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# Social, health and ethnicity correlates of complaints of excessive police force

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## Abstract

**Background:** Following several high-profile police shootings of Black Americans, renewed debate has focussed on race as a predictor of police violence. Past research has been inconsistent on this score. Some scholars argue that socioeconomic issues are better predictors of police related violence than are race and ethnicity.

**Aims:** To test relationships between complaints of excessive use of police violence and racial/ethnic population demographics, allowing for social and mental health variables.

**Methods:** We examined records from all 195 municipal police departments in California to identify complaints of excessive force by police and tested for associations between such complaints and health, socio-economic and demographic data from county records, using multivariate analyses.

**Results:** There was no difference in reporting between communities according to Black or White American residency proportions; communities with more Latino Americans were less likely to complain formally of excessive use of police force. The strongest associate of complaints to police departments that their employees had used excessive force was experiencing mental distress in the community.

**Conclusions:** Our findings are limited by reliance on complaints to police authorities rather than actual incidence of police use of excessive force and by having to map municipal data on to county data, but the finding that factors other than or in addition to any inherent police problems

may contribute to excessive use of force by the police offers new lines for remedying the problem. In particular, our findings suggest that more training for police in recognising and managing mental distress and more provision of mental health experts to work alongside police would be worth evaluating as a next step.

## 1 | INTRODUCTION

With the rise of social media and movements like *Black Lives Matter*, police violence and the role that race may play in its actualisation has become one of the central interests of public discourse. Following the highly publicised deaths of George Floyd and Breonna Taylor in 2020, there have been increasing calls for reforms that include decreasing policing in minority and low-income communities. This comes despite solid support in the academic literature that police presence and visibility reduce crime (MacDonald et al., 2016; Sherman & Weisburd, 1995; Weisburd, 2016) and that institutional illegitimacy of the police increases crime (Berg et al., 2016; Papachristos et al., 2012; Sunshine & Tyler, 2003).

At present, criminological data on race and policing is unclear, with disagreement between scholars about whether race is a predictor of excessive police force. One of the primary barriers to studying the causes of police violence has been a lack of data, in part because most police precincts do not explicitly collect data on uses of force. Research by Fryer Jr. (2019), however, found that, although there were no racial differences in the rates of officer-involved shootings, Black Americans and Latinos were more than 50% more likely than White Americans to be involved in an interaction with police that involved use of force, and that Black Americans were 21% more likely than White to have an interaction where an officer's weapon was drawn. This study included a review of public datasets such as New York City's Stop and Frisk Program, a controversial policy that has been found in court to violate the constitutional rights of minorities, and suggests that the influence of race on policing behaviour is nuanced and complex, with race associated with non-lethal police force but unrelated to police shootings. It is also unclear how to reconcile these disparities in police force with similar disparities in the perpetration of violent crime for which Black and Latino men proportionally overrepresented there as well (Beck, 2021).

Given public reaction following the murder of George Floyd in 2020, in can be difficult to examine fully the complexities in these data. Police killings are rare, overall, though discrepancies based on race do exist. Although more White than Black Americans are killed by police, relative to total populations they are proportionately less likely to be killed by police (1.87 per million [pm]) than are Black Americans (5.34 PM) or Latinos (2.63 PM), although more likely than American Asians and other ethnicities (1.50 PM; Paull, 2020). There is, however, a similar pattern with respect to perpetration of violent crime, with White Americans under-represented as a proportion of the population, Latinos slightly overrepresented and Black Americans significantly overrepresented; Asian Americans were under-represented. Further, if we look at the FBI's Law Enforcement Officers Killed and Assaulted (LEOKA) data, there is a similar pattern for ethnicity of people who killed police officers. While debates remain regarding systematic biases (Shjarback & Nix, 2020), it is prudent to keep in mind that all these events are statistically rare, whether shootings by officers or murders of officers.

Other analyses have been simply inconsistent. Some studies suggest that race plays little role in police shootings or excessive force. For example, an analysis of incidence of fatal police shootings to police exposure, as measured by crime rates, found no association for racial disparity at the national level (Cesario et al., 2019). Furthermore, Hemenway et al. (2020) found that fatal police shootings occur at equivalent rates across the urban-rural continuum, with Black Americans more likely to be killed in urban areas, but Whites in more rural areas. By contrast, other studies have raised greater concerns - for instance, Scott and colleagues (2017) found that, even controlling for different ethnic groups' participation in crime, police shootings of Black Americans remained more prevalent.

