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Short report

Blacks face higher risk of drug arrests in White neighborhoods

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ABSTRACT

Background: Although Blacks and Whites in the United States use drugs at similar rates, Blacks are much more likely to be arrested for drug crimes. We tested the hypothesis that racial disparities in drug arrests are exacerbated in predominantly White neighborhoods.

Methods: Using publicly available data we calculated the disproportion of Black arrests as a function of the proportion of Black arrests over the proportion of Black residents within the 56 police service areas that make up the Washington, DC metropolitan police department (MPD). We compared the disproportion of Black arrests with the percentage of White residents within each service area.

Results: The population within MPD jurisdiction is 50.7% Black and 38.5% White. Between July 2014 and August 2015, 87.8% of the 3329 individuals arrested for drugs were Black, yielding a citywide disproportion of Black drug arrests of 1.73. Linear regression showed a statistically significant exponential relationship between the disproportion of Black arrests and the percentage of White residents within a police service area, peaking at an arrest disproportion of 12.4 in an 84% White area.

Conclusions: Disproportionate Black drug arrests increase with the percentage of White residents in an area. Racial bias in drug arrests may be linked to segregation.

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Introduction

Although Blacks and Whites in the United States (US) use and sell drugs at approximately the same rates, Blacks are more than twice as likely to be arrested for drug related reasons than are Whites (Mitchell & Caudy, 2015; National Survey on Drug Use & Health, 2013; Trifiletti, Gielen, Sleet, & Hopkins, 2005). The mass incarceration of Black men resulting from this bias in drug related arrests has contributed to the social and economic destabilization of Black communities, increased STI risks for incarcerated men and their partners, and perpetuated racial health disparities (Alexander, 2012; Cooper et al., 2015; Massoglia, 2008). Advocates and qualitative research have suggested that racial inequity in drug related arrests may play a role in driving neighborhood segregation or creating space for gentrification efforts (Kern, 2015; Pennay, Manton, & Savic, 2014). However, to date little research has examined whether the racial composition of a neighborhood is associated with elevated risk of drug related arrest among Blacks in the US. We sought to test this hypothesis using data from Washington, DC. While the District is approximately half Black and 40% White, it is one of the most segregated cities in the nation and

has experienced widespread gentrification over the past two decades (Jackson, 2015; Silver, 2015). The district also recently decriminalized cannabis in an attempt to address criminal justice disparities primarily driven by drug related arrests (ACLU, 2015).

Methods

We analyzed all drug related arrests in Washington, DC between July 17, 2014 – when cannabis was decriminalized – and August 3, 2015 the date on which the data were requested. Data on drug related arrests are publicly available and were provided by the Washington, DC metropolitan police department (MPD) through a Freedom of Information Act request. Data included the date, police service area (PSA), arrestee's self-reported race, and substance involved for every recorded drug related arrest in the MPD jurisdiction. Washington, DC is made up of 56 PSAs. These do not directly correspond to the District's 131 official neighborhoods; instead they are relatively small administrative units with boundaries determined by the MPD and an average population of about 10,000 residents each. Demographic data describing the racial makeup of PSAs is publicly available and was accessed at the Washington DC Open Data website (data.dc.gov). These data included the total population and racial makeup of each PSA as of April 14, 2015.

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We first examined the distribution of drug related arrests by race for the entire city and by PSA. We calculated the proportion of Black arrests by dividing the number of Black arrests by the total number of arrests for each geographic unit of analysis (i.e., each PSA and Washington, DC as a whole). Next, we compared the proportion of Black arrests to the proportion of Black residents within each geographic unit. Our final statistic – disproportion of Black arrests – was calculated by dividing the proportion of Black arrests over the proportion of Black residents within each geographic unit. We repeated this process for White arrests.

The disproportion of drug related arrests can be interpreted as a measure of how much higher or lower the percentage of drug arrests of Black or White residents are than could be expected given the percentage of Black or White residents living within a geographical unit, respectively. A disproportion of 1.00 signifies that the percentage of Black or White drug arrests exactly matches the percentage of Black or White residents. A disproportion below 1.00 indicates that the percentage of Black or White arrests in a geographical unit is lower than the percentage of Black or White residents, while a disproportion above 1.00 indicates that the percentage of Black or White arrests is higher than the percentage of Black or White residents within a geographical unit.

