Why Neighborhoods Matter in Deaths by Legal Intervention: Examining Fatal Interactions between Police and Men of Color[1]

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ABSTRACT

This article addresses the concern that death by legal intervention is an outcome stratified by race and ethnicity, disproportionately experienced by boys and men of color, and predicated on the location in which law enforcement encounters them. Using multi-level statistical methods to analyze data from multiple federal agencies and online databases of police homicides, this study questions whether geospatial and agency characteristics are related to the odds that males of color will have a fatal interaction with police (FIP). There are several noteworthy findings. First, income inequality within the areas in which the FIP occurred is related to increased relative odds that males of color, and Hispanic males more specifically, will be killed by police. Second, low levels of racial segregation appeared to dramatically reduce the odds of a FIP for black males while higher levels of segregation increased the odds for Hispanic males. Third, Hispanic males were over 2.6 times as likely as others to be killed by officers from agencies with relatively higher percentages of Hispanic officers. We conclude the study with a discussion of study implications for research and policy.

INTRODUCTION

As we hear the circumstances surrounding Sacramento resident, Stephon Clark, the most recent unarmed black man to have his death by legal intervention receive national headlines (Sanchez 2018), questions arise about the factors that make males of color more likely than their white and female counterparts to be killed by police, and in Clark's case, in his own family's backyard. This article examines the possibility that where Clark's backyard is located may be one of the leading precipitators of law enforcement's decision to use deadly force in encounters with males of color (MOCs). A stratified landscape of opportunity characterized by pockets of disadvantage, racially isolated areas, and economically unequal neighborhoods, have given rise to highly contextualized policing strategies and agency cultures, that in turn, increase the relative odds that males of color (MOCs) will have a fatal interaction with police (FIP). Our interest in police homicides is therefore not limited to the characteristics of residential areas, but also in how the qualities of the agencies that serve them are simultaneously shaped by them, and might influence the frequency of FIPs.

Empirical investigations of these questions have not been easily or frequently accomplished due to the limited availability of quality data (Feldman et al. 2017). Recognizing this void in the literature, this study features a population file of police homicides that has been constructed from online sources and merged with multiple federal datasets to 1) estimate the odds that a MOC was killed by law enforcement according to racial/ethnic categories, and 2) reveal to what extent those odds are related to the qualities of the location in which the fatality occurred and the agency characteristics of the responsible officer(s). Using hierarchical linear models, our analysis revealed the relative odds of a FIP for MOCs were higher in areas characterized by racial segregation and a greater dispersion of income, and for Hispanics, among agencies with a higher proportion of Hispanic officers. We conclude with a discussion of this study's implications for policy and future directions for research.

LITERATURE REVIEW

Interactions between law enforcement and males of color have been the subject of public concern and research for decades (Binder and Scharf 1982; Brunson 2007), with the two perspectives finding more common ground in recent years. Earlier attempts to explain why males of color, and African American males in particular, were more likely to be killed by police suggested that the disproportionality was due to their heavier involvement with crime, and their aggressive posture during their encounters with police (Binder and Scharf 1982). However, placing a greater emphasis on crime rates for males of color in explaining these disproportionalities often fails to consider why among the possible responses to suspicious behavior are officers more likely to resort to lethal force when the target is of color. It also unsafely assumes that there is no variation or bias in the judgement and discretion officers demonstrate in determining whether the behavior is suspicious in the first place. Several recent studies have shown that African American males were more likely to have been killed by police even when unarmed (Ross 2015; Johnson, Gilbert and Ibrahim 2018; Nix et al. 2017), leaving open the reasonable question of whether other responses (e.g. de-escalation, taser, etc.) could have been used without jeopardizing the life of either the officer or MOC.

Furthermore, it is possible that crime rates are products of the ways in which MOCs are racialized by law enforcement as "symbolic assailants" (Quillian and Pager 2001), leading to unwarranted engagements with police (Brunson and Miller 2006) and sentencing disparities according to race (Bridges and Steen 1998). Ample evidence suggests that MOCs have significantly greater relative odds of being racially profiled and stopped by police (Fagan and Davies 2000; Gelman, Fagan, and Kiss 2007), verbally assaulted, pushed, threatened and handcuffed (Motely and Joe 2018), and fatally injured (Smith 2004; Ross 2015; Johnson, Gilbert and Ibrahim 2018; Nix et al. 2017) by police, even after other situational, residential, and agency level characteristics are considered. "Stop and frisk" for example was a policing strategy in New York City that was halted by the courts because data had shown people of African and Hispanic heritage were stopped more frequently than whites, even after controlling for race-specific arrest rates (Gelman, Fagan, and Kiss 2007). These studies suggest that relying on crime rates to explain racial/ethnic differences is complicated by the simultaneous consideration of race/ethnicity in the identification of what is crime by law enforcement, or worse, that to some unknown degree crime is a self-fulfilling prophesy of law enforcement and a society that struggles with race.

Recent research is also questioning the idea that disproportionate uses of lethal force stem from a greater likelihood that MOCs are non-compliant when engaged by officers, owing to the fact that white youth tend to have less contentious relationships with and more positive views of law enforcement than African Americans (Brunson 2007; Brunson and Weitzer 2009; Weitzer and Tuch 2005). Yet research has not been appreciably supportive of this view, finding that MOCs were more likely than whites to *not* have been attacking officers or others when they were killed, while African Americans in contrast had a likelihood of having attacked someone that was insignificantly different from that of whites (Nix et al. 2017). Studies have also shown that despite the generally greater distrust black communities have of police, males and racialized individuals are more likely to show compliance, and particularly when the officer is white (Mastrofski et al. 1996). Furthermore, when individuals of color believed that they were engaged by police in a fair and respectful manner, "they were less likely to perceive such stops as racial profiling, even if they in fact were" being profiled (Tyler and Waslak 2004, p. 276). Hence, encounter theories have not been confirmed by the measures included in these studies, leaving much of the disproportionality in FIPs for MOCs unexplained.

