

EXECUTIVE ORDER ON ADVANCING EFFECTIVE, ACCOUNTABLE POLICING AND CRIMINAL JUSTICE PRACTICES TO ENHANCE PUBLIC TRUST AND PUBLIC SAFETY:

**A Report on a Review of the Community Impacts of Use of Force and Certain Other
Police Activities on Physical, Mental, and Public Health**

U.S. Department of Health and Human Services

May 2023

Table of Contents

Executive Summary	3
Methods	4
Findings	4
Research Limitations and Future Priorities	5
Introduction and Background	6
I. Scope and Organization of This Report	8
Methods	10
I. Environmental Review	10
II. Community Group Input	10
III. Methodological Limitations	11
Literature Review Findings	12
I. Available Data on Incidents Involving Use of Force and Other Relevant Activities	12
II. Physical Injuries and Fatalities	15
III. Who Experiences Use of Force and Certain Other Police Activities	16
Disparities across marginalized populations	17
Geographic disparities	18
IV. Mental Health Impacts	19
V. Physical Health Impacts	21
VI. Impacts on Fear, Trust, and Institutional Engagement	22
VII. Educational Impacts	23
Community Group Findings	24
Community Listening Sessions Participant Recommendations	26
Research Gaps, Limitations, and Priorities	27
I. Methodological and Data Limitations	27
II. Research Gaps and Priorities	28
References	30

EXECUTIVE SUMMARY

As the government agency responsible for the health and well-being of all Americans, the U.S. Department of Health and Human Services (HHS) has made it a priority to understand and address social determinants of health (SDOH) -- the non-medical conditions that influence health outcomes, such as the communities we live in and the forces that shape daily life.¹ These forces may include the structural, socio-economic, and political factors associated with an environment. There are strong and consistent associations between living in poverty, living in less safe neighborhoods, the burdens of a legacy of systemic oppression and racism, and the physical and emotional toll these circumstances have on individuals.² In this regard, the implementation of policing in a community is related to SDOH, because when use of force and certain other police activities that have adverse impacts and fatal outcomes, they can be concentrated in specific communities, particularly Black and Brown communities. To fulfill HHS's responsibility to understand and address social drivers of health and respond to President Biden's Executive Order (EO) 14074 on Advancing Effective, Accountable Policing and Criminal Justice Practices to Enhance Public Trust and Public Safety, HHS conducted a review of the physical, mental, and public health impacts of law enforcement use of force and certain other police activities. Although police actions that maintain public safety may benefit health and SDOH, the purpose of this report is not to evaluate the overall impact of policing, but rather the specific effects of use of force and certain other police activities that may have a similar impact.

On May 25, 2022, President Biden issued EO 14074 on Advancing Effective, Accountable Policing and Criminal Justice Practices to Enhance Public Trust and Public Safety. President Biden's EO takes a critical step in promoting accountability and transparency, while also advancing the principles of dignity and equity in policing and the criminal justice system.³ Section 11a of the EO directs the Secretary of HHS to "conduct a nationwide study of the community effects of use of force by law enforcement officers (whether lawful or unlawful) on physical, mental, and public health, including any disparate impacts on communities of color, and shall publish a public report including these findings."

This report describes the impact of police use of force and certain other police activities on individual and community physical, mental, and public health. It also describes impacts of use of force and certain other police activities on outcomes that are closely related to health and health care-seeking, such as educational outcomes and trust in health care institutions. The specific areas addressed by this report are:

1. The impact of direct use of force and certain other police activities on individuals who experience it; and
2. The impact of vicarious or indirect use of force and certain other police activities on individuals and communities.

Although there are varying definitions of "use of force," for the purposes of this report we have considered the traditional uses of the term by the law enforcement community and the meaning conveyed in the Executive Order, which refers to physical uses of force that may include, but are not limited to, bodily force, restraint tactics, invasive searches, and the use of conducted energy devices, such as tasers, firearms, or deployment of K9 police dogs. This report considers the health impacts of these tactics regardless of whether they are lawful, reasonable, or necessary.

Additionally, in this report we consider the broader public health understanding of various forms of policing activity and their impacts. Law enforcement officers may use other tactics, in addition to general directives, to compel compliance with their commands, including threats of bodily harm or verbal intimidation; the latter may also include offensive language, slurs, or attacks against a person's racial, ethnic, religious, or sexual orientation or gender identity. Other policing activities can also affect communities, such as disproportionate policing activity, and policing activity that is perceived or found to be biased, unfair, or overly punitive. Both the research literature and the input of impacted communities document that these non-physical activities can have harmful health impacts. They also shape communities' perceptions of risk for,

threats of, or actual deployment of a use of force. Because non-physical conduct interacts with and amplifies the health impacts of use of force, this report includes evidence on all these types of police activities -- collectively referred to as “use of force and certain other police activities” -- and their impacts on community health.

Methods

To address the research questions, HHS and its contractor, RTI International, reviewed the existing literature on the individual and community health impacts of law enforcement use of force and certain other police activities. HHS also convened virtual listening sessions with civil rights groups, faith-based organizations, mayors and attorneys general, and advocacy groups. These stakeholders were asked to describe the direct and vicarious impacts of use of force and certain other police activities. Findings from the literature scan and the listening sessions are summarized in this report. While other related topics about impacts of police use of force and other police activities on the law enforcement community themselves are important considerations, they are not the subject of this report. Further, issues such as officer wellness and suicide prevention are addressed in reports required by other sections of the EO.

Findings

The key report findings include:

- Black individuals are the subjects of more use of force and experience certain other police activities more than other racial/ethnic groups,⁴⁻⁷ and Black men are at highest risk for experiencing fatal use of force.⁸ However, proportionally, American Indian/Alaska Native males (AI/AN) are more likely to experience deaths than are all other racial groups.⁹ For all racial and ethnic groups, the risk of being killed is concentrated among young people 20–35 years old.⁸
- Studies find that historically marginalized groups, including individuals with mental illness or with intellectual/developmental disabilities (I/DD), LGBTQI+ communities, undocumented immigrants, individuals who inject drugs, individuals in the commercial sex industry or who are unhoused, are at high risk of exposure to direct and vicarious police use of force and certain other police activities.¹⁰⁻¹³ Further, the intersectionality of race with these other characteristics may lead to higher risk of exposure.
- Research has found some communities are at higher risk for lethal police use of force, including neighborhoods with lower incomes, higher poverty rates, and disproportionate racial/ethnic minority populations.^{5;6}
- Numerous studies have found associations between the direct and vicarious police use of force and certain other police activities and negative mental health symptoms, including symptoms of post-traumatic stress disorder (PTSD), depression, anxiety, hypervigilance, suicidal ideation, and suicide attempts,¹⁴⁻²⁰ with some research demonstrating that there may be an association between use of force, escalation, and some police activities with poor mental health.¹⁴⁻¹⁷ However, the absence of contextual measures of community violence exposure may confound associations.
- Exposure to information through social media, word of mouth, the internet, and television on the lethal use of force against Black individuals is associated with poor mental health among Black Americans.²¹⁻²⁶
- Research indicates that direct and vicarious exposure to law enforcement use of force and certain other police activities is associated with poor physical health, including diabetes, high blood pressure, obesity, and preterm birth rates controlling for neighborhood socioeconomic characteristics,²⁷⁻³⁰ it also is associated with mistrust in medical institutions.³¹
- Among youth, both direct and vicarious exposure to use of force and certain other police activities is associated with reduced test scores and lower grade point averages.³²⁻³⁴ Further, stakeholders who participated in HHS listening sessions reported concerns about the impacts of use of force and certain

other police activities on youth who live in overpoliced communities and come from communities with high Adverse Childhood Experiences (ACEs).

