Title: "Exaggerated Misperceptions of Police, not Exaggerated Claims of Harmful Drug Effects on the Brain, is Killing Black People and Police: Reply to "Exaggerating Harmful Drug Effects on the Brain Is Killing Black People"

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Abstract

In a recent Neuron NeuroView¹ article, Dr. Carl Hart raises concerns that drug research exaggerates detrimental effects on the brain, which contributes towards harmful stereotypes or toxicology reports being used to justify and legitimize police brutality and killing of black people. In Part 1, I review the cases that Hart mentions to support his central claim. I find they do not provide sufficient evidence that drugs play a systematic role in motivating, justifying or legitimizing police brutality or deadly force. Future studies of police-civilian interactions are required to prove or disprove the hypothesis. Hart uses the term 'massacre' to refer to police killings of black people, but offers little to no evidence that police are massacring black people. In Part 2, I review two large national officer-involved fatality databases and summarize studies of racial bias and policing. To date, there is very little to no systematic evidence for anti-black bias in police shootings or killings. In Part 3, I delineate a causal pathway and cite evidence to describe how widespread, distorted perceptions of police may paradoxically contribute towards hundreds of excess homicides and thousands of felonious crimes per year in the US. These violent crimes are committed against mostly black victims, thus exacerbating the cycles of violence and structural disadvantages of socioeconomically distressed minority communities. Hart also states recreational drugs have overwhelmingly positive effects and pose less danger than police, yet black people are ~400x more likely to die by drug overdose than by an unarmed encounter with police, which is comparable to the odds of being struck by lightning. Mass protests sparked by the death of George Floyd at the hands of police have raised awareness about police brutality and the need for police reform, but distorted perceptions of police, amplified by media bias and misinformation, have also led to mass rioting, looting, and the destruction of thousands of small businesses (many of which were black-owned). They have also fueled ambush revenge killings of more than 20 officers since 2014 and have increased

officers' concerns over their safety. I propose a systems level, causal network as an approach to model the public and mental health outcomes of high profile police brutality videos that includes complex interactions among psychosocial factors and the influences of misinformation and racial, media and political bias. The model may inform evidence-based strategies to ameliorate health inequities attributed to structural racism and suggests new avenues for research in these areas.

Introduction

In a recent NeuroView commentary, Dr. Hart expresses concerns that neuropsychopharmacology research exaggerates harmful effects of drugs on the brain, which contributes to negative stereotypes of recreational drug users. These negative stereotypes then contribute towards legitimizing the deaths and maltreatment of unarmed black people by police and the use of toxicology reports in legal proceedings to either acquit or lessen charges against the officers. Moreover, Hart implies that exaggerated claims about harmful effects of drugs has contributed towards the unnecessary illegalization of recreational drugs and cites examples of how drugs-related policing activity resulted in unjustified police killings of black people.

Here, I explicate and respond specifically to two of Hart's core claims: 1) that drugs and science are used to legitimize killing black people; and 2) that black people are being 'massacred' by police. In 1), I examine the details of each case that Hart cites and find little to no evidence that drugs played a systematic role in motivating or justifying police use of force. In addition, toxicology reports were not used as part of juries' decisions to acquit (or convict on lesser charges) the officers involved. Instead, the juries' decisions rested on whether the officers had justifiable reasons to fear for their life moments before their use of deadly force. In 2), I present data from the [Washington Post 2015-2019](#) and [Guardian 2015-2016](#) databases and

summarize rigorous studies that find little to no evidence for racial bias in the use of police lethal force. In part 3, I cite evidence to suggest that perpetuating exaggerated and distorted narratives that police kill black people due to racial or implicit bias paradoxically leads to more homicides and crimes committed against (mostly) black people. Hence, these distorted perceptions may help exacerbate cycles of violence and worsen structural inequities of socioeconomically distressed minority communities. I also touch briefly on Hart's comments about recreational drug use and the harm it causes relative to policing.

1. Using Drugs and “Science” to Legitimize a Massacre of Black People?

Hart states “They will malign his [Floyd’s] drug use, blaming it for his death. This tired gimmick was used when police (or a proxy) killed Trayvon Martin, Michael Brown, Laquan McDonald, Philando Castile, Terence Crutcher, among a host of others.” With respect to Floyd, Hart’s concern is that toxicology will be used to lessen the murder charges against Chauvin and the other officers involved in his death. The [video and audio transcripts](#) that show Floyd saying “I can’t breathe” before volunteering to be put on the ground suggests he was already undergoing respiratory depression² or cardiorespiratory collapse from the [fentanyl and methamphetamine in his system](#). Since the trial has not yet been held, Hart’s claims are pure speculation. Nevertheless, if anything, the toxicology information is likely to be *more*, not less, incriminating against the officers since they [knew](#) Floyd was likely undergoing [excited delirium](#), a condition which along with prolonged prone restraint likely amplified the effects of the drugs in contributing towards cardiorespiratory collapse.³³

The term “excited delirium” was first described in the mid 1800s under the names of Bell’s mania, lethal catatonia, acute exhaustive mania³. Increasingly, [police departments are training their officers](#) in how to deal with people exhibiting signs of the condition. It is associated

with a variety of factors that influence dopamine signaling in the brain including drug use³. It refers to the following sequence of events: delirium with agitation (fear, panic, shouting, violence and hyperactivity), sudden cessation of struggle, respiratory arrest and death³. A 1993 case report was among the earliest to use the term in describing the sudden deaths of men restrained in a prone position by police officers⁴. Excited delirium has been studied for decades as a contributing factor along with prone restraint and/or tasering tactics in the deaths of affected persons while in the custody of law enforcement⁵⁻⁸.