Spatial Profiling Segregated, Socially Disorganized and Income Inequality

Given the apparent inability of encounter measures and crime rates to account for racial/ethnic variation in uses of deadly force, it makes sense that researchers would look to other social dimensions, such as neighborhoods, as possible contributors to disparities in FIPs for MOCs. One residential feature with relevance to the subject of deadly force is racial/ethnic segregation, since it functions socially to gather individuals of a common background into areas that, in turn, allows them to be more efficiently targeted by carceral forces. Once defined as segregated, researchers contend "police apply a perceptual framework around geographic space rooted in the association of minorities with an increased likelihood of perpetrating, experiencing and witnessing violence" (Terrill and Reisig 2003). Associating people of color with crime in this way provides the basis for the "minority threat hypothesis" in which law enforcement's level of coercive authority, and the frequency of its use, corresponds to the size of the minority population to be contained and neutralized (Smith and Holmes 2014). While Smith and Holmes' work refers primarily to African

Americans, the segregation of Hispanic populations also invites the attention of law enforcement, especially in a time of immigration crackdowns, leading them to be singled out for aggressive policing regardless of their nativity status (Martinez 2007).

Research investigating whether officer perceptions of racially isolated areas relate to real differences in uses of deadly force is somewhat inconclusive. Recent studies have found that racial disparities in police shootings was most likely to manifest in counties with a larger share of black residents (Ross 2015), and that very high levels of black segregation was related to sustained excessive force complaints (Smith and Holmes 2014). Terrill and Reisig (2003) in contrast found that the association of racial segregation with officers' use of higher levels of force became insignificant once the socioeconomic status of the neighborhood was considered, while another study found neither the racial composition of neighborhoods nor their level of economic disadvantage increased the frequency of police shootings (Klinger et al. 2015). What we do not know is whether and to what degree racial segregation predicts the odds of a FIP for MOCs, especially Hispanic and African American males.

Inequality is yet another residential quality that might place MOCs at greater risks for FIPs. On this point, Hughey (2015) proposes a "defense of inequality" hypothesis in which boys and men of color living in racially and economically heterogeneous areas receive greater scrutiny from law enforcement in an effort to "protect" their white or economically advantaged neighbors. Alpert, Dunham and Smith (2007) offer supporting evidence, finding the greatest percentage of traffic stops relative to the driving population of black motorists occurred in predominantly white areas. Likewise, Ross' (2015) study revealed racial disparities in police shootings was more pronounced in counties with high levels of financial inequality. It is therefore important to not only consider inequality between residential areas but also within them in explanations of FIPs for MOCs, as does this analysis.

Others might argue in contrast that an area's level of social disorganization is the feature with the strongest relation to deadly force disparities. Social disorganization theory maintains that neighborhoods with certain qualities, such as high rates of men that have been disconnected from mainstream institutions, struggle to realize shared norms (Wilson 1996). Male idleness would not only present more opportunity for MOCs to have FIPs, it may also create other community problems that would trigger more aggressive policing strategies, as well as opportunities for police misconduct and abusive discretionary practices (Kubrin and Weitzer 2003). About officer misconduct in disorganized neighborhoods, Kane (2002) argues that disorganization "increases residents' powerlessness in the face of abusive police practices." In this way, social disorganization is not merely a deficit theory applied to disadvantaged neighborhoods, it is a way to characterize agency responses to those neighborhoods. Ultimately, areas characterized as having low collective efficacy may be less successful than affluent areas in having their demands for greater police accountability met (Brunson and Weitzer 2009). While theories of social disorganization appear frequently in neighborhood effects research related to education (Johnson 2010) and health (Jackson et al. 2009), there are few quantitative studies relating it to fatally injured MOCs. We therefore consider measures of male idleness, crime rates, and as a control, city size in our examination of FIPs for MOCs.

The Agency Context

Public concern about racial/ethnic disparities in the uses of lethal force often critically considers the characteristics of the officer(s) committing the homicide, it also routinely questions the policies and practices that enable such events to occur. Indeed, organizational theorists of law enforcement have long held that their "elements of formal organization structure affect the incidence with which force is used" (Wilson 1968, p. 60). Subsequently, it has been speculated in several studies that police unions, for example, function to protect the interests of officers, and in doing so, strongly impacts their views about the likelihood of being found liable or punished for their misconduct (Kelling and Kliesmet 1995; Alpert and MacDonald 2001). This dynamic is evidenced most recently in a lawsuit filed by the New York Police Department to stop the public release of officers' body camera footage (Southall 2018), a move that would hide their practices and limit their accountability to the public. We are nonetheless unaware of studies that find the presence of collective bargaining units are significantly related to FIPs for MOCs. Likewise, there has been only cursory conclusions drawn about how the male-dominated ranks of law enforcement enact cultural norms related to uses of force. Descriptive reports suggest that male officers are substantially more likely to receive excessive force complaints, and 8 times as likely as female officers to have had an excessive force complaint sustained against them (Lonsway et al. 2002). Our analysis considers both unionization and male representation in hopes of contributing knowledge in these two areas about their relationship to police homicides for MOCs. Rather than leaving unionization to proxy the agency level of liability possibly felt by officers, our analysis also considers whether officers have been terminated or separated from law enforcement as a measure of accountability.

Research frequently examines the average educational level of officers (Smith 2004), their views about racialized groups (LeCount 2017), and the impact of agency diversity on rates of death by legal intervention (Smith 2003; Smith and Holmes 2014). Studies have found that requiring officers to have a college education was unrelated to police fatalities in cities with a population greater than 250,000 (Smith 2004) and the agency odds of an unarmed fatality (Johnson, Gilbert and Ibrahim 2018). On the topic of agency diversity, recent work suggests that officers either develop views about people of racial backgrounds different from their own while on the job, or perhaps cultivate racial/ethnic views similar to those of law enforcement prior to joining. LeCount's (2017) study shows that white officers were more likely than white non-officers to view blacks as violent. Black officers, in contrast, did not differ significantly from those of black non-officers. To the extent that LeCount's (2017) findings reflect reality, a more diverse police force might lessen the occurrence of racially motivated uses of force and, in turn, racial disparities in FIPs. Smith and Holmes (2014) provide mixed support for this speculation, finding that an agency's proportion of black officers to citizens is associated with lowered sustained excessive force complaints while, in contrast, the ratio of Hispanic officers to residents in the Southwest seemed to increase them.

