Machine Learning Research* 3, 993-1022.

Bobo, Lawrence D. and Victor Thompson. 2006. "Unfair by Design: The War on Drugs, Race, and the Legitimacy of the Criminal Justice System." *Social Research: An International Quarterly* 73, no. 2: 445-472.

Brodie, Mollyann, Elizabeth C. Hamel, and Drew E. Altman. 2003. "Health News and the American Public, 1996–2002." *Journal of Health Politics, Policy and Law*, no. 28: 927–950.

Busby, Ethan, D.J. Flynn, and James N. Druckman. 2018. "Studying Framing Effects on Political Preferences: Existing Research and Lingering Questions." In Paul D'Angelo, ed., *Doing News Framing Analysis II* (New York: Routledge).

CDC (Centers for Disease Control) "Understanding the Epidemic." <https://www.cdc.gov/drugoverdose/epidemic/index.html> (accessed January 14, 2019).

Davis, Julie Hirschfeld. 2017. "Trump Declares Opioid Crisis a 'Health Emergency' but Requests No Funds." *New York Times*, October 26.

Krisberg, Barry A., Susan Marchionna, and Christopher Hartney. 2015. *American Corrections: Concepts and Controversies*. Thousand Oaks, CA: Sage Publication.

Lassiter, Matthew D. 2015. "Impossible Criminals: The Suburban Imperatives of America's War on Drugs." *The Journal of American History* 102, no. 1:126-140.

Macy, Beth. 2018. *Dopesick: Dealers, Doctors, and the Drug Company that Addicted America*. New York, NY: Little, Brown and Company.

McCombs, Maxwell E., and Donald L. Shaw. 1993. "The Evolution of Agenda-Setting re-Search: Twenty-Five Years in the Marketplace of Ideas." *Journal of Communication*, no. 43: 58–67.

McGinty, Emma E., Alene Kennedy-Hendricks, Julia Baller, Jeff Niederdeppe, Jeff, Sarah Gollust, and Colleen L. Barry/ 2016. "Criminal Activity or Treatable Health Condition? New Media Framing of Opioid Analgesic Abuse in the United States, 1998-2012." *Psychiatric Services* 67, no. 4: 405-411.

Mendelberg, Tali. 2001. *The Race Card: Campaign Strategy, Implicit Messages, and the Norm of Equality*. Princeton: Princeton University Press.

Messner, Steve F., and Richard Rosenfeld. 2007. *Crime and the American Dream* (4th ed). Belmont, CA: Wadsworth/Thomson Learning.

Murakawa, Naomi. 2011 "Toothless." *Du Bois Review: Social Science Research on Race* 8, no. 1: 219–228.

NAACP (National Association for the Advancement of Colored People). "Criminal Justice Fact Sheet." <https://www.naacp.org/criminal-justice-fact-sheet/> (accessed January 23, 2019).

National Research Council. 2014. *The Growth of Incarceration in the United States: Exploring Causes and Consequences*. Washington, DC: The National Academies Press.

Netherland, Julie, and Helena B. Hansen. 2016. "The War on Drugs That Wasn't: Wasted Whiteness, 'Dirty Doctors,' and Race in Media Coverage of Prescription Opioid Misuse." *Culture, Medicine, and Psychiatry* 40, no. 4: 664-86.

Netherland, Julie, and Helena B. Hansen. 2017. "White Opioids: Pharmaceutical Race and the War on Drugs that Wasn't." *BioSocieties* 12, no. 2: 217-238.

Pritchard, Jonathan K., Matthew Stephens, Noah A. Rosenberg, and Peter Donnelly. 2000. "Association Mapping in Structured Populations." *The American Journal of Human Genetics* 67, no. 1: 170-181.

Reinarman, Craig, and Harry G. Levine. 1997. "Crack Attack: Politics and Media in the Crack Scare." In *Crack in America: Demon Drugs and Social Justice* edited by C. Reinarman and H. G. Levine, 18-51. Berkeley, CA: University of California Press.

Oliva, Jennifer D. 2018. "Prescription Drug Policing: The Right to Protected Health Information Privacy Pre- and Post-Carpenter." *WVU College of Law Research Paper No. 2018-005*. (available at SSRN: <https://ssrn.com/abstract=3225000> or <http://dx.doi.org/10.2139/ssrn.3225000>).

Rauner, Bruce. 2017. "State of Illinois Opioid Action Plan." September. Illinois: Illinois Department of Public Health.

Scheufele, Dietram A., and David Tewksbury. 2007. "Framing, Agenda Setting, and Priming: the Evolution of Three Media Effects Models." *Journal of Communication*, no. 57: 9–20.

Sharpton, Al. 2018. "America's Racist Response to the Crack Epidemic Must Inform the Way We Tackle Opioids." *NBC News*, January 30.

Soleimani, Hossein, and David J. Miller. 2014. "Parsimonious topic models with salient word discovery." *IEEE Transactions on Knowledge and Data Engineering* 27, no. 3: 824-837.

Unick, George Jay, Daniel Rosenblum, Sarah Mars, and Daniel Ciccarone. 2013. "Intertwined Epidemics: National Demographic Trends in Hospitalizations for Heroin- and Opioid-Related Overdoses, 1993–2009." *PLoS ONE* 8, no. 2: e54496.

Winter, Nicholas. 2006. "Beyond Welfare: Framing and the Racialization of White Opinion on Social Security." *American Journal of Political Science* 50, no. 2: 400-420.

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