Adams (1996) noted that studying all uses of force, rather than just the most egregious examples, is necessary to achieve full understanding of police roles. While some have theorized that complaints are associated with increased proactive interactions with citizens (Lersch, 2002), it is generally agreed that, on some level, complaints have a positive association with officer misbehaviour (McCluskey & Terrill, 2005; Terrill & McCluskey, 2002; Toch, 1996), particularly in predicting incidence of violent encounters. An examination of eight U.S. police departments by Terrill and Ingram (2016) found that a small proportion of officers accounted for a disproportionate amount of use of force complaints, and that non-White complainants were more likely to allege misuse of force.

## 1.1 | Mental health and excessive police force

Anecdotally, many incidents of fatal police force, whether causing the death of Black individuals, such as George Floyd or Eric Garner, White individuals, such as Tony Timpa or Kristiana Coignard, or individuals of other ethnicities, such as Laudemer Arboleda, appear related to suspect mental illness. Severe and chronic mental illnesses may render it difficult for sufferers involved in interactions with police to respond to police requests. If the police are not adequately trained to work with people who have mental illness, they may react inappropriately.

Certain types of chronic mental illness, usually when un- or inadequately treated, are associated with greater likelihood of involvement in criminal activity, including violent crime. Although individuals with psychosis, for example, account for about 1% of the population, they commit roughly 5% of society's violent crimes (Fazel & Grann, 2006).

Other evidence suggests that people with severe mental illness are far more likely to die in police encounters than those without severe mental illness, some evidencing estimates as high as sixteen times more likely to die in police encounters (Fuller et al., 2015). Non-fatal but excessive police force is also reported as more likely when the detainee has mental illness (Jun et al., 2020). Rather than police specifically targeting the mentally ill, any police heavy-handedness may be understood as a function of people with mental illness being more likely to be involved in crime and non-criminal public disturbance and having difficulty responding to police requests, as well as inadequate police training regarding mental illness. Whether mental illness and race intersect remains a question of debate, and is probably also nuanced (Thomas et al., 2021).

## 1.2 | The current study

As reasons for any proportionately greater problem in police interactions with the Black American community are, thus, complex, out aim was to analyse complaints against the police for excessive use of force in the context of a variety of socioenvironmental factors.

## 2 | METHODS

### 2.1 | Preregistration

Preregistration of our analyses is available at: https://osf.io/e52pg/

## 3 | DATA SOURCE

In addition to the Gini index of income inequality, data came primarily from two datasets. The first was a dataset on reported complaints of police misconduct filed against individual police departments, by county, in California; there were 195 police departments for inclusion. The second was county data on social, physical, and environmental health. Thus, county level comparisons could be made between complaints against the police and public demographics and health.

*Violent Police Misconduct* data were taken from California's Ursus Program. This compiles data on all citizen complaints of excessive police force in California. The specific dataset we used was provided by *Campaign Zero* which offers a Police Scorecard tracking incidents of police force (Campaign Zero, 2020).

The dataset includes data at municipality, county and state levels. To maintain a standard level of analysis, we included only municipality police departments. Outcome data were raw number of complaints adjusted for the per capita population of the municipality. This dependent variable proved to be highly positively skewed. A square root transformed variable had high kurtosis. Although in our preregistration, we noted we would next move to a Poisson regression, we thus first tried logarithmic transformation, without knowing any findings from the Poisson regression. This transformation produced a normally distributed outcome variable which was used in subsequent analyses.

*The Gini Index* is a measure of income inequality, provided by the *American Community Survey*, which is part of the US Census, and available at county level. We use publicly available data from (Livestories (2020); N.B., we used the individual links to the bottom, not the map).

*County Level Health Data* was drawn from the *County Health Rankings Dataset* (CHRD), compiled yearly by the Robert Wood Johnson Foundation and the University of Wisconsin Pollution Health Institute since 2010 (Remington et al., 2015). A collection of 30 county-level measures, the CHRD provides data on mortality and morbidity and factors found to have impact on health, including health behaviours, clinical care, social and economic factors, and the physical environment. For our analysis, we not only included variables related to mental health but also physical health–including excessive drinking, ethnic segregation in housing, adult obesity, sexually transmitted disease epidemiology, and exposure to air pollution. Many of these variables are related to poorer neighbourhoods and neighbourhood stress. County level analysis allows us to overcome the challenges associated with the more often used aggregate national data.

The variable related to mental health, specifically, represents the percentage of adults reporting 14 or more poor mental health days each month, designed to assess chronic and severe mental illness.

### 3.1 | Analytic plan

Analyses were conducted using SPSS version 22 software. As indicated above, the dependent variable, complaints of excessive police force, was outside of acceptable range for skew and kurtosis (West et al., 1995) and was normalised using a logarithmic transformation. Pairwise deletion was used for missing data (though retesting the regression with listwise did not produce different results).