- Community members/representatives and advocacy groups reported that direct and indirect use of force and certain other police activities has fostered fear and distrust of law enforcement officers. This is consistent with qualitative and quantitative research that suggests that Black individuals exposed to negative police interactions experience chronic stress, fear, and distrust of police.³⁵⁻³⁹ These groups also reported that this fear makes individuals less likely to ask for police help or to cooperate with investigations.

Research Limitations and Future Priorities

There are several limitations to the research and data available on law enforcement use of force and certain other police activities. There are no national requirements for reporting use of force incidents, and each jurisdiction has its own reporting rules and practices. As such, it is difficult to determine the scale of these incidents. Data on law enforcement encounters often lacks contextual information about the interactions preceding a use of force incident and the environment in which it occurred. There are some publicly available crowd-sourced databases of fatal incidents, but information on other types of use of force, including non-fatal events, threatened use of force, and indirect exposure, is limited to jurisdiction-specific or cross-sectional data. Additionally, because there are no standardized definitions for use of force and exposure to use of force, researchers have developed their own definitions to meet specific study goals.

Importantly, the research examining the impact use of force and certain other police activities on various community-level health outcomes is mostly cross-sectional, and often does not include other correlates of poor community health, such as poverty and exposure to violent crime. Although limitations from cross-sectional analyses make it difficult to disentangle causal impacts, the quantity of research documenting negative health associations with use of force and certain other police activities, including the outcomes highlighted above, is difficult to ignore.

Key priorities for future research should include:

- Leveraging more robust research designs, including longitudinal research, to better understand the short- and long-term impacts of use of force and certain other police activities on physical health, mental health, and community-level outcomes and to isolate the effects of use of force and certain other police activities from other factors.
- Including more nuanced measures of use of force and certain other police activities to improve our understanding of the different types of exposures.
- Collecting more information on the community characteristics, situational context, and characteristics of the individuals impacted by use of force and certain other police activities to better understand the policing practices that lead to specific outcomes.
- Expanding research on the impacts of use of force and certain other police activities on marginalized communities including persons of color, transgender and other sexual and gender minority populations, individuals with disabilities, unhoused individuals, and individuals with mental illness and the intersectional nature of these impacts.
- Including persons with lived experience in research study design and interpretation of findings to ensure the full extent of impacts are represented.

INTRODUCTION AND BACKGROUND

As the government agency responsible for the health and well-being of all Americans, the U.S. Department of Health and Human Services (HHS) has made it a priority to understand and address social determinants of health (SDOH) -- the non-medical conditions that influence health outcomes, such as the communities we live in and the forces that shape daily life.¹ These forces may include the structural, socio-economic, and political factors associated with an environment. There are strong and consistent associations between living in poverty, living in less safe neighborhoods, the burdens of a legacy of systemic oppression and racism, and the physical and emotional toll it takes on individuals.² In this regard, the implementation of policing in a community is related to SDOH, because use of force and certain other police activities that have adverse impacts and fatal outcomes can be concentrated in specific communities, particularly Black and Brown communities.

The relationship between policing practices and SDOH is also shaped by the historical context and legacy of law enforcement and criminal justice institutions in the US, and in particular their historical role within communities of color. President Biden's Executive Order 14074 (EO) on Advancing Effective, Accountable Policing and Criminal Justice Practices to Enhance Public Trust and Public Safety acknowledges the legacy of systematic racism in our criminal legal system and its impact on Black and Brown communities, which also provides context for considering the impact of particular police actions.

Many communities and law enforcement agencies have taken action to modernize policing with equitable, just, and proportionate responses to community safety and wellness concerns, as well as routine police-community encounters. For example, an increasing number of agencies have implemented practices that reduce or eliminate law enforcement involvement in non-violent mental health crises and public welfare needs. However, broader efforts are required to fully assess the opportunity to make our criminal legal system more effective and equitable, including understanding how use of force and certain other police activities impact communities.

President Biden's EO, issued on May 25, 2022, aims to advance effective and accountable policing and criminal justice practices that are aimed at building public trust and enhancing public safety. It is a critical step in promoting accountability and transparency, and advancing the principles of dignity and equity for the policing and the criminal legal system.³ Section 11a of the EO directs the Secretary of HHS to "conduct a nationwide study of the community effects of use of force by law enforcement officers (whether lawful or unlawful) on physical, mental, and public health, including any disparate impacts on communities of color, and shall publish a public report including these findings."

To address this important question, fulfill HHS's responsibility to the American public, and respond to President Biden's EO, HHS conducted a review of the physical, mental, and public health impacts of law enforcement use of force and certain other police activities. For the purposes of this report, "use of force" is defined as physical uses of force that may include, but are not limited to, bodily force, restraint tactics, invasive searches, and the use of conducted energy devices, such as tasers, firearms, or deployment of K9 police dogs, regardless of whether those tactics are lawful, reasonable, or necessary.

The report also explores the health impacts of certain other police conduct, including verbal tactics used to compel compliance with officers' commands, which may include threats of bodily harm, aggressive commands, or verbal intimidation; as the latter may include offensive language, slurs, or attacks against a person's racial, ethnic, religious, or sexual identity. It additionally explores the impacts of disproportionate policing activity, and policing activity that is perceived or found to be biased, unfair, or overly punitive. Survivors and impacted communities have noted that the impacts of use of force extend beyond the lethal incident, and that experiences of witnessing or having policing aggression directed to community members or loved ones can be harmful, even when no physical harm occurs. They have also noted that verbal and other non-physical tactics often interact with use of force incidents and influence the likelihood that they will occur -- for example, the policing practices implemented during the war on drugs (e.g., stop and frisk and hot spot

policing) have broadened use of force impacts on Black and Brown communities.^{44, 45} This report seeks to give meaning to their input by examining the health impacts of these non-physical tactics in addition to physical tactics, collectively referred to as “use of force and certain other police activities,” rather than a more circumscribed definition related to documented or recorded incidents of serious bodily harm.

EO Section 11b requires HHS to use the information from this report to collaborate with the U.S. Department of Justice and Office of Management and Budget to identify HHS resources widely available to address these health and well-being impacts in a summary report to the President.

I. Scope and Organization of This Report

This report focuses on the impact of law enforcement use of force and certain other police activities on individuals and communities. Use of force, together with certain other police activities that are perceived as disproportionate or excessive, results in poor physical health, and mental health, and leads to other negative individual and community-level outcomes. Understanding that the potential impacts of use of force and certain other police activities can be widespread and generational, our approach examined both the *direct* impact on affected individuals and the *indirect or vicarious* impacts on individuals and the community. Through HHS-facilitated listening sessions, survivors and impacted communities have requested that this report be inclusive of the full range of impacts. They have noted, for example, that even when no physical force or harm occurs, an individual’s experience of an officer threatening to draw a weapon, using aggressive or derogatory language, witnessing physical intimidation, or even hearing about a friend or loved one having these experiences, can have an effect.

For the purposes of this report, “use of force” is defined as any physical use of force, regardless of whether lawful, reasonable, or necessary. Uses of force may include, but are not limited to, bodily force, restraint tactics, invasive searches, and the use of conducted energy devices (CEDs), such as tasers, or firearms, or deployment of K9 police dogs. We also explore the health impacts of verbal tactics used to compel compliance with officers’ commands, which may include threats of bodily harm, aggressive commands, or verbal intimidation; the latter may include offensive language, slurs, or attacks against a person’s racial, ethnic, religious, or sexual identity. Additionally, the report explores the impacts of disproportionate policing activity, and policing activity that is perceived or found to be biased, unfair, or overly punitive, recognizing that these practices can influence the likelihood and context in which use of force incidents occur. Collectively, we refer to these physical and non-physical tactics as “use of force and certain other police activities.” Importantly, we note that the scope of policing practices used to examine health impacts for this report is inclusive of, and more expansive than, the traditional definition of use of force as it is understood by law enforcement, including in the Federal Bureau of Investigation’s (FBI) Use of Force voluntary data collection which focuses on physical force that results in death, serious bodily injury, or discharge of a firearm. Our scope is in line with the feedback from impacted communities and the body of research that relates to health impacts, which both identify the toll of disproportionate policing and perceived aggressive policing activity beyond physical force, as further described in this report.