We first conducted a simple linear regression (SLR) to assess the linear relationship between the disproportion of drug related arrests and the proportion of Black or White residents. We then added a quadratic term to account for the possibility of a non-linear relationship. The PSAs were our unit of analysis, and we assessed the effects of a 10% increase in White or Black residency within a PSA on the disproportion of Black or White arrests, respectively. In the regression with a quadratic term, mean proportion of Black or White residents was centered at the mean.

The UC San Diego institutional review board reviewed this study and declared it exempt from human subjects research review.

Results

The Washington, DC MPD is composed of 56 police service areas (PSAs) with an average of approximately 9900 residents each. In the year preceding the decriminalization of cannabis (July 16, 2013–July 16, 2014), 7065 individuals were arrested for drug related reasons. Eighty-nine percent of arrestees self-reported themselves as Black, 7% as White, 3% as Hispanic, and 0.3% as Asian. Following decriminalization, 3229 individuals were arrested for drug related reasons between July 17, 2014 and August 3, 2015. Arrestees were 88% Black, 8% White, 3% Hispanic, and 0.4% Asian. Nearly 30% of arrests involved an unknown substance; 27% involved crack-cocaine; 15% involved heroin; and 15% cannabis. Data on the PSA in which an arrest took place was missing for 58 arrests. Of these 58 arrests with missing PSA data, 50 were of Black individuals and 8 were of White individuals.

Within the MPD jurisdiction 50.7% of residents were Black and 38.5% were White. 88% of arrestees were Black and 8% were White, yielding a citywide disproportion of Black arrests of 1.74, and an overall White arrest disproportion of 0.21.

The percent of both Black and White arrests within PSAs ranged from 0% to 100%. The mean percent of Black arrests was 88% with a median of 91%. The mean percent of White arrests was 8% and the median was 6%.

The disproportion of Black and White arrests by proportion of White and Black residents within a PSA are shown in Table 1, along with the results of the 2 linear regressions which examined the increase in disproportion of Black arrests for each 10% increase in the proportion of White residents, and disproportionate White arrests for each 10% increase in Black residency. The disproportion of Black arrests within each neighborhood ranged from 0.66 to 12.38, with a mean disproportion of 2.71 and a median of 1.29. For

Whites the median disproportion of White arrests to White residents was 0.46. The mean was 1.14, and the range across neighborhoods was 0.06–6.01.

Disproportionate drug related Black arrests were higher in PSAs with a higher percentage of White residents, and approached parity when the percentage of Black residents in a PSA was large. In PSAs with a Black population of 90% or higher, the average disproportion of Black arrests was 1.00, meaning that the proportion of Black arrests was approximately equivalent to the proportion of Black residents within the PSA. The highest disproportion of Black arrests occurred within PSAs with the highest percentage of White residents. The five PSAs with the highest percentage of White residents included the three highest disproportions of Black arrests: 11.13, 12.38, and 11.15, in PSAs composed of 85.33%, 84.38%, and 82.21% White residents, respectively. The two remaining PSAs reported 0 and 8 drug related arrests over the study period.

The disproportion of drug related White arrests was also higher in neighborhoods with a higher percentage of Black residents, however the relationship was not as pronounced as that between the disproportion of Black arrests and the proportion of White residents in a neighborhood. In neighborhoods in which the disproportion of White arrests was greater than 1.00, the average percentage of Black residents was 86%. The disproportion of White arrests peaked at 6.01 in a neighborhood that was 97% Black.

In a simple linear regression analysis of the PSAs ($n = 56$), for each 10% increase in White population, the disproportion of Black arrests increased by 0.67 units ($p < 0.001$), with a coefficient of determination (R^2) of 0.67, suggesting that the proportion of White residency in a PSA may explain up to 67% of the variance in Black arrest disproportion. The disproportion of White arrests rose by 0.31 units for each 10% increase in the proportion of Black residents ($p < 0.001$), with $R^2 = 0.33$.

When we added a quadratic term to the linear model of the relationship between disproportionate Black arrests and White residency we found it to be highly significant. This model also explained a greater amount of model variance, with a coefficient of determination of 0.84. For each 10% increase in White population, the disproportion of Black arrests increased by 0.3 units ($p < 0.001$), plus 1.5 times the squared mean-centered percentage of White residents ($p < 0.001$).