Much like the permissive effects on officer conduct that may extend from unionization, other aspects of agency culture, namely the "cult of secrecy" (Fyfe 1981) and "blue wall of silence" (Kleinig 2001) within law enforcement, could present implications for both the disproportionate use of lethal force against MOCs, and the ability to document them through scientific research. The first associated challenge is that agencies appear to underreport police homicides to federal agencies (Banks et al. 2015; Feldman et al. 2017; Richardson, St. Vil and Cooper 2016) limiting

the generalizability of their analysis results. A second challenge is that research suggests an officer's decision to use force may be influenced by whether they personally control what is written in incident reports, or alternatively, supervisors who fill out incident reports may routinely underreport their officers' uses of force (Alpert and MacDonald 2001). As we have stated elsewhere, we remain quite skeptical of research that features data about police homicides, or their suspects' behavior, that were provided by the same officers and police units that are subject to the threat of criminal or civil liability about the substance of those data (Johnson, Gilbert, and Ibrahim 2018). This analysis uses data on police homicides that were gathered from online sources to avoid some of the risk of biased data reporting and underreporting. Our review of relevant literature has led to the following research questions:

1. Do the characteristics of the deceased vary across male racial/ethnic groups in their prediction of FIPs?
2. How does an area's racial isolation, social disorganization, and economic inequality relate to the odds of a FIP, perhaps differently for MOCs, African American, and Hispanic males?
3. How might the association of neighborhood and agency factors to police homicides differ for African American and Hispanic males relative to MOCs and others that were killed by police?

DATA

Fatal Interactions with Police Study (FIPS) Data

We identified fatal interactions with police in the U.S. through a search of two online databases: Fatal Encounters (FE) and Killed by Police (KBP).[2] Data from these two sources were used to construct a comprehensive dataset of all FIPs that occurred from May 1, 2013 (when KBP began tracking fatal encounters) to January 1, 2015. When we started this study, there were 70 cases in KBP that were not in FE and 227 cases in FE that were not in KBP. We included the incidents that appeared in both databases, and in which an individual's death was caused directly by the actions of officers.[3] Although this eliminates from the sample the individuals that died in a car crash while being pursued by police found in the FE database, it also includes individuals that were killed when not suspected of criminal activity, like in domestic murder-suicides committed by officers or conflicts between officers that resulted in an officer death. Nonetheless, only one percent of all fatalities were committed by officers known to have had some kind of personal or collegial relationship with the deceased prior to the fatal interaction.

The information about the deceased and the incident found in the KBP and FE databases were supplemented by publicly accessible information that our team collected about each case from local news reports, statements from public officials, incident reports, video recordings, obituaries,

[2] These data are publicly available at their respective websites, Fatal Encounters (http://www.fatalencounters.org/) and Killed by Police (http://www.killedbypolice.net/).

[3] Our review of these cases found some that warranted inclusion in our final data file. The overwhelming majority of them did not warrant inclusion since the individual's death was not attributed directly to police actions in the official disposition of death (e.g. car crash, heart attack, suicide in police custody). We suspect that these unclear circumstances of the FIP are what led to their inconsistent reporting across databases.

coroner reports, and court records. Coding of these data sources was undertaken by three individuals to achieve inter-coder reliability. Using these sources, we created a number of additional variables including the age, gender, and race/ethnicity[4] of the deceased, the date and address of the incident, and whether the deceased was in possession of a weapon, among others. Our tedious cross-verification efforts yielded a final sample numbering 1762. This sample size is comparable to the 2015 *Washington Post* sample that Nix (2017) and his colleagues use. In that sample, the daily fatality rate was 2.71 while ours, in comparison, is at minimum 2.80 and at most 2.88, if we extrapolate for those months of missing observations in the beginning of 2013.

Federal Data Sources

Merging the FIPS data with the Bureau of Justice Statistic's Law Enforcement Management and Administrative Statistics (LEMAS) survey was ideal for several reasons. First, we found that it was much more difficult to access information about the officer responsible for the homicide during our data collection period than it was about the deceased. LEMAS allows us to use the agency characteristics of the responsible officer(s) in place of individual officer characteristics. Second, LEMAS data are ideal since their collection—under no pretense of investigation into police actions—avoids some bias. Third, the data contains information on a nationally representative sample of agencies, whether they had fatal incidents or not, that were collected during the same time period in which we compiled information about FIPs.

The data merge used ARC GIS and near table analysis to match each FIP case to the closest zip code found in the LEMAS dataset using the 2013 shapefiles downloaded from the US Census Bureau. Since there were several agencies within range of each FIP, with an average distance between the two of 4.83 miles, we decided to link all agencies within a 10 mile radius to each FIP case. We then ran analyses to test whether there were significant differences among the analysis variables across all possible agency matches and found there were none. We subsequently have chosen the agency nearest to the site of each FIP as the agency of the officer responsible for the homicide. Our merge results were also assisted by the identification of the responding agency in the narratives that our team generated for each FIP case.

Since each agency is likely to serve multiple neighborhoods, we augmented our data by merging each FIPs case to the tract level data of where the homicide occurred, and for those cases where a tract level merge was not possible, we linked those cases to zip code level data. The geographic unit of analysis for this paper is therefore the zip code to which all tract level cases have been aggregated. Our final merged sample retained 2794 agencies of the initial 2822, and 1683 FIPs.

Finally, we use the Federal Bureau of Investigations' Uniform Crime Reports (UCR) data for information about rates of violent crime in cities.[5] While the UCR program receives information from over 18,000 law enforcement agencies, it does not contain information on all of LEMAS agencies. Consequently, approximately 190 LEMAS agencies were missing UCR crime data. Moreover, the percentage of missing values for some variables made listwise deletion unacceptable. Rather than sacrifice the variation within each variable by inserting the variable mean where data were missing, we used multiple imputation methods to recover missing values.

[4] In our analysis, Hispanics are classified as such even when their race is white or black.

[5] These data are available at the University of Michigan's ICPSR data repository (https://www.icpsr.umich.edu/icpsrweb/ICPSR/series/57).