The specific research issues addressed by this report are the impacts of:

- Direct use of force and certain other police activities on individuals who experience them; and
- Vicarious or indirect use of force and certain other police activities on individuals and communities.

The report examines impacts on physical health and mental health, as well as on outcomes that are closely related to health and health care-seeking, such as educational outcomes and trust in health care institutions. To address these research questions, we reviewed the existing research literature on the impacts

“**Direct Impact**” is defined in this report as impact on individuals who are the direct subject of force deployed or threatened from firearms, conducted energy devices (CEDs), police dog deployment, physical force, or verbal commands. It includes individuals who may be targeted, singled out, or racially profiled (e.g., through stop and frisk practices, pre-textual stops), by law enforcement for no or minor, non-emergency infractions (e.g., jaywalking, not using a turn signal, noise complaints, etc.).

“**Indirect/Vicarious Impact**” is defined in this report as the impact on individuals who witness use of force incidents or are exposed to videos or other information about use of force incidents. It includes impacts on individuals who have someone close to them (e.g., family member, friend, or neighbor) that experiences use of force and certain other police activities, as well as individuals living in communities where there is routinely a large police presence (over-policing) and witnessing aggressive responses by law enforcement to no or minor, non-emergency infractions.

of use of force and other police activities. Although strategies to prevent use of force may reduce the health impacts of such incidents, prevention measures or policy recommendations are beyond the scope of this report. Individual-level data on the mental, physical, or social impacts of use of force and certain other police activities from individuals with lived experience were also outside of the scope of this report. However, we gathered unstructured input from key community stakeholders and advocacy groups to understand the impacts of use of force and certain other police activities from those with direct experiences or who work with individuals and communities with lived experience. Use of force and certain other police activities also impact law enforcement officers themselves. Given that the EO directed this study to address the community effects of use of force -- and given that other provisions of the EO address steps to promote officer wellness and prevent death by suicide of officers -- those issues are beyond the scope of this report.

We describe the specific framework for our literature search and our processes for obtaining stakeholder input are described in the Methods section. We then present our findings from the research literature related to the direct and indirect impacts of use of force and certain other police activities, as well as findings from the stakeholder feedback provided during the HHS listening sessions. We outline the research gaps and recommendations for further study to develop a more comprehensive understanding of this complex issue. Finally, we conclude with recommended next steps based on the report findings.

METHODS

I. Environmental Review

HHS contracted with RTI International to conduct a review of the environmental research literature on the impact of use of force and certain other police activities. RTI Libraries and Information Sciences searched peer-reviewed and grey literature using relevant databases and specific search terms related to law enforcement* use of force and certain other police activities and associated health impacts. The search was limited to studies conducted in the United States and written in English, with no limits on the year of publication.

Once duplicate references were identified and removed from further review, the remaining abstracts were coded to assess relevance to the research questions. All abstracts that included language on the impact of police use of force or any potentially related police behavior, such as perceived police abuse or over-policing, were selected for full review. Additionally, any articles that provided context or discussion on research limitations and future directions were included. In total, nearly 100 articles were deemed to be relevant for further review. We conducted full reviews of each of these articles, and subsequently delineated them into categories based on the primary research methodology -- empirical research or systematic research review. A small number of additional articles were then identified from reference sections. The empirical articles were coded for content relating to the level of analysis, specific predictors and outcomes, findings, sample size and study setting.

The research team also conducted a targeted web search for relevant organizations (local, national, and community-based) that published research resources pertaining to the impact of police use of force and certain other police activities in communities. Through this process, approximately 20 web pages, reports, white papers, or policy guidance documents were retrieved and reviewed to provide additional information on community concerns, needs, and effects related to police use of force and certain other police activities. Finally, HHS staff from CDC, NIH, SAMHSA, Office for Civil Rights, and ASPE provided additional research sources relevant to the research questions.

Synthesized findings from this literature search and HHS resources are described in this report.

II. Community Group Input

The HHS Office of Intergovernmental and External Affairs convened five virtual listening sessions to collect input from community groups, stakeholder groups and advocacy organizations on their perspectives of the impacts of use of force and certain other police activities. Each session was organized to elicit feedback from one of five defined perspectives: civil rights groups, faith-based organizations, mayors and attorneys general, advocacy groups, and attorneys providing legal representation to individuals and families affected by use of force and certain other police activities. The organizations invited to the listening sessions were identified by HHS staff. A total of 18 organizations participated in the sessions.

Each one-hour listening session used the same format. The listening sessions were held via Zoom and facilitated by an HHS representative. At the beginning of each session, the facilitator provided an overview of the EO, the Section 11a directive to HHS to develop this report, and the scope and goals of the report.

* The terms "police" and "law enforcement" are used interchangeably throughout this report.

Participants were asked to provide their remarks on the direct and vicarious impacts of use of force and certain other police activities, and the facilitator probed for additional insights as time allowed. Participants were also invited to submit additional remarks, reports, or other relevant information to HHS after the call. The key findings from the listening sessions are integrated into the environmental scan findings.

III. Methodological Limitations

One of the main limitations of this report is the focused keyword search for the environmental scan. The keywords for the literature search drew on studies that focused on empirical research on use of force and certain other police activities and the health impacts of law enforcement activities (e.g., disproportionate policing presence), and these narrow search terms may have excluded some relevant research studies. This review focused exclusively on physical health, mental health, and public health outcomes associated with law enforcement use of force and certain other police activities and was not designed to uncover studies outside of this scope (e.g., economic impacts). This limitation was partially addressed by augmenting the literature scan with further references and sources from HHS staff and the perspectives of stakeholders through the listening sessions. Inputs from HHS staff reflect their professional public health and well-being expertise and experiences, and do not reflect a systematic approach to address any potential gaps in the environmental scan search processes. Similarly, community partner input was elicited to address limitations in the search procedures but was limited to the perspectives of the organizations represented at those sessions. Finally, this initial study was not designed to include individual-level data on the mental, physical, or social impacts of use of force and certain other police activities from individuals with lived experience.

LITERATURE REVIEW FINDINGS

The findings for this report are organized by the impacts of the use of force and certain other police activities. We begin with a discussion of the estimates of law enforcement use of force incidents and available information on the characteristics and context surrounding those incidents. This is followed with a discussion of research on the individuals who experience the use of force and certain other police activities and populations at higher risk. We then discuss the direct and vicarious impacts of use of force and certain other police activities on mental health, physical health, and educational outcomes.