Hart goes on to mention other cases where drugs or toxicology reports were used to legitimize police deadly force. Each case is examined in more detail below to see whether this is the case.

Trayvon Martin. There is [little to no mention of drugs or toxicology as being a factor](#) in the acquittal of George Zimmerman, a neighborhood watchman who allegedly shot Martin out of self-defense. Zimmerman, who claimed to know and recognize all residents in the area, followed Martin because he did not recognize him and suspected he was involved in a recent spate of burglaries that had recently occurred in that neighborhood. Zimmerman's claim of self-defense is backed by [eyewitness accounts](#) as well as [medical evidence](#) that he was diagnosed with a 'closed fracture' of his nose, a pair of black eyes, two lacerations to the back of his head and a minor back injury the next day. Note that after the incident occurred many media outlets consistently reported that Zimmerman was white⁹, but he [identifies as hispanic](#) as indicated by his voter registration (his mother was from Peru). This is one example of misinformation/media bias which I touch on more later in this article.

Michael Brown. The [DOJ report](#) indicates toxicology reports did not factor into the investigation of the incident. "As a general matter, this level of [THC-induced] impairment can alter one's

perception of time and space, but the extent to which this was true in Brown's case cannot be determined. THC affects individuals differently depending on unknown variables such as whether Brown was a chronic user and the concentration of the THC ingested." A long and thorough initial investigation determined there [was no grounds to prosecute the officer](#) involved and this decision was confirmed by a second, more [recent reinvestigation](#) into the case. Detailed forensic evidence and eyewitness accounts indicate Brown blocked the officer's SUV door and window, had reached into his car and fought for the officer's handgun, and was then later shot as he was charging at the officer. Section 3 below discusses the case of Martin Brown as an early example of how media bias and misinformation distorted the facts surrounding the case and contributed to the misperception that police kill black people due to racism or racial bias.

Laquan McDonald. Cook County medical examiner records show that PCP was found in McDonald's blood post mortem. Under cross examination, the officer who shot and killed McDonald (Jason Van Dyke) testified that [he was not aware that McDonald had PCP in his system](#) when he encountered McDonald walking in the middle of a road with a knife in his hand. Therefore Van Dyke's potential misconceptions of drug-induced behavior cannot be blamed for McDonald's death. Van Dyke was charged with [first degree murder](#), which carries a minimum charge of 20 years. A jury found him guilty of [second degree murder](#) and the judge sentenced him to six years and 9 months. Second degree murder requires mitigating circumstances, which according to one member the jury saw as Van Dyke's perception of ["imminent and the escalating risk"](#). Given that the jury knew Van Dyke did not know that McDonald had PCP in his system, it is unlikely that PCP factored into their verdict.

Philando Castile. [Philando Castile](#) was with his partner and her five-year-old daughter in a car when he was pulled over by officers Yanez and Kaiser in part for a broken taillight and also because they believed he fit the description of a robbery suspect (it was later confirmed he was not the suspect). The case appears to be a clear example of a police fatal error and failed threat perception¹⁰. Yanez requested a license and insurance from Castile. After handing his insurance card to Yanez, Castile calmly notified Yanez that he had a licensed firearm in the vehicle. Yanez became nervous and later thought that Castile was reaching for his gun rather than his license. He was charged with second-degree manslaughter and two counts of dangerous discharge of a firearm. A use of force expert [testified](#) that “Yanez's use of deadly force was unnecessary, objectively unreasonable, and inconsistent with generally accepted police practices”. Castile was smoking marijuana at the time and this appeared to contribute to escalating the situation: Yanez [testified](#) he felt Castile could be dangerous given that he was smoking marijuana with a five year old in the same vehicle and would “risk her lungs and risk her life by giving her secondhand smoke”. Yanez was acquitted of all charges as the jury decided the state did not meet its burden of proof beyond a reasonable doubt for conviction. It is plausible that Yanez’s testimony about Castile’s marijuana use influenced the jury, but whether or not this was the case is a question that can only [can only be answered by the jurors](#). Based on one of the few available interviews with a jury member, the jury’s decision ultimately came down to the fact that they took Yanez at his word that he had a [reasonable belief that Castile potentially grabbed his gun](#) instead of his license.

Terence Crutcher. Terence Crutcher was unarmed when he was shot and killed by police officer Betty Shelby after his SUV stalled and he exited the vehicle, standing in the middle of the road. Shelby was charged with first-degree manslaughter. Shelby’s defense cited toxicology reports that he had [PCP and TCP in his system](#), and Shelby also purportedly suspected Crutcher was

on PCP at the time of the shooting given [he was sweating heavily and smelled of PCP chemicals](#). In 2017 Shelby was [acquitted of criminal charges](#) and the Department of Justice concluded there was [insufficient evidence to pursue federal civil rights charges against Shelby](#). The DOJ did not find sufficient evidence to [rebut Shelby's assertion that she fired in self-defense](#) with the mistaken belief that Crutcher reached into his vehicle to retrieve a weapon. Moments before being shot Crutcher was not complying with the officer's orders to show her his hands and Shelby feared he was reaching into his car through the driver's-side window. Crutcher's SUV was later found not to contain any weapons. According to a [write-up of the case](#):

Her police training taught her that "if a suspect reaches their hands inside of a car, don't let them pull them out," she testified. "We're not trained to see what comes out of a car," Shelby said. "We're trained to stop a threat, and by all indications, he was a threat. At that point, Shelby fired her weapon and Turnbough fired his Taser, she testified. Crutcher was found to be unarmed after the shooting.