METHODS

Hierarchical Linear Models

Since the fatalities in this study are nested within zip codes, and multiple zip codes are served by any one agency, I use hierarchical linear models version 7.01 (Raudenbush and Bryk 2002) to model the odds that agencies will have a fatal interaction with a male of color (MOC). MOC is defined as non-white individuals including white Hispanics. We estimate a 3-Level Bernoulli model via EM-Laplace 2 in which, at Level 1, the odds of a *male of color* (MOC) fatality among agencies, η_{ijk}, are conditioned on whether the deceased was thought to be *mentally ill or under the influence*, *armed with a gun*, and between the *ages of 25 and 44*. We also include in the model whether a *civil suit* was filed after his death to account for the possibility that the circumstances of the homicide were controversial and contested. These measures are defined as 1 indicating yes, and 0 indicating "no or no fatality." We express the Level 1 model as:

$$\text{Prob}(\textit{Male of Color})_{ijk}=1|\pi_{jk}) = \phi_{ijk}$$
$$\log[\phi_{ijk}/(1 - \phi_{ijk})] = \eta_{ijk}$$
$$\eta_{ijk} = \pi_{0jk} + \pi_{1jk}*(\textit{Mentally ill/Under Influence}_{ijk}) + \pi_{2jk}*(\textit{Civil Suit}_{ijk}) + \pi_{3jk}*(\textit{Age 25-44}_{ijk}) + \pi_{4jk}*(\textit{Armed with Gun}_{ijk})$$

In addition to the MOC model, we specify a second and third model in which black and Hispanic males are the dependent variable and all other Level 1 specifications mirror the MOC model above. Level 2 of the multilevel model included the census characteristics of the location where the fatality took place. Each Level 2 parameter represents the adjustment in the average MOC fatality slope, β_{00k}. In this specification, we associate the *unemployment rate, violent crime rate; percentage male dropouts*; *large city* population of at least 250,000; and the *lower* and *upper third of the Gini index* with the probability that the deceased was a male of color. The Gini index reflects the dispersion of income of a given area and is equal to 0 when everyone in the location receives and equal share, and 1 when individuals are most unequal. Also included at Level 2 is a measure of segregation, being in the *lower* or *upper third of areas in the percentage of residents of color*. As the dependent variable changes to a different racial/ethnic classification, the definition of the segregation measure changes to align with the racial/ethnic background of the deceased (i.e. percentage of black residents, etc.).

$$\pi_{0jk} = \beta_{00k} + \beta_{01k}*(\textit{Unemployment}_{jk}) + \beta_{02k}*(\textit{Crime rate}_{jk}) + \beta_{03k}*(\textit{Percentage male dropouts}_{jk}) + \beta_{04k}*(\textit{Large city}_{jk}) + \beta_{05k}*(\textit{Low third gini index}_{jk}) + \beta_{06k}*(\textit{High third gini index}_{jk}) + \beta_{07k}*(\textit{Low 3}^{rd}\ \textit{percentage residents of color in Area}_{jk}) + \beta_{08k}*(\textit{High 3}^{rd}\ \textit{percentage residents of color in Area}_{jk}) + r_{0jk}$$

At Level 3, we model between agency variation in their characteristics related to the odds that a MOC was killed. Hence, a MOC fatality is viewed as a function of agencies' proportion *male of all sworn officers*, number of *sworn officers terminated*, the *educational level of officers*, all grand mean centered. The uncentered measures include whether officers are *represented by a union*, and whether the *ratio of black officers-to-population size* is in the low third or high third of all agencies, all coded 1 = yes, 0 = no.

$$\beta_{00k} = \gamma_{000} + \gamma_{001}(\textit{Proportion male sworn officers}_{k}) + \gamma_{002}(\textit{Number of officers terminated}_{k}) + \gamma_{003}(\textit{Educational level of officers}_{k}) + \gamma_{004}(\textit{Officers represented by union}_{k}) + \gamma_{005}(\textit{Low 3}^{rd}\ \textit{of}$$

non-white officers-to-population ratio$_k$) + γ_{006}(*High 3*rd *of non-white officers-to-population ratio*$_k$) + u_{00k}

The first three grand mean centered parameters, γ_{001} - γ_{003} indicate the estimated deviation from the agency mean associated with a point increase among those characteristics. The remaining parameters are categorical and represent the average change in the probability that a MOC fatality had occurred given an agency's indication as having those characteristics. Just as we align the definition of segregation in Level 2 with the racial/ethnic classification of the deceased, the non-white officers ratio changes to reflect the presence of black or Hispanic officers when those racial/ethnic groups become the analysis outcome.

Exponentiated Coefficients

The HLM software will generate fixed and random effects with robust standard errors as well as the odds ratios. In order to find out the probability that a MOC, Hispanic or black male is killed requires us to exponentiate the coefficients. The coefficients for a particular case measure the difference in logarithm of the odds of being a MOC, Hispanic, or black male, when all other variables are held constant.

We express this equation as:

$$P = \frac{1}{1+e^{-c}}$$

Where *e* is the base of natural logarithms (approximately 2.7182) and *c* is the coefficient, where the Intercept + Slope = *c* when the variable equals 1, and the intercept alone when the variable equals 0.

ANALYSIS

Descriptive Statistics

Table 1. illustrates the descriptive statistics for the individual, location in which the FIP occurred, and for agency characteristics. The descriptive analysis of the FIPS data (last two columns) reveals that males of color represent half of all fatalities ($\bar{x}$ =.50, SD = .50) and black males just over a quarter of all fatalities ($\bar{x}$ =.26, SD = .44). Roughly half of the FIPS population had a gun ($\bar{x}$ =.49, SD = .50) and were age 25 to 44 ($\bar{x}$ =.52, SD = .50) at the time they were killed by police. Finally, just over a fifth of the FIPS population was thought to be mentally ill or under the influence at the time the fatally occurred.