I. Available Data on Incidents Involving Use of Force and Other Relevant Activities

The US government has never published comprehensive national statistics on police use of force and certain other police activities because robust, uniform data do not exist. However, several agencies within the Department of Justice have engaged in various efforts to develop an understanding of law enforcement use of force. The Bureau of Justice Statistics (BJS) collects nationally representative information on public contact with law enforcement through its National Crime Victimization Survey, including experience with deployed or threatened use of force. BJS has also collected information periodically about use of force through its Survey of Inmates in Local Jails, Arrest-Related Deaths program, and Law Enforcement and Management Administrative Statistics collections. The FBI's National Use of Force Data Collection⁵⁷ program began development in 2015 and was opened for data collection on January 1, 2019. This collection provides a platform for law enforcement agencies (federal, state, local, and tribal) to voluntarily contribute data on use of force incidents involving their respective agencies. Data entered by agencies encompass "any action that resulted in the death or serious bodily injury of a person, or the discharge of a firearm at or in the direction of a person" according to an FBI press release.⁵⁸ In 2022, 8,482 out of 18,514 federal, state, local, and tribal law enforcement agencies throughout the nation participated and provided use of force data. The officers employed by these agencies represent 66% of federal, state, local, and tribal sworn officers in the nation.⁵⁷

Other government-sponsored data collections that are national in scope include the National Electronic Injury Surveillance System (NEISS), administered by the U.S. Consumer Product Safety Commission (CPSC), and the National Vital Statistics System (NVSS) and National Violent Death Reporting System (NVDRS), both administered by the Centers for Disease Control and Prevention (CDC). The NEISS is an injury surveillance system that collects data primarily on product-related injuries in the United States, but also collects information on injuries due to legal intervention.[†] The NVSS tracks national mortality related to any cause, while the NVDRS is specific to violent deaths. Contrary to the broad scope of the NEISS and NVSS, the NVDRS is a surveillance system that collects state-level data on violent deaths. As of 2018, the NVDRS collects data from all 50 states, linking information from death certificates, medical examiner reports, law enforcement reports, and toxicology reports to provide more complete information on the circumstances of violent deaths at the national level. Importantly, in addition to homicides and suicides, the NVDRS collects information on legal intervention deaths, or violent deaths occurring through interactions with law enforcement while performing their duties. However, by design this data collection only provides information on use of force incidents that result in the death of an individual.⁵⁹

In the absence of comprehensive national statistics on law enforcement use of force, researchers have relied on a broad range of data sources to estimate the physical injuries and deaths resulting from law

[†] "'Legal intervention' is a classification incorporated into the *International Classification of Diseases, Tenth Revision*, and does not denote the lawfulness or legality of the circumstances surrounding a death caused by law enforcement."⁵⁹

enforcement use of force. Four national-level data sources are websites maintained by journalists or private individuals that compile incidents of police-involved homicides around the United States (Fatal Encounters, The Counted, Fatal Force Project, and Mapping Police Violence) where information on use of force incidents is crowd-sourced from publicly available information. Further, these sources vary in their scope, with some websites collecting data on officer-involved shootings only (e.g., Washington Post’s Fatal Force Project), while others consider any manner of death occurring in an interaction with law enforcement (i.e., Fatal Encounters). Notably, research has found that CDC’s NVDRS may capture as many as 97% of the law enforcement-related deaths identified by these open-source data sets,⁶⁰ as of 2018, NVDRS captures data from all 50 states, DC, and Puerto Rico.

Other data sources used to examine use of force injuries include hospital administrative data or police administrative data. In the case of hospital administrative data, some studies have examined medical records for individuals who were taken to a hospital after a police use of force encounter.⁶¹ Other studies have leveraged emergency department (ED) visits, such as those available through the Statewide Emergency Department Database developed for the Healthcare Cost and Utilization Project, which captures emergency visits not resulting in a hospitalization.^{23; 62} Another source of ED data is the National Firearm Injury Surveillance Study conducted by the CDC and the CPSC; this subset of the NEISS has been used to estimate the prevalence of firearm-related injuries resulting from law enforcement interactions.⁶³

Data from law enforcement use of force reports has been used to examine use of force impacts in select jurisdictions. Due to variations in use of force policies, and systems used to collect use of force data, reporting varies by agency. Some researchers have used data from the Police Force Analysis Network (PFAN), a database that pools information from police departments using the Police Force Analysis System (PFAS), a proprietary system purchased by law enforcement agencies. PFAS is a relational database that tracks events where an officer uses a weapon or any kind of physical force.⁶⁴ Researchers have also used administrative datasets that track vehicle and pedestrian investigations to study police-civilian encounters, which tracks the location and type of stop (i.e., vehicle or pedestrian), the demographics of the person stopped, and the police actions that were involved (e.g., pat down).^{28; 65}

Finally, studies have collected information from community members on their interactions with and exposure to law enforcement through community-based in-person, telephone, and web-based surveys. These include the Survey of Police-Public Encounters (SP-PE),⁶⁶ the Survey of Health of Urban Residents (SHUR),¹⁸⁻²⁰ and the Fragile Families and Child Wellbeing Study.⁶⁷ Some of the items in these surveys include exposure to proactive policing activities[‡]; exposure to physical, sexual, and verbal violence from law enforcement; witnessing negative law enforcement encounters; and other types of encounters. Exhibit 1 presents the data sources and types of measures commonly relied upon in quantitative studies that examine the prevalence and characteristics of use of force and certain other police activities, or outcomes we identified.

[‡] Proactive policing approaches include “place-based” strategies that concentrate police presence in targeted specific geographic areas and “person-based” strategies that focus on police interactions with specific individuals in a community.

Exhibit 1. Use of force data sources used in quantitative empirical studies

Data Name (Owner)	Coverage	Measure(s)
Fatal Force Project (<i>Washington Post</i>)	National	Deaths
The Counted (<i>Guardian</i>)	National	Deaths
Fatal Encounters (Journalist run open-source database)	National	Deaths
Mapping Police Violence (Combines data from Google news, Fatal Encounters, and Washington Post)	National	Deaths
National Electronic Injury Surveillance System (CDC)	National	Injuries
National Vital Statistics System (CDC)	National	Deaths
National Violent Death Reporting System (CDC)	National	Deaths
Firearm Injury Surveillance Study (CPSC and CDC)	National	Nonfatal firearm injury involving law enforcement
Police-Public Contact Survey (BJS)	National	Police-initiated contact, traffic stop, street stop, arrest
Survey of Police-Public Encounters ¹⁵	Four U.S. cities	Lifetime history of exposure to positive policing and police violence victimization
Law enforcement administrative records	Select jurisdictions	Type and characteristics of use of force incident
Hospital administrative records	Select jurisdictions	Legal intervention injuries ¹
Police Force Analysis System (Police Strategies LLC)	Select jurisdictions	Type and characteristics of use of force incident
Survey of the Health of Urban Residents (Lehigh University)	Urban populations	Necessary negative police encounter, unnecessary police encounter, no negative police encounter
Fragile Families and Child Wellbeing Study	Urban populations, 20-large cities	Police encounters/stops (experience, witness), harsh language, racial slurs, use/threaten physical force
Community surveys	Select jurisdictions	Police encounters/stops (experience, witness), verbal threats, frisks, handcuffs, use/threaten physical force

II. Physical Injuries and Fatalities

Most studies analyzing law enforcement use of force injuries focus on the association between the use of force modality and the injury.⁵ Research finds that among incidents where law enforcement use of force was deployed, between 20% and 47.5% of individuals involved in those incidents sustained a physical injury.^{61; 68-71} Eight studies used law enforcement administrative data to examine specific use of force applications or techniques, including verbal threats of force, empty-handed physical force, less-lethal force including conducted energy devices (CEDs), use of police canines, and lethal force (such as shootings) and their relative impacts on injury rates and severity.^{61; 68-74} Findings indicate that empty-handed physical force and verbal threats of force are deployed the most often by law enforcement,^{61; 68-71; 73} often resulting in no injury or less serious injuries. For example, one two-year study of three mid-sized police agencies in Louisiana, Arizona, and North Carolina examined use of force modalities and types of injury received by more than 900 individuals involved in a use of force incident.⁶¹ Medical professionals classified injuries on a scale of mild (e.g., minor contusions, lacerations, abrasions) to severe (e.g., severe head injury, loss of limb, need for lifesaving surgery). The authors found that most individuals involved in use of force incidents did not sustain an injury (61%). The overall prevalence of injury severity was linked to the type of force modalities most used in use of force encounters. For less-than-lethal weapons, such as CEDs and chemical weapons (together making up 42% of the total uses of force), 86% resulted in no injury, while the remainder resulted in a mild injury. Research finds that firearm usage, as well as K-9 [police dog] deployment, are both associated with higher rates of, and more severe, civilian injuries,^{68; 72; 74} though they are deployed less frequently than other types of force. For example, Bozeman and colleagues⁶¹ found that use of firearms occurred in 0.4% of uses of force examined in their study (6 out of 1,399 uses of force). However, on a national scale, the scope of nonfatal firearm usage by law enforcement in use of force incidents is currently unknown. Research using ED data finds that between 1993 and 2015, fewer than 2% of the firearm injuries were associated with law enforcement, though hospital data may not accurately reflect the true scope of law enforcement-related firearm injuries.⁶³

Research suggests that between 20% to 47.5% of individuals sustain an injury during police encounters where use of force was deployed.