We ran collinearity diagnostics on our regression equation. As might be expected, collinearity was very high among some variables, such as adult obesity and mental distress. We determined that mental distress was a more critical indicator of mental stress within a county and so mental distress was retained in the model while adult obesity was removed. Race/ethnicity variables were highly collinear but, as most attention on race has focussed on Black and Latino Americans, we focussed on percentage of the population Black and Latino Americans as well as county level Black/White segregation, thus eliminating collinearity between remaining race/ethnicity variables. Variables with high collinearity were removed so as not to create a 'bouncing beta' phenomenon of spurious, inaccurate, regression coefficients. It should not be assumed that these removed variables are unimportant.

Sexually transmitted disease rate was also highly collinear with other variables and hence removed from our regression model.

Though we had hoped to get data on racial composition of police officers themselves, we were unable to obtain that information from current data sources.

## 4 | RESULTS

Descriptive statistics for all predictor variables are presented in Table 1. A correlation matrix of all variables is presented as Table 2. In bivariate correlations, using a Bonferroni correction for multiple comparisons, only mental distress ($r = 0.318$) and adult obesity ($r = 0.265$) were correlated with reports of excessive police force. None of the race/ethnicity variables was associated with reports of excessive police force.

### 4.1 | Ordinary least squares linear regression analysis

Table 3 shows the results of the regression analysis. The full model was significant ($N = 195$; $R = 0.440$; $R^2 = 0.193$; $p < 0.000$, $F(8, 183) = 5.482$). Only mental distress, excessive drinking and identification as Latino were independently associated with complaints of excessive police force. Mental illness as indicated by county figures accounted for nearly 25% of the variance in complaints, while excessive drinking was associated with about 4% and identification as Latino was associated with about 11% of the variance in complaints, with these latter two negatively correlated.

**TABLE 1** Descriptive characteristics of predictor variables

| Variable | Mean | Standard deviation |
|---|---|---|
| Gini | 0.46 | 0.02 |
| Mental distress | 11.58 | 1.45 |
| Physical distress | 11.02 | 1.60 |
| Excessive drinking | 19.61 | 1.31 |
| Violent crime | 0.004 | 0.001 |
| Segregation black/White | 51.15 | 8.56 |
| Adult obesity | 24.82 | 5.20 |
| STDs | 0.005 | 0.001 |
| Air pollution | 12.19 | 2.97 |
| Percent black | 5.16 | 3.38 |
| Percent Latino | 39.05 | 14.89 |

**TABLE 2** Intercorrelations between variables

| | Gini | Mental D. | Physical D. | Exc drink | Seg B/W | Obesity | STD | Air | %B | %H | Force |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gini | 1.00 | -0.155 | -0.098 | -0.204 | 0.395* | -0.340* | 0.207 | 0.008 | -0.121 | 0.012 | 0.001 |
| Mental distress | | 1.00 | 0.861* | -0.084 | 0.091 | 0.796* | 0.055 | 0.369* | -0.303* | 0.426* | 0.318* |
| Physical distress | | | 1.00 | -0.238 | 0.224 | 0.752* | 0.344* | 0.510* | -0.080 | 0.641* | 0.242 |
| Excessive drinking | | | | 1.00 | -0.147 | -0.260* | -0.197* | -0.443* | 0.054 | -0.413* | -0.104 |
| Segregation black/White | | | | | 1.00 | 0.010 | 0.217 | 0.088 | 0.048 | 0.112 | 0.103 |
| Adult obesity | | | | | | 1.00 | 0.189 | 0.088 | -0.011 | 0.461* | 0.265* |
| STDs | | | | | | | 1.00 | 0.605* | 0.554* | 0.461* | -0.042 |
| Air pollution | | | | | | | | 1.00 | 0.301* | 0.733* | 0.008 |
| Percent black | | | | | | | | | 1.00 | 0.089 | -0.097 |
| Percent Latino | | | | | | | | | | 1.00 | -0.063 |
| Reported excessive police force | | | | | | | | | | | 1.00 |

*Note:* A Bonferroni correction of 0.0009 was used to control for error due to multiple tests of significance.