Moving on to the neighborhood characteristics, there is very little difference between LEMAS and FIPS data in the unemployment rate. However, we see the proportion of FIPs occurring in cities with a population greater than 250,000 is greater in the FIPS population than in the LEMAS sample. Likewise, there is a higher rate of violent crime among cities where fatalities occurred ($\bar{x}$ = 381.08, SD = 651.66) relative to all agencies, where the rate is lower at 346 crimes per 100,000 people. The proportion of FIPs localities that are in the upper or lower third in their share of black residents corresponds to considerable differences (as shown in Table 2) in the actual percentage of non-white residents. For example, those areas in the lower third have, on average, a black population just under a percentage point ($\bar{x}$ = .01, SD = .04), while those in the upper third of the

distribution have mean black resident levels at .55 (SD = .27). The final location level measures include the Gini index and the percentage of male high school dropouts, with the latter showing a slightly higher percentage of male dropouts among areas in the agency data file than among the areas in which fatalities occurred.

The last six variables are all agency variables. The overwhelming majority of agencies' sworn officers are male and represented by collective bargaining organizations, both among all agencies and those that committed homicides. There is a clear difference in the number of officers terminated between the LEMAS data and FIPS population. In 2014, the average number of sworn officers terminated was between one to two officers for the agencies that committed homicides that year ($\bar{x}$ = 1.46, SD = 3.99), while it was less than one officer for the full sample of agencies ($\bar{x}$ = .70, SD = 2.07). The average reported education level of the sworn officers within both data files was a high school diploma.

Lastly, since increasing agency diversity has been an often proposed policy reform, Table 2 reports the average percentage and number of officers according to their racial background within the low and high third of the ratio of officers to population distribution. For agencies that have committed homicides, those in the lower third of the officer to population ratio have nearly no black or Hispanic officers ($\bar{x}$ =.00, SD = .00), and a modest level when all officers of color are considered ($\bar{x}$ =.09, SD = .13). In the upper third of the officer distributions, agencies are on average 16, 24 and 33 percent black, Hispanic and of color, respectively. The representation of officers of color within the upper third is lower than expected given that of black and Hispanic officers, suggesting that most officers that are neither black, Hispanic nor white are within agencies in the lower third of the diversity distributions. Moreover, these average racial/ethnic agency compositions mirror those of the LEMAS file (not shown). For example, the LEMAS and FIPS mean percentage of black officers for the agencies in the upper third are .17 SD = .16), and .16 (SD = .14), respectively.

Summary of Analysis Results

Turning our attention to Table 3, we find the results of the multilevel statistical analysis of individual, neighborhood and agency characteristics related to the dependent variable, male of color. Models 1 – 3 address the first research question: do the characteristics of the deceased vary across male racial/ethnic groups in their prediction of FIPs? In the first model, we see that being between 25 and 44 years of age (OR = 3.17:1, $p < .001$) and possessing a gun (OR = 3.63:1, $p < .001$) are related to substantially increased relative odds of a FIP for MOCs. The likelihood that a civil suit (OR = 2.66:1, $p < .05$) would follow the police homicide was also positively related to FIPs for MOCs. Once exponentiated, these coefficients translated into an 18.4, 19, and 19.5 percent chance that an MOC had a legal challenge to his death, was within that age range, and in possession of a firearm, respectively, when killed by police.

In model 2 we have added the characteristics of the area in which the fatality occurred in order to explore our second research question of whether ecological features are related to FIPs for MOCs. While there were only slight changes in the individual level characteristics from their model 1 estimates, the location characteristics in model 2, specifically the larger size of the city (OR = 2.08:1, $p < .001$) and areas that rank in the top third of the Gini index (OR = 1.65:1, $p < .05$), were related to increased odds that a MOC would be fatally injured by police. The city size and Gini index change little once the agency characteristics are added in model 3. Among the agency

characteristics, the educational levels of officers (OR = 0.69:1, $p < .01$) reduces the relative odds of a FIP for MOCs. The addition of the agency characteristics produced no notable changes in the exponentiated probabilities of a FIP associated with each characteristic of the deceased that were noted in model 1.

To explore our third question about how might locational and agency factors relate to police homicides differently for black and Hispanic males relative to MOCs, we estimate models identical to those of Table 3 with black and Hispanic males as our dependent variables in Table 4 and 5, respectively. Turning our attention to Table 4, the association of our age and gun possession measures with FIPs for black males are similar to what they were for MOCs. The relationship of the final two individual level qualities differ remarkably, with significantly reduced odds for black males thought to be mentally ill or under the influence (OR = 0.61:1, $p < .05$), and significantly greater relative odds that a civil suit was filed (OR = 5.85:1, $p < .001$) after a black male was fatally injured by police. These odds ratios maintained their significance and magnitude after considering the qualities of the location of the police homicide and characteristics of the responsible agency (see model 3). The exponentiation of the level 1 coefficients suggest that black males have a roughly equal chance of having their death contested in a lawsuit as was found for MOCs at 18.7 percent, but a lower chance of being age 25-44 (16.7 percent) and in possession of a gun (16.7 percent).

The black males analysis reaffirmed the MOC analysis result that the odds of a FIP for black males are relatively greater in large cities (OR = 2.12:1, $p < .001$). However, equally noteworthy is the reduction in the relative odds of a FIP for black males in areas that have a lower percentage of black residents (OR = 0.29:1, $p < .05$), a reduction of over two-thirds. The black males analysis also did not mirror the MOC analysis result that areas high in inequality have higher relative odds of a FIP for MOCs. Instead the measure related to FIPs for black males barely missed achieving significance in the final model (OR = 1.35:1, $p = .052$), as did also the top third of black residency (OR = 1.77:1, $p = .059$). In a final contrast with the MOC analysis, none of the agency characteristics were significantly related to the relative odds of a FIP for black males.

In Table 5, models identical to the ones specified for MOCs and black males are estimated again for Hispanic males. Table 5 reveals that the association of individual level factors with FIPs for Hispanic males are similar to MOCs in regard to age (OR = 2.50:1, $p < .01$), gun possession measures (OR = 3.51:1, $p < .001$), and the likelihood that a civil suit would follow a police homicide (OR = 2.68:1, $p < .001$). Two noteworthy differences are that the odds of a Hispanic male between the ages of 25-44 experiencing a FIP are lower for MOC and Black males and unlike Black males, there is no relationship between being mentally ill or under the influence and a FIP for Hispanic males. This suggests that a perceived mental illness may serve as a protective factor for Black males but that this may not necessarily be the case for Hispanic males and other MOC. The exponentiation of these level 1 coefficients translate into the lowest probabilities among the racial/ethnic subgroups. Whereas the chances of being fatally injured for MOCs in possession of a gun was 19.5 percent for example, it stands at 15.8 percent for Hispanics. These probabilities for Hispanics age 25-44 and for whom a civil suit was filed are 15.0 and 15.1 percent, respectively.