Differences in law enforcement agencies' policies on recording use of force leads to variations in findings related to the injuries resulting from different use of force modalities. For example, less-lethal weapon deployment, such as CED use, and its association with injuries appears to depend in part on the jurisdiction under study. Smith et al. (2007)⁷⁴ analyzed more than 1,600 use of force incidents in two law enforcement agencies. The authors found that that CED usage was associated with lower odds of civilian injury in one agency, and higher odds in the other. The authors suggest that this may be related to practices within the department, such as the latter agency's history of less-lethal weapon use. In addition to variations in use of force techniques, other incident characteristics, such as the length of time over which the incident occurs, are associated with injury rates.^{64; 69; 70; 72}

While fatal outcomes from law enforcement are relatively rare compared with other physical injuries, it is the most severe and traumatic outcome that can result.^{68; 70; 75} Researchers studying the fatal use of force have principally leveraged crowd-sourced data on police-involved killings. Researchers in the Global Burden of Disease Collaborative Network (GBD) have estimated that roughly 30,800 deaths from police violence occurred over the 40-year period from 1980-2019, which represents 17,000 more deaths than reported by the NVSS

⁵ Though many of the studies included here also discuss law enforcement injuries during use of force encounters, these results are not discussed here given the focus of this report.

during the same period. Available research indicates that law enforcement-involved deaths are increasing. GBD found that these deaths increased by 38% from the 1980s to the 2010s.⁷⁶ Data from the NVDRS indicates that 757 individuals experienced a legal intervention death ** in 2018.⁹ According to the Mapping Police Violence databases, there were 1,200 use of force fatalities in 2022.^{77,††}

III. Who Experiences Use of Force and Certain Other Police Activities

Use of force and certain other police activities by law enforcement are not experienced uniformly. Certain demographic populations, particularly young Black males, are at higher risk of experiencing use of force and certain other police activities. Data from the Police-Public Contact Survey (PPCS), a nationally representative survey, demonstrate that even when police contact in general is experienced similarly across racial groups, the share of contacts resulting in uses of force can differ.⁶⁶ For instance, data from the 2018 PPCS show that while there was no significant difference between White and Black individuals in the percentage of people experiencing police-initiated contact,^{**} in the past 12 months, Black individuals (4%) more often reported experiencing threats or use of force during these contacts compared to White individuals (2%).⁶⁶ Further, although nearly a quarter of all respondents 16 and older experienced some contact with police during this period (i.e., police-initiated or civilian-initiated), these contacts were most frequent with young adults aged 18-24. This age group was also more likely than older age groups (45 and older) to experience force during an encounter.

Numerous studies have documented the disproportionate impact of direct and indirect exposure to police use of force and certain other police activities on Black individuals and communities.

Research using other data sources suggest that Black and Hispanic individuals are more likely to be exposed to police encounters generally, such as stop and frisks.⁴⁻⁷ For example, Levchak et al.'s, (2021)⁷ analysis of New York Police department's Stop Question and Frisk database found being Black or Hispanic is associated with higher rates of being frisked and of non-weapon use of force. Further, Salas-Hernández, 2022¹⁷ found that Black participants of the Survey of Police-Public Encounters (SPPE), a survey of 1,615 adults residing in Baltimore, New York, Philadelphia, and Washington DC, were more likely to experience multiple forms of violence or polyvictimization by law enforcement. The authors conducted person-centered analysis to explore the sociodemographic characteristics associated with high police contacts and found that Black participants were more likely to be grouped into 'extreme police violence' and 'high police violence' categories than White participants.

Beyond general contact and use of force in contacts with law enforcement, there is evidence that lethal force is also not experienced uniformly across racial and ethnic groups. Four studies demonstrated that the risk of being killed by law enforcement varies by individuals' demographic characteristics.^{5; 8; 76, 64} Edwards et al. (2019)⁸ used data compiled by Fatal Encounters (2013–2018) to estimate the lifetime risk of being killed by police by race and sex. The authors found that among all race and ethnicity groups examined, Black men had the highest risk of being killed by police during their lifetime, with an estimated 1 in 1,000 Black men being

** Legal interventions deaths are defined as deaths caused by law enforcement acting in the line of duty and other persons with legal authority to use deadly force, excluding legal executions. It does not denote lawfulness or legality of circumstances.

†† Police Killing: A case where a person dies as a result of being shot, beaten, restrained, intentionally hit by a police vehicle, pepper sprayed, tasered, or otherwise harmed by police officers, whether on-duty or off-duty.

** Police-initiated contact refers to such contacts as "being stopped by police while in a public place or a parked vehicle (i.e., a street stop), being stopped by police while driving a motor vehicle (i.e., a traffic stop), riding as a passenger in a car that was stopped by police, being arrested, or being stopped or approached by police for some other reason" (Harrell and Davis, 2020, p. 1).⁶⁶

killed by police. Furthermore, Black women, American Indian or Alaska Native men and women, and Hispanic men have a predicted higher lifetime risk of being killed by police relative to White men or women.⁸ For all race and ethnic groups, the risk of being killed by police is concentrated among relatively young people (20-35 years old).⁸ Feldman et al. (2016)⁷⁸ examined temporal trends of injuries related to legal intervention (i.e., use of force) for individuals treated in EDs between 2001 and 2014. The authors found that for individuals 15-34 years old, the rate of injuries resulting from legal intervention increased annually on average by 1.7 per 100,000 population or by nearly 50% over the entire 14-year study period while non-legal intervention assault-related injuries did not change.⁷⁸

Researchers in the Global Burden of Disease Collaborative Network found racial disparities that mirrored findings from Edwards et al. (2019).⁸ Using data from Fatal Encounters and two other open-source databases, Mapping Police Violence and The Counted⁷⁶ to estimate deaths caused by law enforcement between 1980 and 2019, they found that the age-adjusted mortality rate was highest for Black people during this period at 0.69 per 100,000 population, relative to Hispanic people at the second-highest rate of 0.35 per 100,000 people and non-Hispanic White people at the third-highest rate of 0.20 per 100,000 population.

Data from the 2018 NVDRS found most deaths related to legal interventions were among males, and highest among males 30-34 years old.⁹ Proportionally, American Indian/Alaska Native males (AI/AN) were more likely to experience legal intervention-related deaths than all other racial groups. Among AI/AN males the death rate was 2.6 per 100,000 compared to 1.3 per 100,000 for Black, non-Hispanic males and .05 per 100,000 White males.⁹ Finally, a study examining law enforcement use of force among California civilians found large disparities across multiple sources in the likelihood of risk or injury. Among the findings, Black Californians are three times more likely to be a victim of police violence relative to their share of the population in California.⁷⁹

In addition to racial disparities in the incidence of use of force contacts and the resulting injuries, a retrospective analysis of use of force data in two cities suggests that there are also racial disparities in police referrals to care for injuries reported after a police use of force incident. Specifically, Lewis et al. (2020)¹¹⁷ estimated that around 25% more non-White victims of police use of force should have been referred to a hospital for medical care for their injuries by police after a use of force incident but were not.