Hart goes on to mention the recent case of Breonna Taylor who was tragically shot and killed during a drug raid. To add to Hart's points, [according to the Courier Journal](#) (highest circulation newspaper in Kentucky), the officers conducting the raid announced themselves after knocking several times even though they had a "no-knock" exception to the warrant; Taylor's boyfriend, Kenneth Walker, a licensed firearm carrier, shot first, striking a police officer in the leg, after which the officers then returned fire; the Taylor/Walker home was included as part of a simultaneous "no-knock" search warrant (the [others including a trap house](#) where the drugs were sold) because the apartment was allegedly used to received the shipments of drugs. The

[Taylor family filed a wrongful death suit](#) against the police, alleging that the police did not announce themselves before entering the apartment, which was [recently settled for \\$12 million](#). The Courier Journal [debunks several widely circulated rumors](#) about the case and is another example of how misinformation contributes towards distorted narrative that police kill black people due to racial bias (see Section 3). A recent [investigation into the incident by the Kentucky state attorney general](#) concluded that the officers acted out of self defense and would therefore not be prosecuted. During the protests that ensued a [gunman shot and wounded](#) two police officers.

Hart also mentions the cases of Kathryn Johnston, Romain Brisson, Ramarly Graham and Sandra Bland as examples of black individuals who died from interactions with police as a result of drug-use or drug-related suspicion. The first two cases appear to fit this description. [Kathryn Johnston](#) was shot and killed when she first fired a shot at the door after police forced it open and they returned fire in what has been described as a ‘botched’ drug raid. The three officers involved were tried for manslaughter and other charges surrounding evidence falsification and were sentenced to ten, six, and five years. [Romain Brisson](#) was unarmed when he was shot and killed by an officer investigating a reported drug deal in the area. Brisson allegedly ignored the officer’s orders to show him his hands, fled from and then struggled with the officer, who later claimed he thought Brisbane had a gun in his pocket (it turned out to be a bottle of pills). However, drug-use or drug-related suspicion did not appear to play a role in the death of [Sandra Bland](#), who hung herself in jail three days following a minor traffic stop that escalated to her arrest. Drugs also did not appear to play a role in the death of [Ramaly Graham](#), who was initially approached by officers and later followed to his apartment because they suspected he had a gun (he was later found to be unarmed), though they played a role in the sense that he allegedly rushed to the bathroom to flush small amounts of marijuana down the

toilet where he was later shot and killed by the officer.

The above 11 cases that span 14 years from 2006-2020 are examples of either poor tactical judgment, failed threat perception, police fatal errors, police corruption and/or brutality. However, they do not support the thesis that science and drugs are used to legitimize black civilian deaths. For some of the cases, one could also argue that the interactions would not have escalated and resulted in death had the civilian fully complied with the officer's orders or not aggressed the officer. Full compliance with officer's orders is always the best policy since one can later [sue the police department for police misconduct or harassment](#). Critically, these cases alone do not constitute sufficient evidence that exaggerated claims about harmful drug effects or drugs-related policing activity play a role in legitimizing police brutality or the killing of black people. This is not to say that this claim is definitely not true: future studies or analyses that test for systematic evidence that black civilians who are suspected of using or dealing drugs experience excessive police force are warranted (see Section 2 for a review of similar studies that test for systematic evidence of anti-black bias in police use of force).

These cases also do not support the idea that deaths resulting from these types of police interactions constitute a "massacre". A massacre is [defined](#) as an "indiscriminate and brutal slaughter of people", and to massacre means to "deliberately and violently kill (a large number of people)." Moreover, from examining individual cases alone, one can also not necessarily conclude that anti-black racial bias played a role in the civilian's death as I explain in more detail below.

According to the Washington Post national shooting database¹¹, 146 unarmed white people have been shot and killed by police between Jan 1st 2015 and July 1st, 2020, and often in circumstances very similar to the above cases. For example, [Hannah R. Fizer](#) was shot and killed during a routine traffic in which she allegedly refused to identify herself to the officer and

verbally threatened to shoot the officer; [Tyler Hase](#) was shot and killed during a traffic stop after engaging in an alleged altercation with an officer; [Justine Damond](#) was shot and killed by police accidentally after she called 911 to report a potential sexual assault outside her home.

Disturbing videos of unarmed white people being shot and killed by police are searchable online. For example, in 2016 [Daniel Shaver](#) was fatally shot while he was attempting to obey a white officer's commands to crawl toward him. The officer had responded to a 911 caller who reported that they saw a rifle being pointed out of Shaver's hotel window (it was later found to be a pellet gun). As Shaver was crawling toward the officer, the officer believed Shaver was reaching for a gun in his waistband when it was later determined he was attempting to pull up his shorts which were falling down. Toxicology reports revealed Shaver had a blood-alcohol level over three times the legal driving limit, which may have hampered his ability to follow the officer's commands. The officer was charged with second-degree murder but was acquitted after a 6 week trial. By Hart's line of reasoning, one could use the example of Daniel Shaver to argue that exaggerated claims about the effects of alcohol on the brain legitimizes the massacre of white people by police. But in this and related cases it was the officer's training to shoot immediately upon a perceived imminent threat that was the deciding factor in both the officer's decision to shoot and the jury's decision to acquit.