Similar to the MOC analysis, areas high in inequality have higher relative odds of a FIP for Hispanic males and this relationship increases in magnitude in the Hispanic analysis (OR = 2.55:1,

$p < .01$). However, the Hispanic analysis differed from both the Black male and MOC analysis in two ways when taking into consideration the characterisitics of the area where the fatality occured. First, the relationship between city population and Hispanic male FIPs differed from MOC and Black males. While the odds of a FIP were greater for both MOC and Black males in large cities, this relationship was non-significant for Hispanic males. Second, Hispanic males are two times as likely as MOCs and blacks of experiencing a FIP if in an area with a higher percentage of Hispanics (OR = 3.36:1, $p < .001$). The neighborhood level variables maintained their significance after adding in agency level characteristics. The only agency level variable that reached a level of significance in the Hispanic analysis was the number of Hispanic officers within the high third of the ratio of officers to population distribution (OR = 2.63:1, $p < .001$). Such agencies were twice as likely to experience/initiate the FIP of a Hispanic male.

DISCUSSION

This article addressed the concern that death by legal intervention is an outcome stratified by race and ethnicity, disproportionately experienced by boys and men of color, and predicated on the location in which law enforcement encounters them. More specifically, we questioned, 1) whether characteristics of the deceased vary across male racial/ethnic groups in their prediction of FIPs, 2) how does an area's racial isolation, social disorganization, and economic inequality relate to the odds of a FIP, perhaps differently, for MOCs, African American and Hispanic males, and 3) how might the association of agency factors to police homicides differ for African American and Hispanic males relative to MOCs? To explore these questions, we compiled a data set that spans a 20 month time period, and links the 1762 FIPs that occurred during that time with the nearly 2800 agencies of the LEMAS survey, UCR data, and census characteristics.

In regards to the first question, our analysis found only modest differences in the relative odds of MOCs, African American and Hispanic males according to their age and gun possession. Differences across boys and men of color emerged more clearly when we looked at their mental illness/drug impairment and civil litigation. Black males were the only sub-group to see a significant reduction in their relative odds of a FIP when their mental illness/drug use was considered. Although civil litigation was significantly positive for all three racial/ethnic groups, black males for which litigation was filed were nearly 5 and one-half times as likely as those for whom no civil suit was filed to have been fatally injured. This ratio was over twice as large as the relative odds for MOCs, and over 3-times the magnitude of the odds ratio for Hispanic males. While it is true that civil suits can be filed even when they are frivolous, we have no basis on which to expect a racial/ethnic group to have a likelihood greater than another of filing litigation subsequent to a police homicide, other than the circumstances surrounding the police homicide. Additional research is needed to relate the events of FIPs to subsequent legal challenges to understand why African Americans are more likely to question whether a police homicide was justified.

Our second question considered how the residential qualities that reflect the racial isolation, social disorganization, and inequality within neighborhoods vary across boys and men of color in their prediction of FIPs. On this question, our analysis revealed that racial segregation and income inequality within neighborhoods were both of consequence to all three male sub-groups. That said,

there were nonetheless some important ways in which the influence of segregation and inequality varied across the male sub-groups. For example, African American males in neighborhoods with a relatively low percentage of black residents had dramatically lower odds of a FIP than African American males in neighborhoods with higher percentages of black residents. This suggest that racially mixed neighborhoods to some degree protect African American males from police homicides, and that Hughey's (2015) "defense of inequality" explanation of deadly force disparities is not applicable, at least for African Americans. This outcome may be due to a selection effect, in which African Americans who reside in predominantly white areas are also less likely to behave in a way that precipitates a fatal encounter with police, or a neighborhood effect on law enforcement in which its low minority composition leads police to be less aggressive in their interactions with residents. Hispanics in contrast had increased relative odds of a FIP of nearly 3-to-1 in neighborhoods that had a high percentage of Hispanic residents, lending support for the minority threat hypothesis which suggest officers are more likely to use lethal force in areas where people of color are most concentrated. Taken together, the segregation results suggest our social commitment to living racially separate lives exacerbates the dilemma of racial/ethnic disparities in FIPs.

Income inequality within neighborhoods was the other ecological dimension that contributed substantially to the way police homicides seem to be stratified according to race. For all MOCs, neighborhood inequality increased the relative odds of a FIP when the dispersion of income ranked in the top third of all residential areas. This effect was especially pronounced for Hispanic males, who had a relative odds ratio in the most economically unequal neighborhoods 2 and one-half times that of Hispanic males in neighborhoods with less income dispersion. Our social disorganization measures by comparison were at times significant but reported very narrow odds ratios.

Finally, our analysis also considered the contributions of agency level characteristics to the unequal odds of a FIP for MOCs. While the odds reducing effect of officers' educational level in the MOC analysis is notable, the finding that the agencies with the greatest representation of Hispanic officers appears to dramatically increase the relative odds that Hispanic males will be fatally injured by police is alarming. This finding parallels the Smith and Holmes (2014) report that a greater number of Hispanics among law enforcement was related to a higher rate of excessive force complaints. It is nonetheless important to recall that only a quarter of the total number of sworn officers were Hispanic in the most diverse agencies. We therefore stress the possibility that this proportion of officers, while among the highest, may not be large enough to bring about a change in agency culture and different approaches to Hispanic communities. Future research will need to investigate whether greater levels of representative diversity will lead to a convergence of these deadly force disparities for Hispanic males and other sub-groups.