Disparities across marginalized populations

Studies of historically marginalized groups, including individuals with mental illness or with intellectual/ development disabilities (I/DD), LGBTQI+ communities, undocumented immigrants, or individuals who inject drugs, who do sex work, or are unhoused, find that these populations are at high risk of exposure to direct and vicarious police use of force and certain other police activities.¹⁰⁻¹³

Laniyou and Goff's (2021)⁸⁰ research suggests that people with serious mental illness are at higher risk of experiencing use of force or an injury in police encounters than individuals without serious mental illness. Using data from the National Comorbidity Survey Replication (NCS-R) to estimate the proportion of the population who had serious mental illness, the authors found that while the estimated prevalence of people with serious mental illness ranged from 1.3 to 3.1% in the study cities, the proportion of use of force cases that involved people with serious mental illness ranged from 8.7 to 26.8%. Similarly, a study using the Police-Public Encounters data for Baltimore and NYC found that individuals with severe mental illness were more likely to have experienced physical police violence and violence with a weapon than those not reporting any mental illness.⁸¹ Rossler and Terrill (2017)⁸² also found that people with mental illness are more likely to experience higher levels of police force relative to those without mental illness, however they are not more likely to be injured in the incident. Despite research documenting the higher risk of experiencing use of force, empirical data is limited on the impacts from use of force.⁸³ For

Research finds that marginalized groups, including individuals with disabilities, individuals who inject drugs, who do sex work, are unhoused, and individuals from LGBTQI+ communities, are at high risk of exposure to direct and vicarious police use of force and certain other police activities.

individuals with I/DD, even data on encounters with law enforcement is even more limited, as databases that may contain information often conflate or confuse terms for individuals who experience mental illness, developmental disabilities, or physical disabilities.⁸⁴

Research finds that many people who are LGBTQI+ have interactions with police that are negative and can include harassment^{85; 86} or unequal treatment because of their sexual orientation and gender identity.⁸⁷ One survey of Black sexual minority men found 43% reported experiencing conduct by law enforcement that they believed was discriminatory in the past year.⁸⁸ Another survey of 116 mostly LGBTQI+ individuals (90.5% were LGBTQI+) showed that 42% of the sample reported ever having been harassed by law enforcement.⁸⁵ According to a 2017 National Coalition of Anti-Violence Programs report on hate and interpersonal violence incidents collected by member organizations, more than half of survivors report that their interactions with police were indifferent or hostile.⁸⁹ Studies using SPPE data have found that individuals who identify as transgender report experiencing and anticipating police violence at a relatively high rate.^{15; 16} However, the sample sizes in these studies necessitates further research to understand the impacts of police violence more fully among this group.

There is also limited research on law enforcement use of force and certain other police activities on immigrant populations and the evidence that does exist is mixed. Research on use of force by police among the undocumented immigrant population is particularly scant. Most of the research on undocumented immigrants focuses on their willingness to contact law enforcement if they are the victims of crimes, rather than their interactions with police.⁹¹ A study by Theodore (2013)⁹² found that the fear of contacting police was not limited to undocumented immigrants; over a quarter of US-born Hispanic individuals were fearful of contacting police because they are worried about their immigration status being investigated. Some studies suggest that immigrants experience similar levels of police contact as US-born individuals.²⁹ Wu et al. (2012)⁹⁰ study of foreign-born Chinese individuals in NYC found higher rates of police contacts than the general population. However, a study using SPPE data found that individuals who were immigrants to the United States were less likely than native-born individuals to be directly or indirectly exposed to high police violence or extreme police violence.¹⁷

Police frequently interact with individuals who participate in criminalized activities, such as drug use or commercial sex. Cooper et al.'s (2004)¹⁰ study of individuals who inject drugs and people who do not inject drugs in New York City's 46th precinct found that individuals who inject drugs report more experiences of physical or sexual violence from police and witnessing this violence more often than individuals who do not inject drugs. Footer et al.'s (2019) study of female sex workers in Baltimore found that 78% reported abusive police encounters,⁹³ and 41% encountered law enforcement with at least weekly contact. Unhoused individuals also have high rates of police contact due to laws that criminalize their survival activities (e.g., camping or sleeping in public space or vehicles). One survey of 570 individuals using drugs in Baltimore found that roughly 7% had experienced physical violence by police in the past year.¹¹ Furthermore, the authors found that experiencing homelessness, having been arrested, having drug paraphernalia confiscated, and syringe sharing were independently associated with experiencing direct police physical violence among their sample.¹¹

Finally, the intersectionality of race with disability, sexual orientation, socioeconomic status, unhoused status, or immigration status may heighten the risk among these populations through additional layers of bias and mistreatment. Intersectionality is a theoretical framework to examine the interconnected nature of systematic oppression.⁹⁴ While there is increasing acknowledgment of the importance of intersectionality for understanding police use of force and certain other police activities, the research examining the specific risks and impacts is scarce.⁹⁵

Geographic disparities

There has also been evidence that the use of force and certain other police activities, including lethal force, varies across geographic locations. For instance, the GBD study found evidence for state-to-state

variation in mortality rates. For non-Hispanic Black people across the four decades examined (1980s to 2010s), their age-standardized mortality rate due to police violence was highest in states in the middle and western regions of the United States (e.g., Oklahoma, Nevada, Arizona).⁷⁶ Drilling down even further, research also indicates that neighborhoods, particularly the most socially and economically disadvantaged neighborhoods, may disproportionately experience police use of force.^{5,96} Zare and colleagues (2022)⁵ found that most homicides by law enforcement occurred in counties rated high on the social vulnerability index (SVI). Study findings indicate that, in high SVI counties, rates of fatal use of force incidents were 2.3, 9.6, and 15 times higher, respectively, among White, Black, and Hispanic individuals than in low SVI counties; and that overall, residents in moderate and high SVI counties were more likely to be fatally shot (by 4.9 and 5.8 percentage points, respectively) compared to those in low SVI counties. Notably, the authors found that though the level of violent crime was a significant predictor of police fatal shootings, the association between SVI and police-related deaths remained significant even when controlling for violent crime rates. At the census tract level, Feldman et al., (2019)⁹⁷ examined police-related death data from the Guardian and census data on residential economic and racial/ethnic polarization. The authors found that census tracts with concentrations of low-income residents and Black and Hispanic residents were associated with the highest rates of police-related deaths. Geographic disparities in the use of force and certain other police activities remain an important area for future research, as the limited research on this topic and inconsistent methodology (e.g., approach to adjustment for crime rates) make it difficult to reach firm conclusions at present.

IV. Mental Health Impacts

Mental health deterioration is one of the most studied areas of the impacts of police use of force and certain other police activities. Studies examining the mental health impacts on individuals subject to use of force and certain other police activities have found associations with psychological distress,¹⁵⁻¹⁷ depression,^{15,19-20,98} anxiety,^{19-20,98} hypervigilance,¹⁹ post-traumatic stress disorder,¹⁰⁹⁻¹¹⁰ suicidal ideation,¹⁶⁻¹⁷ and suicide attempts.^{14, 16-17} Four studies using SPPE data found exposure to police violence has a detrimental effect on urban residents' mental health. The survey collected information from respondents on their lifetime history of exposure to proactive policing and police victimization related to four domains of violence: physical, sexual, psychological, and neglectful violence. Evidence from the four studies found that, controlling for exposures such as individual criminal involvement and exposure to sexual and intimate partner violence, lifetime exposure to police violence was related to poor mental health and depression.¹⁴⁻¹⁷ Two studies used the SHUR, a community-driven survey of 4,289 adults living in urban areas across the US. The authors found reported police violence, including verbal and psychological intimidation, was associated with higher reports of perceived unmet mental health needs in the past year, depressed mood, and generalized anxiety.^{19; 98} However, it should be noted that these two studies did not control for potentially confounding exposure to other forms of violence. Since causality cannot be determined in all of these studies, it should also be noted that the relationship between mental health symptoms and police use of force is likely bi-directional such that experiences of police violence may contribute to mental health challenges but also that use of force may be deployed in communities with mental health vulnerabilities at higher rates compared to other communities.