Officers are trained to make split-second deadly force decisions to avoid being killed while on duty. Each year in the US, [roughly 100-150 police officers die](#) in the line of duty, with up to half of those deaths caused intentionally by a civilian. In 2019, [38 officers were shot and killed in the US](#), down from 47 the year before. Between 2004-2014, an [average of 51 officers per](#) year were feloniously killed. Many of the deaths involved being ambushed and shot while responding to domestic disturbance calls, while attempting to make an arrest, or during routine patrol or traffic stops. For example, Capt. Vincent Liberto was killed when a [routine traffic stop](#)

[ended in a shootout](#); Deputy Sandeep Dhaliwal [was killed](#) when a suspect shot him in the back of the head during a traffic stop. Stories such as these are why, traditionally, [police are trained to be prepared to make split second decisions that could kill every civilian they encounter](#). This is not to suggest that police should necessarily be trained in this way, given that the frequency of such events are relatively rare (the number of police officers who die in the line of duty is roughly similar to the number of unarmed civilians who are killed by police each year). Criminal justice researchers have suggested that up to half of civilian deaths are not necessary to safeguard police or other citizens, and that these deaths could potentially be avoided with administrative reform ¹².

2. Are Police Massacring Black People?

Hart goes on to suggest that an alleged comment made by President Trump to the President of Philippines Duterte implies that the US engages in extrajudicial killing and “massacring” of black people.

“What’s more, the current occupant of the White House has repeatedly praised Duterte and other barbaric leaders for a “great job” on their handling of drug users and dealers, knowing full well that their tactics include extrajudicial executions. In the United States, where tacit racism is pervasive, it is unsurprising—and infuriating—that the fear of drugs, abetted by arguments poorly grounded in scientific evidence, is used to legitimize the massacre of Black people.”

Hart states that exaggerating drug effects has led to “countless” black deaths but does not explicate the causal relationship nor the estimated number of black deaths caused by the

exaggerated claims. The national [Washington Post police shootings database](#) has kept track of officer-involved fatal shootings of civilians since Jan 1, 2015. According to the database, over the last 5½ years, a total of 146 unarmed whites and 124 unarmed blacks have been shot and killed by police in the US. The Washington Post database site highlights the fact that black civilians (armed and unarmed) are shot and killed at more than twice the rate than white civilians (6.4 vs. 2.6 deaths per million per year). This difference in rates is similar to the main findings of a 2019 PNAS article that concluded “*Black men are 2.5 times more likely than white men to be killed by police during their lifetime*”¹³.

However, this statistic is misleading because it does not account for racial differences in police exposure and crime rates. Surprisingly, the above-mentioned PNAS article¹³ did not even discuss nor adjust for this crucial confound at all. Over 90% of officer involved fatalities occur following a response to a 911 call¹⁴. More crimes tend to occur in socioeconomically distressed neighborhoods that have higher proportions of black and hispanic residents. For example, black men are about [13% of the NYC population](#) but comprise over [50% of the suspects, arrestees,](#) (and victims) for murder, non-negligent manslaughter and felonious assaults, whereas white men are about [22% of the NYC](#) population but comprise around [3-5% of the suspects and arrestees](#) these crimes. Gun violence is the leading cause of death for black males under the age of 55, and the second leading cause of death for hispanic males under the age of 34, and black males ages 15-34 make up 2% of the U.S. population but account for 37% of all firearm homicide victims.¹⁵ Disproportionate crimes rates result in racial differences in the likelihood to be arrested for, and be the victim of, a felonious crime. Hence black (vs. white) people are more likely to encounter police in situations where they are more likely to use deadly force. These differences in police exposure account for the higher per capita police shootings of black people reported on the Washington Post site and in Edwards et al¹³.

Rigorous studies that account for disproportionate crime rates or police exposure have found little to no systematic evidence for racial bias in police deadly force. A 2016-2018 study by Harvard economist Roland Fryer using four large datasets including the Police-Public Contact Survey, a triennial survey of a nationally representative sample of civilians, and NYC's Stop, Question and Frisk data which included detailed data about a wide range of uses of force in 5 million encounters, suggested that blacks and hispanics (vs. whites) were more likely to experience non-lethal force¹. However, it found no evidence for racial discrimination in officer involved shootings, and if anything, whites were about 25% more likely to be shot and killed by police, though this effect was statistically insignificant ¹⁶. This finding is consistent with findings from studies by Menifield et al. (using data from a 2014-2-15 national database)¹⁷ and by Cesario et. al. (using the [2015-2016 Guardian database](#))¹⁸ that also found no evidence for anti-black bias in police shootings.

However, a study by Nix et al. used the Washington Post police shootings data from 2015 and found that black people who were fatally shot by police seemed to be twice as likely as white people to be unarmed ¹⁰. This finding is consistent with a more recent study by Ross et al. that suggests anti-black disparities in police killing of unarmed, non-aggressing civilians (each year roughly 20 black and 30 whites are killed by police under these circumstances)¹⁹. Moreover, a recent study by Hoekstra and Sloan analyzed 911 calls from two cities and

¹ Fryer [summarizes a main finding](#) from the study as follows: "Black civilians who were recorded as compliant by police were 21% more likely to suffer police aggression than compliant whites." Interestingly, Panel F in Table 3A of the [paper](#), which subsets the data by outcome of the interaction, shows that for the majority of NYC Stop and Frisk interactions in the dataset that resulted in only a frisk (2.7 Million out of 5 M), the black vs. white odds ratio for experience of any force is only 1.036 and was non-significant, whereas the odds ratio for the subset of 730,000 interactions that resulted in being arrested, summonsed or having a weapon/contraband found was higher (between 1.09-1.16, or 9-16% higher likelihood) and significant. This finding could be due to anti-black/hispanic racial bias. Alternatively, the finding may possibly be explained in part by [disproportionate NYC crimes rates](#) in that police are more likely to scale up force if a civilian was stopped because they matched the description of a violent crime suspect. A related 2019 analysis by Weisburst of non-overlapping policing data from Dallas suggested no racial differences in non-lethal force when conditioning on an arrest.¹⁶