The quadratic term was also significant in the relationship between disproportionate White arrests and proportion of Black residents ($p < 0.001$). Model R^2 increased from 0.33 to 0.45 with the inclusion of a quadratic variable. In the model with a quadratic variable, White disproportion of arrest increased 0.65 units for each 10% increase in percentage of Black residency ($p < 0.001$), plus an additional 0.79 times the squared mean-centered percent of Black residents (Table 1).

Discussion

Our findings extend prior research documenting disproportionate drug arrests by race (Mitchell & Caudy, 2015; Thorpe et al., 2015) by highlighting that racial geography may play an important part in these arrest disparities. We also demonstrate the creation of a simple statistic – disproportion of arrests – that intuitively compares how many arrests could be expected versus how many arrests are actually made, assuming populations use drugs at roughly equivalent rates. There is a strong association between a Black person's risk of arrest and the percentage of White residents in a neighborhood. While the percent of Black residents within a PSA does affect the disproportion of White arrests within a PSA, the increase is dramatically less than that experienced by Blacks, suggesting that Whites experience a degree of police leniency that Blacks do not.

Table 1
 Disproportionate drug arrests of Blacks and Whites by Washington, DC police service area, July 14, 2014–August 3, 2015.

PSA % White	Disproportion Black arrests					Total Black arrests	PSA % Black	Disproportion White arrests					Total White arrests	Total arrests	PSA
	Regression model: % White residents on disproportion Black arrests (10% increments)							Regression model: % Black residents on disproportion White arrests (10% increments)							
	b	p-Value	b ²	p-Value	R ²			b	p-Value	b ²	p-Value	R ²			
	.30	<0.001	1.50	<0.001	0.84			0.65	<0.001	0.79	<0.001	0.45			
0.61%			0.95			76	97.50%			6.01			3	82	706
0.79%			0.99			27	97.17%			–			0	28	704
0.81%			1.00			196	95.75%			4.24			7	205	603
0.86%			0.95			38	97.15%			5.70			2	41	702
1.07%			1.04			37	96.17%			–			0	37	601
1.10%			1.03			133	95.66%			0.68			1	135	608
1.15%			1.00			133	95.45%			1.88			3	139	604
1.19%			1.00			105	95.14%			3.05			4	110	602
1.73%			0.98			61	95.44%			2.67			3	65	701
1.91%			1.04			55	96.06%			–			0	55	705
2.01%			0.99			48	95.52%			2.93			3	51	605
2.68%			0.94			43	94.99%			3.89			5	48	607
2.99%			0.99			59	91.92%			2.06			4	65	505
3.67%			0.93			52	93.18%			3.63			8	60	708
4.80%			1.01			75	92.68%			1.04			4	80	703
5.49%			1.08			95	90.58%			0.19			1	97	507
5.67%			1.10			26	91.08%			–			0	26	606
6.80%			0.66			20	86.06%			2.94			7	35	503
6.95%			1.15			22	83.34%			0.00			0	23	406
10.80%			1.13			20	70.51%			1.48			4	25	402
14.11%			1.11			35	77.12%			0.35			2	41	306
14.15%			1.17			114	79.71%			0.41			7	122	506
15.12%			1.19			38	68.12%			0.56			4	47	407
15.66%			1.12			57	78.59%			0.69			7	65	707
15.77%			1.26			45	62.61%			0.44			4	57	403
16.11%			1.26			38	75.14%			0.31			2	40	502
22.53%			1.29			16	68.78%			–			0	18	405
24.09%			1.29			112	66.87%			0.57			18	130	103
25.84%			1.32			19	65.26%			0.53			3	22	504
26.14%			1.62			12	61.70%			–			0	12	401
27.62%			1.31			25	47.83%			0.72			8	40	404
28.50%			1.52			52	56.00%			0.23			4	61	308
30.00%			1.47			39	61.78%			0.23			3	43	501
34.09%			1.87			89	38.92%			0.38			16	122	409
34.60%			1.65			67	55.02%			0.20			5	74	105
34.93%			1.70			33	45.13%			0.47			7	43	304
35.07%			2.10			136	39.69%			0.26			15	163	302
37.67%			1.76			47	55.69%			0.06			1	48	108
49.78%			2.17			54	38.94%			0.28			9	64	305
53.34%			2.49			62	39.56%			–			0	63	104
54.45%			4.46			129	19.29%			0.12			10	150	102
56.82%			2.31			40	35.29%			0.22			6	49	106
58.56%			3.37			27	19.54%			0.54			13	41	307
59.94%			3.17			9	18.91%			0.11			1	15	408
72.32%			7.47			58	13.39%			0.00			0	58	101
72.42%			4.96			22	14.31%			0.22			5	31	301
74.46%			6.29			24	11.22%			0.16			4	34	303
76.74%			7.79			16	7.90%			0.40			8	26	208
78.36%			10.94			27	5.88%			0.36			12	42	207
80.76%			–			0	6.74%			1.24			1	1	203
82.09%			7.77			13	10.45%			0.23			3	16	107
82.21%			11.15			1	8.97%			–			0	1	201
84.38%			12.38			2	4.04%			0.59			2	4	204
84.64%			–			0	4.49%			–			0	0	202
85.30%			–			0	4.08%			1.03			7	8	205
85.33%			11.13			5	3.46%			0.27			3	13	206