Additionally, a nationally representative sample of prison inmates⁹⁹ found police use of force was associated with more depressive symptoms. Using data from the 2004 Survey of Inmates in State and Federal Correctional Facilities, Meade et al. (2017)⁹⁹ found that inmates who experienced use of force during their arrest had 10% more manic symptoms and 8% more depressive symptoms than inmates not exposed to force during their arrest, even controlling for mental illness in the year prior to their arrest.

Research finds that exposure to police use of force and certain other police activities, even witnessing these interactions, is associated with a broad range of negative mental health indicators, including symptoms of posttraumatic stress disorder.

Studies examining proactive policing activities in large urban areas have found that contacts with law enforcement have a negative impact on mental health, in particular PTSD symptoms. PTSD is a mental health disorder that may occur in response to certain potentially traumatic situations. It can be triggered by

experiencing or witnessing a traumatic event or series of traumatic events, learning about a traumatic event that happened to someone close to the individual, and/or exposure to repeated details of traumatic events. Experiencing traumatic events often involves feeling threatened and at-risk of serious harm or death. It is exacerbated by situations when individuals feel powerless.^{100; 101} In this way, repeated exposure to police surveillance and stops (either directly or indirectly) can create a potential threat secondary to police use of force and creates a source of ongoing stress and threat to one's life and safety. This stress can be compounded if these stops include aggressive or offensive language or individuals believe they are being targeted because of their race or ethnicity.¹⁰²⁻¹⁰⁶ Geller et al.'s (2017)¹⁰⁴ population-based survey of young men (18-26) in NYC found that individuals reporting police contact was associated with higher levels of anxiety and PTSD symptoms. Consistent with Geller et al.,¹⁰⁴ Hirschtick et al., (2019)¹⁰⁵ examined data from a cross-sectional health survey in Chicago and found high lifetime police stops (greater than 15) was strongly associated with PTSD symptoms. Stansfield's (2022)¹⁰⁷ analysis of a community survey in Philadelphia also found an association between concerns about police use of force and reported stress, and this association was greatest for Black female residents, compared to White and Hispanic residents. Focusing on women specifically, Alang's (2022a)¹⁰⁸ study found that the odds of always worrying about police brutality were greater among Black women and Hispanic women compared to White women. Mehra's (2022)³⁹ study of Black pregnant women found this stress and worry about police extends to their unborn children as well, with many women citing concerns over their children's future interactions with police, particularly if they were having a son.

The association between police contact and mental health problems is also found in research focused on youth. Using data from the Fragile Families and Child Wellbeing Study (FFCWS), Jackson et al. (2019)¹⁰⁹ found youth who reported being stopped by police frequently had elevated levels of emotional distress and PTSD symptoms. Even youth witnessing police stops, though not personally experiencing them, is associated with reported emotional distress, especially among Black and multiracial youth.⁶⁷ The authors indicate that racial/ethnic disparities in emotional distress were largely explained by acts of officer intrusiveness and youth perceptions of procedurally unjust treatment of civilians during witnessed stops.⁶⁷ Another study using data from the FFCWS also found support for an association between negative police interactions and PTSD symptomology among youth.¹¹⁰ Finally, a study of youth aged 14-18, found associations between high levels of personal and vicarious stress and the anticipation of racially motivated police violence,¹¹¹ and this stress was linked to poor mental health among youth. Only the later study included measures of exposure to violence beyond encounters with police, using eight items from a measure of Adverse Childhood Experiences [111].

The vicarious impacts of use of force and certain other police activities beyond those that experience it directly is also documented in the research literature. Bor et al.'s (2018)²¹ population-based study combined data from the Mapping Police Violence database and the CDC's Behavioral Risk Factor Surveillance System (BRFSS) to estimate the impact of exposure to police killings of unarmed Black Americans through social media, word of mouth, radio, and television. The authors found that with each additional police killing of an unarmed Black individual, there was a predicted increase of 0.14 additional poor mental health days for Black respondents. While a replication study by Nix and Lozada (2019)¹¹² has critiqued the authors' coding of some incidents, additional analysis by Bor et al. (2020)¹¹³ found continued support for the relationship between the exposure to police killings and mental health outcomes.¹¹³

Vicarious or indirect use of force experiences can result from witnessing a use of force incident, hearing about a violent or fatal use of force incident or being repeatedly exposed to the details of a use of force incident, which can lead to excessive thoughts and rumination about the incident, especially for individuals who share a social identity with the victim.

Another study aimed to test whether police killings of Black individuals, involved officer indictments/non-indictment, and hate crime murders impacted the mental health of Black Americans.²² Curtis et al. (2021)²² used Google Trends data for searches on psychological distress terms and BRFSS data on poor mental health days to analyze weekly time series data from 2012-2017. The authors found that weeks in which two or more racial violence incidents occurred were associated with more reported poor mental health days for Black respondents. Finally, Das et al. (2021)²³ tested whether and to what extent police killings of unarmed Black

individuals was associated with monthly ED visits for depression among Black individuals. Using the Mapping Police Violence data and data on metropolitan counties, the authors found that police killings were associated with an 11% increase in depression-related emergency department visits per 100,000 population in the concurrent month and 3 months following the event.

Some research has also found an association between police killings and suicide rates among Black Americans. Kyriopoulous et al., (2022)²⁴ used data from nine Census Divisions, as reported in CDC Wonder 2013-2018, and data on police killings from the Mapping Police Violence database. The authors find suicides by Black individuals increased in months with at least one police killing of a Black person in the U.S. Census Division where the killing occurred. Notably, the authors did not find an association between police killings of Black persons and suicides by White persons; police killings of White persons and suicides by Black persons; or police killings of White persons and suicides by White persons.

The role of social media in contributing to the mental health impacts of use of force and certain other police activities has been a focus of recent research, with some studies indicating that the impacts vary by gender. Tynes et al. (2019)²⁵ surveyed a national sample of Black and Hispanic youth between the ages of 11 and 19 and found that adolescents viewing more traumatic events online, including police killings of unarmed civilians, was associated with higher levels of depressive and PTSD symptoms. Notably, girls reported higher levels of poor mental health symptoms than boys. Beauliere's (2022)¹¹⁴ survey of Black individuals found that the more respondents viewed a video of police killing a Black individual, the more secondary trauma symptoms, including PTSD symptoms, they reported. Like Tynes et al. (2019) found,²⁵ these symptoms were also higher for females relative to males. Mullinix et al. (2021)²⁶ used a survey-experiment to examine if individuals' exposure to materials about use of force incidents impacted individuals' levels of trust in law enforcement and mental health. The authors found that learning about the events, regardless of the type of media source, increased anger and anxiety, and reduced trust in police. Alexander et al.'s (2022)¹¹⁵ survey of Black individuals in Oklahoma, found greater emotional stress was associated with viewing media coverage of police use of force incidents.

V. Physical Health Impacts

Although the impacts of vicarious exposure to police use of force and certain other police activities on mental health are perhaps more intuitive and better documented, additional research indicates that these exposures can also be salient in predicting one's physical health and well-being. Four studies examining the indirect effect of police use of force on physical health^{30; 107; 118; 119} found that being indirectly exposed to police use of force and certain other police activities through vicarious experience (i.e., witnessing or hearing of others who are involved in these incidents) is associated with negative physical health outcomes.