concluded that white officers are more likely to use force—including and especially gun force—in minority neighborhoods, compared to minority officers.²⁰ However, the findings from this latter study should be considered as preliminary and interpreted with caution. First, the study used ordinary least squares and logistic regression which are sensitive to outliers, especially for models with imbalanced binary data (i.e. out of 1.2 million calls for service, 1,300 incidents of police use of force representing 0.109 percent of all calls, of which only 94 (0.0076 percent) involved a gun). The authors plot only the mean estimates and best fit lines, and not the actual data points, making it difficult to assess the overall model fit and assumptions as well as the potential impact of outliers on the parameter estimates. Second, the data set from two cities do not include other pertinent information from each call such as whether the use of force was appropriate or not, or whether civilian behavior was affected by officer race. Third, it is not completely clear why the authors excluded analyses from a third city that provided data².

Disproportionate crime rates mentioned above may help explain the findings from Nix et al.¹⁰ and Ross et al.¹⁹. For example, the Nix et al. article¹⁰ cites studies that suggest police officers become unconsciously biased through repeated contact with minorities involved in deviance and may overestimate the correlation between race and crime. Hence officers who “are trained in the first place to be suspicious become conditioned to view minorities with added suspicion”. This then increases the odds of failed threat perception in that a lower decision threshold to shoot yields higher “hit” rates at the cost of more “false alarms”. However, the article also cites studies that suggest an opposite counter-bias (i.e. police are less likely to shoot a black vs. white civilian) and [other studies](#) using simulations have found [no evidence for widespread implicit racial bias](#) among police. Alternatively, according to Joseph Cesario (Reply

² The authors state “We also obtained data from a third city that we were told used a protocol in which officers and operators had no discretion. However, upon receiving the data we discovered that did not appear to be the case, and thus do not use that city in this analysis”. However they do not explain further details about the data that indicated officers and operators were using discretion during dispatching.

to Ross et al¹⁹. in press), anti-black disparities in killing of unarmed, non-aggressing civilians may be due to three possible reasons.

1) Racial bias on the part of police officers in discretionary stopping at the initial encounter stage for non-violent, unarmed citizens, with no racial bias on the part of police in the decision to shoot; 2) Racial disparities in citizens' calls for service at the initial encounter stage for non-violent, unarmed citizens, with no racial bias on the part of police officers in the decision to make contact or in the decision to shoot 3) Police officers applying a race-neutral decision rule combined with a race-neutral error rate, with no racial bias anywhere in the decision process".

The latter scenario can still result in anti-black disparities if the criterion for initial contact varies systematically with race (e.g., if lower income citizens are more likely to drive with broken taillights and black citizens are more likely to have lower incomes). It is also important to gather more data to distinguish cases where the civilian is non-aggressing and complying vs. non-aggressing and resisting arrest through passive resistance or fleeing. An [early analysis of FBI data published by ProPublica](#) suggests racial differences in the likelihood to resist or flee arrest.

Given evidence for racial differences in experiencing non-lethal force (i.e. blacks are 20% more likely to experience non-lethal police force even when complying with officers¹⁶), I also conducted a basic calculation to see if there was evidence for racial differences in deaths that resulted from any use of force or police interaction. The [Guardian 2015-2016 database](#) includes and counts all deaths resulting from any type of police interactions. According to the site the ratio of unarmed white vs. black deaths due to gunshot was 1.44, whereas the ratio of unarmed white vs. black deaths attributed to any police force (i.e. gunshot, taser, death in

custody, etc.) was 1.66. This suggests that non firearm uses of force do not result in disproportionate fatalities at the hands of police. If anything, relatively more unarmed whites (vs. blacks) are killed by police in general and not just by shootings.

What's more dangerous to black people, police or drugs?

Hart asserts that recreational drugs are overwhelmingly positive and that the police are much more dangerous (to black people) than drugs. He states that when black parents ask him his advice about drugs, he advises them “I would much rather my own children interact with drugs than with the police” and that in “police interactions too often the black person ends up dead.” How often is “too often” precisely? Using [available statistics from 2015](#), there were about 10 million interactions between police and black people over the age of 16, while 79 unarmed black people (and 106 white people) were killed by an officer or died while under police custody according to the [2015-2016 Guardian database](#), which logs civilian fatalities including non-firearm deaths. A back-of-the-envelope calculation suggests about $80/10,000,000 = 1/125,000$ chances that a black person will die if they interact with the police. This is less than the odds of being stung *and* killed by a bee ([~1/50,000](#)). Being shot and killed by an officer while unarmed accounts for roughly 0.5 black deaths per million per year (using data averaged across 2015-2019 from the Washington Post shootings database)¹¹. This is less than the chances of being struck by lightning ([2 instances per million per year](#)).

Between the years 2014-2017, drug overdose death rates have increased overall, while spikes in death rates involving synthetic opioids (i.e. fentanyl) have [disproportionately impacted black people](#). In 2017, the drug overdose death rate among the black US population was [20 per 100,000](#), with 9 per 100,000 attributed to synthetic opioids and 13 per 100,000 attributed to all opioids including synthetic, prescription drugs and heroin. A back-of-the-envelope calculation

suggests black people are about 400x more likely to die from a drug overdose than from a police encounter while unarmed (200 vs. 0.5 deaths per million per year).

Hart also suggests reallocating substantial portions of police budgets to other social and health services. Note that a recent [Gallup poll](#) suggests the majority of black Americans (81%) want local police to maintain or increase their local presence. In section 3 below I provide additional reasons why reducing police funding or other measures that decrease (good) policing activity is a bad idea.