In conclusion, many of the qualities that make this study timely and novel are also causes for caution. Although our dataset is likely to avoid the problem of underreporting that limits the federal data used in previous studies, we can only be reasonably optimistic that it includes all FIPs. While this work demonstrates the results of a systematic data mining effort that avoids a reliance on biased administrative data, it also underscores the need for the institutionalization of data collection efforts among third-parties—within medical centers in particular (Feldman et al. 2016;

Knox 2015; Richardson, St. Vil and Cooper 2016). Many of the findings and questions raised by this study will require robust data collection to pursue answers.

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TABLE 1. DESCRIPTIVE SAMPLE STATISTICS, UNWEIGHTED

	Of Agencies (N=2794)		Of Fatalities (N=1762)	
	Mean	STDV	Mean	STDV
Male of color (1 = yes, 0 = no)	0.23	0.42	0.50	0.50
Black male (1 = yes, 0 = no)	0.12	0.32	0.26	0.44
Gun possession (1 = yes, 0 = no)	0.22	0.42	0.49	0.50
Mental illness/drug impaired (1 = yes, 0 = no)	0.07	0.25	0.22	0.42
Age 25 - 44 (1 = yes, 0 = no)	0.24	0.43	0.52	0.50
Civil Suit (1 = yes, 0 = no)	0.08	0.27	0.17	0.37
Unemployment rate	0.11	0.07	0.12	0.07
City population >250,000 (1 = yes, 0 = no)	0.14	0.34	0.23	0.42
Violent crime rate per 100,000 city residents	345.67	1613.20	381.08	651.66
Bottom 3rd in percentage black residents (1 = yes, 0 = no)	0.33	0.47	0.34	0.47
Top 3rd in percentage black residents (1 = yes, 0 = no)	0.34	0.48	0.24	0.43
Bottom 3rd in percentage Hispanic residents (1 = yes, 0 = no)	0.36	0.48	0.30	0.46
Top 3rd in percentage Hispanic residents (1 = yes, 0 = no)	0.31	0.46	0.27	0.45
Bottom 3rd in percentage non-white residents (1 = yes, 0 = no)	0.34	0.47	0.30	0.46
Top 3rd in percentage non-white residents (1 = yes, 0 = no)	0.31	0.46	0.37	0.48
Percent male high school dropouts	0.08	0.49	0.05	0.29
Bottom 3rd gini index (1 = yes, 0 = no)	0.34	0.46	0.30	0.46
Top 3rd gini index (1 = yes, 0 = no)	0.32	0.47	0.36	0.48
Officers represented in collective bargaining (1 = yes, 0 = no)	0.90	0.30	0.80	0.40
Proportion male of all sworn officers	0.91	0.09	0.90	0.29
Number of officers separated/terminated	0.70	2.07	1.46	3.99
Officer educational level	2.15	0.43	2.07	0.50
Bottom 3rd ratio of black officers to population (1 = yes, 0 = no)	0.46	0.50	0.31	0.46
Top 3rd ratio of black officers to population (1 = yes, 0 = no)	0.27	0.44	0.45	0.50
Bottom 3rd ratio of Hispanic officers to population (1 = yes, 0 = no)	0.49	0.50	0.26	0.44
Top 3rd ratio of Hispanic officers to population (1 = yes, 0 = no)	0.24	0.43	0.49	0.50
Bottom 3rd ratio of non-white officers to population (1 = yes, 0 = no)	0.42	0.49	0.21	0.41
Top 3rd ratio of non-white officers to population (1 = yes, 0 = no)	0.25	0.43	0.46	0.50

TABLE 2. RACIAL/ETHNIC REPRESENTATION WITHIN LOCATIONS AND AGENCIES, FIPS POPUALTION, N = 1762

	Black		Hispanic		Of Color	
	Mean	SD	Mean	SD	Mean	SD
Residential percentage of population, bottom 3rd	0.01	0.04	0.03	0.03	0.13	0.11
Residential percentage of population mean, top 3rd	0.55	0.27	0.56	0.22	0.52	0.23
Agency percentage of officers, bottom 3rd	0.00	0.00	0.00	0.00	0.09	0.13
Agency percentage of officers, top 3rd	0.16	0.14	0.24	0.16	0.33	0.18
Agency number of officers, bottom 3rd	0.00	0.00	0.00	0.00	0.48	0.50
Agency number of officers, top 3rd	219.77	733.43	248.06	1042.26	499.87	1874.58

*** = p < .001, ** = p < .01, * = p < .05, + = p < .10

NOTE: Table includes numbers and percentages with racial/ethnic backgrounds among total officers as represented within the distribution of agency officer-to-population ratios

TABLE 3. HIERARCHICAL GENERALIZED LINEAR MODELS OF POLICE HOMICIDES, MALES OF COLOR

	Model 1			Model 2			Model 3		
	b	SE	OR	*b*	SE	OR	*b*	SE	OR
Intercept	-2.69***	0.13	0.07	-2.70***	0.23	0.07	-2.72***	0.27	0.07
INDIVIDUAL-LEVEL									
Age 25 to 44	1.15***	0.22	3.17	1.20***	0.20	3.33	1.18***	0.22	3.26
Gun possession	1.29***	0.25	3.63	1.42***	0.28	4.12	1.35***	0.29	3.86
Mentally ill/under the influence	0.19	0.31	1.21	0.05	0.35	1.05	0.08	0.32	1.08
Civil suit	0.98*	0.45	2.66	0.97*	0.45	2.65	0.90*	0.45	2.46
LOCALE-LEVEL									
Unemployment rate				0.00***	0.00	1.00	0.00***	0.00	1.00
City population >250,000				0.73***	0.16	2.08	0.64***	0.17	1.89
Violent crime rate per 100,000 residents				-0.00	0.00	0.99	-0.00	0.00	0.99
Low 3rd in percentage residents of color				-0.28	0.30	0.76	-0.23	0.32	0.79
Top 3rd in percentage residents of color				0.35	0.21	1.42	0.33	0.20	1.40
Percent male high school dropouts				0.21	0.16	1.23	0.22	0.20	1.25
Low 3rd gini index				0.01	0.33	1.01	0.01	0.33	1.01
Top 3rd gini index				0.50**	0.18	1.65	0.47**	0.18	1.61
AGENCY-LEVEL									
Proportion male of all sworn officers							0.36	0.79	1.44
Number of officers separated/terminated							0.05+	0.03	1.05
Officers represented by union							0.04	0.18	1.04
Officer educational level							-0.37**	0.13	0.69
Low 3rd non-white officer to population ratio							-0.16	0.18	0.85
Top 3rd non-white officer to population ratio							0.02	0.16	1.02
RANDOM EFFECTS	Variance	SD	*df*	Variance	SD	*df*	Variance	SD	*df*
Level 1 & 2 variance	0.0010***	0.031	692	0.0007***	0.026	684	0.0007***	0.027	684
Level 3 variance	0.3149	0.561	2793	0.1085	0.329	2793	0.1033	0.321	2787

*** = p < .001, ** = p < .01, * = p < .05, + = p < .10

NOTE: Table includes final estimation of pooled imputation results of robust standard errors, where, *b* = model coefficient, SE = standard error, and OR = odds ratio.