**TABLE 3** Factors predicting police complaints of excessive force

| Independent variable | b | se | β | p | VIF |
|---|---|---|---|---|---|
| Gini | 0.384 | 1.413 | 0.022 | 0.272 | 1.421 |
| Frequency of mental distress | 0.138 | 0.028 | 0.469 | 0.000 | 2.073 |
| Excessive drinking | −0.066 | 0.025 | −0.201 | 0.011 | 1.379 |
| Violent crime | 9.942 | 26.359 | 0.032 | 0.377 | 1.611 |
| Segregation black/White | 0.003 | 0.004 | 0.053 | 0.710 | 1.279 |
| Percent black | 0.008 | 0.013 | 0.061 | 0.599 | 2.328 |
| Percent Latino | −0.010 | 0.003 | −0.332 | 0.001 | 2.391 |
| Air pollution | −0.006 | 0.016 | −0.040 | 0.727 | 2.965 |

Abbreviation: VIF, variance inflation factors.

## 4.2 | Further exploratory analyses

We tested the robustness of our regression equation in several exploratory ways. Changing the deletion method to listwise did not significantly affect results; nor did varying the logistic regression by using either the transformed or non-transformed outcome variable.

Due to collinearity, we were unable to examine all racial/ethnic categories simultaneously, so we then varied the groups tested. Including them together caused spurious 'bouncing beta' results and variance inflation factors (VIFs) were high. Replacing Black and Latino variables with other race categories generally did not change our results. The exception was for comparing White and Latino groups versus White and Black groups. When proportions of Latino and White Americans were included together, Latino Americans' inverse relationship with complaints of police force remained unchanged whereas there was no relationship between being White American and complaints of excessive force ($β = 0.012$, $p = 0.925$). It is worth noting that VIF values for this regression were above our threshold, though this should not result in lower regression weights (highest VIF = 4.227). When Black and White groups were entered, however, the regression coefficient for proportion of Black residents remained virtually unchanged and nonsignificant ($β = 0.085$, $p = 0.408$) whereas the coefficient for proportion of White residents became significant ($β = 0.206$, $p = 0.028$). VIFs were lower for this regression equation (highest VIF = 2.315). The effect size, however, is small, either way, reflecting only about 4% of overlapping variance at this highest level and we are cautious about interpreting this aspect of our findings. These exploratory tests of racial groups helped us view race issues more comprehensively and test for model resiliency.

Given the collinearity between mental health and adult obesity, we reran the regression analysis excluding mental health but retaining adult obesity. As expected, the model was virtually unchanged, except that excessive drinking was no longer associated with fewer complaints of police force ($β = −0.091$, $p = 0.254$), but adult obesity remained so ($β = 0.365$, $p < 0.001$).

## 5 | DISCUSSION

While politicians, scholars, and activists are currently debating the extent to which race/ethnicity is associated with excessive use of force by police, previous research on this issue has been both been nuanced and inconsistent, with some scholars suggesting that class and social stress are more problematic in this respect than race/ethnicity (Reilly, 2020). Our analyses of databases of complaints against the police and population health in California support the suggestion that social class is likely to be more influential than race per se, with community-level mental distress having the strongest relationship. Contrary to our expectations, communities with higher proportions of Latino

residents reported *fewer* incidents of police force. We note upfront that our data are limited to reported complaints rather than actual incidents. Nonetheless, we feel these are important data to bring to the fore.

Findings that communities with a higher proportion of Black American residents did not show higher levels of police complaints, as well as the finding of an inverse relationship between Latino identity and complaints, probably support the Differential Criminal Activity theory of policing. This perspective suggests that while police do not apply force evenly across all citizen interactions, they do respond primarily to the behaviour of a suspect rather than other factors (Cesario et al., 2019; MacDonald et al., 2001; Smith, 2004). This is also supported by the findings in Hemenway et al. (2020) that although violent crime rates tend to be higher in urban areas, fatal police shootings occur at an equivalent rate across the urban-rural continuum, with White Americans more likely to be killed in rural areas. Although Terrill and Reisig (2003) found that higher rates of police use of force could be accounted for by environmental variables such as economic disadvantage or community crime rate, but we found neither income inequality nor violent crime rates were related to complaints against the police.

While our findings may suggest that racial/ethnic group is less important in use of excessive police force than many assume, it is vital to emphasise that *reports* of excessive force cannot be interpreted as equivalent to actual incidents. Black Americans' sense of illegitimacy of policing may reduce their confidence that reports of excessive force will be taken seriously (Gaston et al., 2019). Confidence in the police generally erodes after widely publicised policing controversies (Weitzer, 2002), often a single event, however, some Black scholars have commented that this has more to do with bias in news reporting rather than actual racial disparities in police shootings (e.g., McWhorter, 2020; Reilly, 2020). Effectively, McWhorter and Reilly argue that national news media fail to report cases of unarmed Whites killed by police, while focussing on cases of unarmed Blacks, creating an availability heuristic. Overall, evidence supports that Black people have more negative representations of police than White people (Lloyd et al., 2020) and that this is influenced by perceptions of procedural fairness and justice (Johnson et al., 2017), so may result in differential reporting rates. Relative under-reporting from communities with large Latino American populations may have been language related as many in these communities have Spanish as a first language, though most police departments do have Spanish speaking officers.