3. Misperceptions of police and racially motivated police violence contributes to excess homicides and crimes that disproportionately affect black people and also kill police

More white (vs. black) people are killed by police each year, and [often in scenarios very similar to high profile black deaths](#), yet arguably relatively few people hear about or [can remember the names of unarmed white people](#) killed by police. Killings of black people by white officers tend to draw and engender much more attention, activism, peaceful protests as well as rioting and civil unrest as indicated by [nationwide protests](#) that spread in the wake of George Floyd's death. Several factors may account for this. One factor is the emotional impact that historically contentious, unjust, and power-imbalanced relationships between black Americans and police continue to have. An additional factor may relate to [findings from a Pew poll that found 75% of black adults \(vs. 15% of white adults\)](#) view race as very or somewhat central to their identity and feel somewhat or very connected with the broader black community. Another contributing factor is media and social media bias and misinformation, whereby facts surrounding cases in which black civilians are killed by white (or presumed to be white) police officers are distorted to fit the (more emotion-laden) narrative of white police killing or mistreating black people due to racism. I previously mentioned examples of media bias and

misinformation in the cases of [Trayvon Martin](#), [Michael Brown](#), and [Breonna Taylor](#) (hyperlinks are to articles that describe and debunk falsehoods spread by mass media or through social media about each case). Below I delineate a causal pathway through which exaggerated and distorted perceptions of police, amplified by media bias and misinformation, result in more homicides and felonious crimes (mostly black victims) using Michael Brown as a case study.

Case study: Michael Brown

The police shooting of Michael Brown on August 9th, 2014 (case discussed in Section 1) first [pushed the Black Lives Matter \(BLM\) twitter hashtag into a national movement](#). The case, along with that of Trayvon Martin, is an early example of how facts surrounding a legally justified police shooting were distorted to fit the narrative of a racist white policeman killing an unarmed and nonaggressing black person due to racial bias. On the day of the incident, a photo of Michael Brown's lifeless body was shared and [retweeted almost 5K times](#) with a caption that implied an attempted cover up of the shooting by police. A [federal investigation into the shooting](#) was announced a few days later after local NAACP and other community leaders had asked federal officials to get involved. On September 4th, 2014 the DOJ opened an [additional investigation](#) into the Ferguson Police department (i.e. a "pattern-or-practice" investigation) to examine whether officers routinely engaged in racial profiling or showed a pattern of excessive force. Brown's friend Dorian Johnson, who was with him during the incident, later claimed in interviews with [MSNBC](#) and [NBC](#) that Brown had his hands up in surrender while attempting to plea with the officer before he was shot. The term ["Hands up, don't shoot"](#), sometimes shortened as "hands up", became a [rallying cry](#), twitter hashtag (#HandsUpDontShoot), [slogan and gesture](#) for Black Lives Matter (BLM) protests, implying that Brown had his hands up in surrender and was fully complying with the officer before being shot. In fact, this did not reflect

what actually happened and was given a four pinnochios by the Washington Post fact checker, denoting the claim as an outright lie.²¹ Despite knowing this, many protesters against police brutality defended the slogan as an effective metaphor and [“a way of representing powerlessness in the face of inequality and militarized police”](#). This is an example of how virtue and victimhood signaling tactics are effectively used to elicit greater sympathy, money or support for a cause or movement.²²

According to a recent study by Devi and Fryer, 2020, this sequence of events (i.e. viral photo -> protests and social unrest -> federal “pattern-or-practice’ investigation on the Ferguson Police department -> reduction in policing activity in St. Louis/Ferguson), resulted in ~180 excess homicides and ~6,800 excess felonious crimes (mostly black victims) over a two year period following the shooting²³. The study attributes a total of 900 excess homicides and 34K excess felonious crimes to similar circumstances surrounding investigations into four other events (the officer-involved deaths of Freddie Gray in Baltimore, MD, Laquan McDonald in Chicago, IL, Timothy Thomas in Cincinnati, OH, and Tyisha Miller in Riverside, CA). The authors estimate that investigating police departments after viral incidents of police violence is responsible for approximately 450 excess homicides (and 17K felonious crimes) per year. The authors provide the below explanation for the decreased policing activity:

An often articulated reason for the decrease in the quantity of police-civilian contacts is officers’ fear of national media. In almost every focus group we conducted with police officers, “I don’t want to be the next ‘viral’ sensation,” was a familiar refrain. The quantity of media differs substantially between cities investigated after viral incidents of deadly use of force (who average 45.86 articles in the month the investigation is announced) and cities investigated without viral incidents of deadly use of force (7.47 on average).

Even though the grand jury decided not to indict the officer who shot and killed Michael Brown, he [resigned from the force without severance citing safety and security reasons](#) (he had received death threats and had to move from house to house due to the national media attention).

The Devi and Fryer 2020 study²³ is one of several recent studies to describe evidence for the “Ferguson effect” and quantify its impact on crime rates. According to the [Ferguson effect](#) theory, increased distrust and hostility towards police may cause officers to engage in less [proactive policing](#), leading to an increase in violent crimes and homicides. A 2016 study of crime rates in 81 US cities suggested evidence for this effect in cities with higher proportion of black residents and police per capita and lower socioeconomic status ²⁴. A 2015 National Institute of Justice study of 56 large cities proposed the Ferguson effect as a plausible explanation for an observed ‘unprecedented’ 16.8% increase in homicides ²⁵.