Biased drug related arrests have wide ranging and devastating consequences for Blacks in the US, from abridgment of civic rights and the ability to access housing, employment, and higher education, to increased health disparities and the destabilization of Black families and communities (Alexander, 2012; Cooper et al., 2015; Massoglia, 2008). In 2014, Washington, DC decriminalized cannabis in an attempt to address the link between disproportionate drug arrests and mass incarceration of Black men (Peralta, 2014).

Our findings suggest that while decriminalization may play an important role in reducing the absolute number of arrests, decriminalization alone will not disrupt Black individuals' disproportionate risk of arrest.

The racial geography of a neighborhood appears to play an important role in shaping arrest disparities, which may in turn maintain segregation in those same neighborhoods (Pennay et al., 2014). This mechanism is likely twofold: police officers are more

likely to stop or arrest Black individuals in White neighborhoods, but White residents may also be more likely to perceive the presence or actions of Blacks as suspicious and summon police (Richardson, 2015). This trend may be exacerbated in highly segregated neighborhoods because these spaces allow little day-to-day contact with individuals who are a different race (Paluck & Green, 2009). Black individuals may also be more likely to be arrested in White neighborhoods if police or community members believe that doing so will “protect” White residents from Black individuals whom they implicitly – even unknowingly – associate with criminality (Richardson, 2015). This interplay between institutional police bias and community resident bias results in a process that systematically removes Black individuals from White spaces and may perpetuate segregation. The very low rates of White arrests, along with the less pronounced rise in disproportionate White arrests in Black neighborhoods, may be attributable to implicit racial favoritism – the inverse manifestation of implicit racial bias in which Whites are less likely to conjure their neighbor’s suspicion, and if they are seen or stopped by police they are more likely to be given the benefit of the doubt (Richardson, 2015).

No single policy initiative is likely to correct racial bias in drug related arrests. Reducing disproportionate racial arrests requires a dual focus on bias within the community and the police force. Police trainings have been developed to address implicit biases, and these have been found to be both acceptable and potentially effective (Richardson, 2015). Advocates have called for increased civilian oversight to reduce biased policing, although there is minimal evidence to suggest the effectiveness of these boards (Ferdik, Rojek, & Alpert, 2013). Effective civilian oversight boards require sufficient autonomy, funding, and political will. Additionally, our data suggest that boards that simply represent the racial makeup of a given neighborhood or policing district would be unlikely to decrease disproportionate racial arrests. At the individual level, interventions that emphasize empathy and emotional awareness of biases have been shown to be effective at reducing implicit bias (Paluck & Green, 2009). The greatest impact at the community level would likely result from active efforts to reduce residential segregation: although it would require significant social and political will, increased daily contact between Black and White individuals can significantly reduce racial bias (Paluck & Green, 2009).

Our findings have several limitations. First, we do not know how many of these drug related arrests represent multiple arrests of a single individual. Second, we do not know if individuals arrested in a particular neighborhood were visitors or residents of that neighborhood. While the constraints of our data limited possible analyses, we believe our data suggest the need for more work examining the role of income and community level attitudes on racially disproportionate arrests, as well as changes in policing and economic policies as well as neighborhood demographics over time. Our findings are similar to prior research around the world that has shown that ethnic minorities and other marginalized cultural groups are often disproportionately targeted by narcotics

policing, irrespective of differentials in narcotics use (Mitchell & Caudy, 2015; Pennay et al., 2014; Ruck & Wortley, 2002; Sharp & Atherton, 2007; Zauberman & Levy, 2003). We build upon that work by suggesting that this disproportion varies by neighborhood, and that biased policing practices may play a role in maintaining or promoting racial segregation within and between neighborhoods.

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