Although police complaints exist in theory to identify and reduce dysfunction within departments, their efficacy is a matter of debate. In the multi-city analysis by Terrill and Ingram (2016), for example, non-White complainants were more likely to allege misuse of force but complaints by Black citizens were less likely to be sustained. Furthermore, increased police presence has been associated with increases in low-level 'quality of life' arrests, with the increase being significantly larger in communities with a higher proportion of Black citizens (Chalfin et al., 2020). Illegitimacy and mistrust in the police have consistently shown to decrease citizens' willingness to engage in public actions such as reporting crimes to the police (Desmond et al., 2016; Murphy et al., 2008) and co-policing their communities (Kochel, 2012). This could also explain the inverse association between excess drinking and police complaints–individuals and communities who fear that making complaints about the police will draw more police attention into their community may be less likely to report incidents of police misbehaviour. Although there is a belief within law enforcement that the high-profile police killings are isolated events (Morin et al., 2017), Black Americans have long held the most negative perceptions of the police (Tyler, 2005). Our observation is that the complex interplay between race and policing require a balanced understanding. On one hand, the disproportional involvement of young Black and Latino American men in the perpetration of violent crime (Beck, 2021) as well as contemporary policing practices which may reflect procedurally unjust treatment of people of colour (Epp et al., 2014; Gaston, 2019) are both relevant and potentially interacting factors.

The observation of an inverse relationship between proportion of Latino residents and reports of excessive police force is an intriguing one. One finding has been that Latino immigrants and undocumented immigrants specifically are proportionally underrepresented as perpetrators of violent crime (Light et al., 2020) but they too may want to keep a low profile in the community and so refrain from making complaints against the police even when they have cause.

In addition to their role in criminal investigation, police departments have increasingly become the primary entity for managing mental health crises. Although data around police use of force and mental distress remain

limited, our findings that countywide levels of mental distress are strongly and independently associated with police complaints further elucidates a line of disturbing findings in this field. A review by Hallett et al. (2021) found that prevalence of Taser use on persons experiencing mental distress was higher than in the general population. Rossler and Terrill (2017) also found that mental illness is a significant predictor of use of police force, although there was not necessarily a greater likelihood of injury. One of the narratives to emerge since 2020 is the potential for mental health professionals working alongside police officers in relevant cases. Although data on this are not as full as we would like, we find this to be a potential solution for some reductions in risk of police excessive force, as would better training for police officers to deescalate conflicts with individuals experiencing mental health crises. While either would probably require *increased* funding for police and/or health services, they might save substantially in other areas, so economic evaluation would be worthwhile.

Observing procedurally unjust interactions with police has been shown to have stronger effects on perceptions of the police than observing procedurally just interactions (Maguire et al., 2017), so it is in police interests to improve in this area. Use of body-worn cameras has also been shown to reduce incidence of police complaints, although weakly so (White et al., 2018). Better training generally, over and above mental health training, including de-escalation training and avoidance of 'warrior' training programmes, which emphasize police aggressiveness, would be likely to help. Police departments could also collect data on any use of force and not just that reported by the public.

## 6 | LIMITATIONS

As with all studies ours has several important limitations. First, although police excessive force data were available at the level of municipality, social indicators were available only at the county level. This 'misalignment' creates a reduction in precision of our analyses. Unfortunately, we did not have access to a database comprehensively examining relevant social level stress indicators at the municipal level. Secondly, reports of excessive police force are not the same thing as actual incidents of excessive police force. Reporting rates can be differentially influenced by multiple factors beyond the data to which we had access.

## 7 | CONCLUSIONS

Our paper adds to knowledge about excessive use of police force by showing that, in California at least, complaints about police violence were more strongly associated with mental health problems than with race/ethnicity per se. Complaints about violence do not necessarily equate with actual violence and we were unable to adjust for the extent to which communities may be more or less likely to report when violence occurs; mistrust of the police is likely to make reporting to them about their department's own misbehaviour exceptionally difficult. Nevertheless, our findings suggest possible avenues for reducing incidents of inappropriate police force and complaints about it by enhancing police knowledge of mental disorders and providing them with mental health practitioner support. Introduction of such changes should be evaluated.

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