The recent protests and calls to defund police departments that lead to decreases in policing activity are a current variation of the Ferguson effect. In June, 2020 the [NYPD disbanded their 600](#) member plain clothes unit in response to pressure from activists calling to defund the police (one of the members in the unit was involved in Eric Garner’s³ death), and [NYC cut \\$1B from the NYPD budget](#), reducing the force by 1,200 officers. Not too long after this happened two people (Stephanie Perkins, 39, and Chiotেকে Thompson, 23, a mother and son sitting on their porch) were shot and killed in East Brooklyn, New York. [According to interviews with the neighbors](#), who said their area used to be monitored by plain clothes officers every June, the murders ostensibly would not have happened if the plain clothes unit had not been disbanded. In June 2020, [shootings and burglaries more than doubled](#) and homicides

³ The officer involved in Eric Garner’s tragic death was also acquitted of all charges because the video [failed to show evidence beyond a reasonable doubt](#) that the officer applied more force than was objectively necessary to subdue Garner (who resisted arrest) and that he acted willfully in violation of federal criminal civil rights law. Note also that drug use was not a factor in the acquittal since the [autopsy](#) stated he died from “compression of chest and prone positioning during physical restraint by police” with asthma, heart disease and obesity cited as contributing factors.

increased by 30% in NYC, while both [shootings and homicides increased by 75% in Chicago](#), compared to June 2019. In Chicago, the shooting victims included [dozens of children as well as toddlers](#) in the months of June and July.

Misperceptions of police result in revenge killings of police, rioting, looting, and destruction of businesses

In 2014, [two NYPD officers were ambushed](#) while in their patrol car by an individual seeking revenge for the deaths of Eric Garner and Michael Brown. In 2016 a military veteran gunned down as many white officers in Dallas as he could and [killed five officers](#) as payback for the fatal shootings of Philando Castille and Alton Sterling. That same year an individual linked to a black separatism movement [shot six police officers](#) in Baton Rouge, LA in the wake of the Alton Sterling shooting. The anti-police sentiment following the recent protests and unrest has led to a 28% increase in officer deaths including [at least seven officers](#) who have been ambushed and killed so far in 2020. On September 12th, [two deputies](#) were ambushed and shot in the head while sitting in their car in Compton, LA (similar to the [ambush on NYPD in 2014](#)). Interestingly, the pattern in 2020 of viral police fatality videos and ensuing civil unrest and anti-police sentiment sustained by media concomitant with [increased revenge killings of police appears similar to the pattern in 2016](#), suggesting the phenomenon is related to the election cycle. Consistent with this hypothesis, a Northeastern University [survey study](#) found that BLM and protests against police violence played an important role in voter decisions in the 2016 election and suggests it will in 2020 as well.

The above incidents have [decreased the collective morale of police and increased their concerns about their safety](#). Suicide rates among police that have increased in recent years ([in 2019, 228 officers or former officers died by suicide up from previous years](#)). Future research is

warranted to examine how sociopolitical factors, media and political bias, along with risk factors such as PTSD²⁶, contribute towards suicide risk and resilience among law enforcement.

The tragic death of George Floyd on May 25th, 2020 fueled peaceful protests against police brutality and raised national awareness of legitimate concerns about policing and the need for reforms. Unfortunately, it also sparked [rioting, looting and civil unrest](#) on an unprecedented scale throughout the US. A Minneapolis police station was first [taken over by rioters and burned down](#). Arguably this event was the tipping point that caused rioting and looting to spread to other cities. In Seattle, a precinct was abandoned by police and the surrounding few blocks were taken over by protesters which ultimately resulted in [multiple shootings and at least one fatality](#). Within the first ten days of protests, [more than 700](#) police officers in the US (almost half in NYC), were injured from clashes with militant demonstrators. At least several were seriously injured or killed by rioters or looters including: [David Dorn](#), a retired police captain in St. Louis was shot by looters and his death was streamed on Facebook Live; [Shay Mikalonis](#), a police officer, was shot in the head by a rioter while making arrests earlier this month in Las Vegas and was paralyzed from the neck down; [Max Brewer](#), a police officer was seriously injured when a rioter rammed into him with an all-terrain vehicle during the protests in Atlanta.

In NYC alone, at least [450 businesses were damaged or looted](#). The looting was so [extensive that most high end NYC stores along 5th Avenue and Madison Ave had boarded up windows](#), though it is not clear how much of the boarding in this area was pre-emptive. The city also removed about 2,000 trash bins to prevent them from being used to break windows. Many [stores in SoHo](#) were also looted. Over \$400 million worth of damage in 20 US metropolitan areas occurred during just the first week of protests and civil unrest. The looting appears to be [justified by some protest organizers as a form of reparations](#) and is consistent with [claims that](#)

[neo-Marxism](#) may underlie a core ideology motivating the civil unrest. Many black-owned businesses were looted or [destroyed](#), and [often by white protestors](#).

Conclusion

I summarize section 3 with a systems-level, causal network model of the input (i.e. viral video or photo of police brutality or shooting) and outputs (i.e. primary outcomes including excess homicide and crimes as well secondary public and mental health outcomes). The system models relevant factors including putative effects of racial or implicit bias as well as other processes including confirmation, media and political bias that may contribute towards exaggerated misperceptions of widespread, anti-black bias in policing. The model includes a feedback loop to show how the resulting excess homicides and crimes further perpetuate racial differences in crime rates, which may in turn contribute towards implicit racial bias in policing. Future research can use real-world data such as surveys to test specific paths and edges of the model. The model may serve as a way to understand, explain, and solve seemingly intractable problems of racial and health inequities²⁷ in line with the mission of recently established initiatives such as the [Antiracist Research Center at Boston University](#) to further research and inform evidence-based policy innovation and data-driven educational and advocacy campaigns.