TABLE 4. HIERARCHICAL GENERALIZED LINEAR MODELS OF POLICE HOMICIDES, BLACK MALES

	Model 1			Model 2			Model 3		
	b	SE	OR	*b*	SE	OR	*b*	SE	OR
Intercept	-3.41***	0.14	0.03	-3.31***	0.40	0.04	-3.29***	0.44	0.04
INDIVIDUAL-LEVEL									
Age 25 to 44	1.15***	0.15	3.14	1.10***	0.17	2.99	1.14***	0.18	3.13
Gun possession	1.13*	0.36	3.11	1.16**	0.49	3.20	1.14**	0.18	3.13
Mentally ill/under the influence	-0.49*	0.25	0.61	-0.49*	0.25	0.61	-0.51*	0.25	0.60
Civil Suit	1.77***	0.18	5.85	1.68***	0.20	5.38	1.69***	0.20	5.42
LOCALE-LEVEL									
Unemployment rate				0.00***	0.00	1.00	0.00**	0.00	1.00
City population >250,000				0.75***	0.20	2.12	0.03**	0.21	1.88
Violent crime rate per 100,000 residents				-0.00	0.00	0.99	-0.00*	0.00	0.99
Low 3rd in percentage black residents				-1.24*	0.54	0.29	-1.24*	0.49	0.29
Top 3rd in percentage black residents				0.59+	0.31	1.80	0.57+	0.30	1.77
Percent male high school dropouts				-0.07	1.40	0.93	-0.18	1.26	0.84
Low 3rd gini index				-0.28	0.17	0.76	-0.33	0.21	0.72
Top 3rd gini index				0.31+	0.16	1.39	0.30+	0.15	1.35
AGENCY-LEVEL									
Proportion male of all sworn officers							-0.71	0.80	0.49
Number of officers separated/terminated							0.04+	0.02	1.04
Officers represented by union							-0.13	0.18	0.89
Officer educational level							-0.08	0.14	0.92
Low 3rd ratio of black officers to population							0.01	0.21	1.01
Top 3rd ratio of black officers to population							0.25	0.22	1.29
RANDOM EFFECTS	Variance	SD	*df*	Variance	SD	*df*	Variance	SD	*df*
Level 1 & 2 variance	0.0007***	0.026	692	0.0007***	0.027	684	0.0008***	0.028	684
Level 3 variance	0.3430	0.586	2793	0.0432	0.208	2793	0.0361	0.190	2787

*** = p < .001, ** = p < .01, * = p < .05, + = p < .10

NOTE: Table includes final estimation of pooled imputation results of robust standard errors, where, *b* = model coefficient, SE = standard error, and OR = odds ratio.

TABLE 5. HIERARCHICAL GENERALIZED LINEAR MODELS OF POLICE HOMICIDES, HISPANIC MALES

	Model 1			Model 2			Model 3		
	b	SE	OR	*b*	SE	OR	*b*	SE	OR
Intercept	-3.89***	0.14	0.02	-4.72***	0.25	0.01	-5.13***	0.45	0.01
INDIVIDUAL-LEVEL									
Age 25 to 44	0.92**	0.30	2.50	0.79*	0.36	2.21	0.77**	0.28	2.15
Gun possession	1.26***	0.23	3.51	1.37***	0.29	3.95	1.12***	0.26	3.06
Mentally ill/under the influence	-0.34	0.28	0.71	-0.24	0.41	0.79	-0.33	0.25	0.72
Civil Suit	0.99***	0.29	2.68	0.86***	0.26	2.37	0.57*	0.23	1.78
LOCALE-LEVEL									
Unemployment rate				0.00**	0.00	1.00	0.00***	0.00	1.00
City population >250,000				0.35	0.24	1.42	0.24	0.22	1.27
Violent crime rate per 100,000 residents				-0.00	0.00	1.00	-0.00	0.00	0.99
Low 3rd in percentage Hispanic residents				-0.13	0.24	0.88	-0.12	0.41	0.89
Top 3rd in percentage Hispanic residents				1.21***	0.31	3.36	1.04**	0.31	2.82
Percent male high school dropouts				-0.20	0.45	0.82	0.01	0.26	1.01
Low 3rd gini index				0.39	0.29	1.48	0.37	0.26	1.45
Top 3rd gini index				0.94**	0.34	2.55	0.81**	0.27	2.50
AGENCY-LEVEL									
Proportion male of all sworn officers							-0.11	0.82	0.90
Number of officers separated/terminated							-0.00	0.02	0.99
Officers represented by union							0.41	0.26	1.51
Officer educational level							-0.13	0.11	0.88
Low 3rd Hispanic officers to population ratio							-0.38	0.32	0.69
Top 3rd Hispanic officers to population ratio							0.97***	0.22	2.63
RANDOM EFFECTS	Variance	SD	*df*	Variance	SD	*df*	Variance	SD	*df*
Level 1 & 2 variance	0.0021***	0.046	692	0.0004***	0.019	684	0.0003***	0.017	684
Level 3 variance	0.4200	0.648	2793	0.9717	0.986	2793	0.8118	0.901	2787

*** = p < .001, ** = p < .01, * = p < .05, + = p < .10

NOTE: Table includes final estimation of pooled imputation results of robust standard errors, where, *b* = model coefficient, SE = standard error, and OR = odds ratio.