Conclusion

I conclude with a brief response to Harts four suggestions towards the end of his commentary entitled “Practical Steps: Inaction is betrayal”. I largely agree with Hart’s first two points. I also agree and support his third point, that “institutions should use their resources and platforms to implement and champion meaningful changes in the service of dismantling structures that sustain racism”. However, we need an accurate understanding of what

constitutes ‘structures that sustain racism’ before any meaningful and positive changes can occur. In other words, as Carl Jung once noted, the healing will not begin until the diagnosis is correct. According to some contemporary definitions of racism (and consistent with Hart’s own definition of the term), perpetuating misperceptions and false narratives about extrajudicial killings of black people by police constitutes racial discrimination and racial injustice, since they may contribute towards excess homicides and crimes that disproportionately impact black people, exacerbating the cycles of violence in socioeconomic disadvantaged minority communities (see Section 3).

Hart also suggests that Dorothy Robert’s *Fatal Invention* and Harriet Washington’s *Medical Apartheid* be required reading for journal personnel. I have not read the books and so a discussion of their relevance to current journal editorial practices is outside the scope of this piece. However, given there is little to no evidence (to date) that claims about harmful drug effects contribute towards or help legitimize anti-black police violence, it is unclear how the books will help “journal personnel in their critical evaluation of submitted papers that affect society’s perceptions of race, science, and medicine.” I highly suggest that journal personnel are made aware of how the [increasing shift towards leftism and/or liberalism in academia](#) might bias the findings and interpretations of article submissions. For example, a recent Nature article entitled “[What the data say about police brutality and racial bias — and which reforms might work](#)”²⁸ offered only a cursory and seemingly cherry-picked review of the relevant literature (contrary to its title) that misleads the reader to conclude that there exists systemic racial bias in police deadly force, when in fact many studies using large datasets (that were not mentioned in the article) have concluded otherwise (see Section 2). Concerningly, articles such as these, while well-intentioned, help spread distorted perceptions of policing that may then contribute

towards the harmful consequences described in Section 3⁴. The [Heterodox Academy](#) has documented the increasing trend and dangers of imbalanced ideological bias in teaching and research, and it provides many useful resources and materials for promoting open inquiry, viewpoint diversity, and constructive disagreement.

I agree with much of Hart's fourth and final points in that claims from neuroimaging findings should not be overstated or exaggerated when they are not supported by the data. And I also think there should be more research that does not overemphasize negative drug effects, but rather seeks to inform weighing the costs vs. benefits of recreational drug use for each class of drug. More statistical epidemiology studies may be needed to shed light on the probability and criteria for developing a "drug use disorder", and its impact on quality of life, daily activities and mortality rates. However, police budgets should not be decreased or reallocated if it results in decreased policing activity, since that likely results in increased violent crimes (see Section 3). Sociology and crime prevention research supports the idea that [alternative, community-based approaches may reduce violent crime rates](#) without relying on police. However, such approaches would need time (up to ten years), substantial funding and to work alongside police departments first before they can be effectively implemented.

In summary, I agree with Hart that more scientists should speak out and engage in honest, productive and evidence-based dialogue in order to help arrive at the best ideas on how to address and ameliorate pressing social issues of our time. As Martin Luther King once said, "There comes a time when one must take a position that is neither safe nor politic nor popular, but he must take it because his conscience tells him it is right."

⁴ I reached out to the author of the article and the Nature editorial office two times by email expressing these concerns but I did not receive a reply. On the same email, I CC'ed the corresponding author of the Edwards et al. 2019 PNAS study¹³ which is cited by the Nature article as evidence of systemic racism in policing. The Edwards et al. article reported black (vs. white) men were 2.5x more likely to be killed by police as evidence to support the idea that "Policing plays a key role in maintaining structural inequalities between people of color and white people in the United States". However, the article neither discusses nor accounts for disproportionate crime rates or police exposure in their analysis (see Section 2).

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Figure. Systems-level ‘psychosocial’ causal network model of a viral police shooting video

or photo. The bold arrows outline the main causal pathway by which a viral video (i.e. ‘input’ stimulus to the network depicted by the lightning bolt) generates the perception of widespread racially motivated police violence, leading to activism that spurs “pattern-or-practice” investigation on police departments or other measures that result in decreased policing activity, which in turn results in ~450 excess homicides and 17K crimes/year (mostly black victims, based on Devi and Fryer, 2020).²³ This increased crime further perpetuates disproportionate crime rates and the cycle of violence leading to further socioeconomic and structural disadvantages affecting at-risk majority black and hispanic communities (see FEEDBACK arrow).¹⁵ These disproportionate crime rates may potentially contribute towards implicit racial bias affecting police decision making in the rare instances of failed threat perception during deadly force decisions ^{10,19}. In this model, two factors can moderate the extent to which a viral video leads to the perception of widespread racially motivated police violence: confirmation bias (i.e. a 2015 study found 86% of black people thought

the criminal justice system favored whites over blacks²⁹) and actual experiences of (perceived) excessive non-lethal force¹⁶. In turn, media bias contributes towards confirmation bias through excess reporting of white officer involved deaths of black civilians, distorts public perception of police, and sensationalizes police racism³⁰. Psychological processes such as virtue and victim signaling²², political partisanship and social identity³¹ and social conformity³² may also contribute towards media bias and activism. In contrast, “pattern-or-practice” investigations that are not preceded by a viral video and the above processes typically lead to reductions in crime and generally improve policing and community relationships.²³ Black arrows represent potential causal effects, while white diamonds represent moderating effects. The bold lines represents the primary cause and effect relationships described in the Michael Brown case study above and based on the findings of Devi et al.²³