Browning et al. (2021)¹¹⁸ measured the physiological stress of police killings in Franklin County, OH, among youth aged 11 to 17 living in the same county. They found that police-involved shootings of Black individuals were associated with higher stress levels in Black youth but not in White or Hispanic youth. Stansfield (2022)¹⁰⁷ measured whether perceptions of excessive use of force by police were related to self-rated health in a sample of community residents in a Philadelphia neighborhood. He found that residents who perceived more excessive use of force by police had higher levels of self-reported stress and lower ratings of overall health. Freedman et al.'s (2022)³⁰ study of excessive force complaints in Chicago census blocks found that the complaints were related to increased incidence of cardiovascular disease in Black women -- but not White women -- living within the highest-complaint (top 10th decile) neighborhoods. This association persisted even controlling for individual-level health characteristics and block group-level characteristics, including homicide exposure. Finally, Fix (2021)¹¹⁹ surveyed a sample of more than 400 college students, finding that negative experiences with police (including whether respondents had witnessed police brutality towards friends and family) and concern over safety because of police killings of Black people were associated with more self-reported physical health problems including gastrointestinal symptoms, headaches, sleep disturbances and respiratory illnesses.

Some studies have found that merely living in neighborhoods with high rates of police contact is associated with some poor health outcomes.^{28; 30; 120} Theall et al.'s (2022)²⁸ analysis of stop and frisk encounters in New Orleans, LA, neighborhoods found that tracts with higher rates of encounters also had higher rates of smoking, residents with poor physical health, and more physical inactivity and diagnosed diabetes. Sewell et al. (2021)¹²⁰ found that holding all measured sources of confounding constant, living in neighborhoods with more police killings is linked to a greater risk of high blood pressure and obesity for all neighborhood residents and to a greater risk of obesity for women. The authors found gender had significant moderating effects and conclude that neighborhood-level police violence is an important neighborhood risk factor for illness, particularly for women's health. Relatedly, Ibragimov et al. (2019)¹²¹ suggest that psychological stress related to law enforcement presence in a neighborhood may lead to high-risk sexual behaviors. The authors examined CDC data and the Guardian's The Counted database and find some preliminary evidence that the number of police killings of Black residents of a given metropolitan statistical area (MSA) is associated with annual rates of sexually transmitted infections such as syphilis and gonorrhea among residents of that MSA. Hardeman et al. (2021)²⁹ conducted a cross-sectional study examining whether individuals living in a Minneapolis neighborhood with high police presence was associated with higher odds of preterm birth. The authors found the odds of preterm birth are 90% and 100% higher for White and Black individuals, respectively, living in a neighborhood with high (within the fourth quartile of rates) police contact.

VI. Impacts on Fear, Trust, and Institutional Engagement

Many qualitative studies exploring direct and indirect law enforcement interactions with Black individuals have found that these experiences heighten distrust of police, as well as fear over police interactions.^{35; 37; 38; 104} Evidence suggests that fear of police violence is racially and ethnically stratified. Using data from a national survey, Graham et al. (2020)³⁶ examined the extent to which Black persons in the United States fear police brutality. Their findings indicate that Blacks' and Hispanics' fear of use of force by law enforcement was more than five times and more than four times, respectively, greater than that of Whites' fear of use of force. Furthermore, a consistent theme across qualitative studies for Black and Brown residents living in neighborhoods with high police presence is the experience of chronic stress and worry resulting from fear of police interactions.

Research finds that Black and Hispanic individuals' worry about experiencing law enforcement use of force was five and four times, respectively, greater than Whites. Studies also indicate negative law enforcement experiences is associated with distrust of health care professionals and unmet need for health care.

Fear and distrust of law enforcement is also associated with distrust of other institutions. Studies have linked law enforcement-related violence to medical mistrust (e.g., of health care providers and systems)^{31; 65; 116} and unmet need for medical care.¹⁸ Using data from the Survey of the Health of Urban Residents (SHUR), Alang et al., (2020)³¹ found that negative or unnecessary law enforcement encounters is associated with increased likelihood of having trust issues with medical professionals and institutions. Additionally, negative law enforcement experiences are associated with greater unmet mental health needs compared to individuals with no negative experiences with police.¹⁸ The authors suggest that this means not only do negative or unnecessary use of force incidents experienced by police violence victims affect mental health outcomes, but that these incidents are also associated with help-seeking such that impacted individuals are less likely to seek treatment when it is needed. Links between law enforcement use of force and certain other police activities, medical mistrust, and unmet need for care are especially concerning given the bonds of trust with entities in the health care sector are already fragile for communities that may most need services due to the fact that they face a disproportionate risk of law enforcement-related violence. In the United States, due to a history of institutional racism, health care system distrust -- which has implications for engagement with health care -- is high for Black persons and especially elevated for Black persons who are descendants of Africans who were enslaved in the United States (Dean and Smith, 2021, Dean, L.T., and Smith, G.S. (2021). Examining the Role of Family History of US Enslavement in Health Care System Distrust Today, *Ethnicity & Disease*, Volume 31, Number 3, Summer 2021, 417-424).

VII. Educational Impacts

Assessing the factors that influence young people’s schooling experience is important. Education is vital to positive youth development and future life outcomes, including physical and mental health status.¹³⁴⁻¹³⁶

Research has shown that psychological well-being and other mental health measures influence schooling outcomes in youth, including participation in school and grades.¹³⁶⁻¹³⁷ Importantly, research has also documented that stress associated with direct and indirect exposure to use of force and

Experiencing or witnessing police stops among Black and Hispanic adolescents is associated with poor academic performance.

certain other police activities impacts educational indicators. Legewie and Fagan (2019)³² examined the impact of NYPD’s Operation Impact, a program that increased policing in specific neighborhoods, on 9- through 15-year-old Black students’ English Language Assessment⁵⁵ (ELA) test scores. The authors found that among the Black students living in these zones, test scores decreased substantially among boys exposed to the program compared with the two years prior. Using data from a national longitudinal study of youth also aged 9-15, Del Toro et al. (2021)³³ examined the impact of exposure to police stops on grades and psychological stress. The authors found that more Black youth were directly stopped than White or Hispanic youth, and youth stopped by police reported lower grades and more psychological stress. Additionally, vicarious exposure to police stops, that is witnessing someone being stopped by police, is associated with lower grades for Black boys and Hispanic boys and girls. Ang’s (2021)³⁴ analysis of police killings in Los Angeles found that living within a half-mile of a police killing was negatively associated with high school students’ grade point average (GPA), and the magnitude of the effect on students’ GPA increased as the distance decreased.

⁵⁵ ELA is a New York state assessment of students’ English Language and Arts skills and knowledge.

COMMUNITY GROUP FINDINGS

The following section summarizes the major themes that emerged from the community group discussions about law enforcement use of force and certain other police activities, by the types of impacts identified.

Use of force and certain other police activities create fear and distrust of law enforcement.

Consistent with the research literature, stakeholders reported that use of force and certain other police activities create stress, anxiety, and fear among community members, and further erodes the trust with the law enforcement community.

- To the community, use of force and certain other police activities that are perceived as disproportionate represent an abuse of power by an officer who is a sanctioned government authority.
- When officers are not held accountable or do not face any consequences from departments or courts for actions perceived to be disproportionate, it sends the message to the community that there are no “safe spaces.”
- When the community sees force used on individuals who comply with officer commands or are already detained, they know it can happen to anyone.
- The community sees how Black and White suspects are treated differently. One participant provided an example of a mass shooting in Buffalo, where the White suspect was apprehended unharmed. This is compared with police treatment of Black individuals who did not commit any crime, much less a mass shooting.

One participant shared that a high-profile use of force incident shook up the entire community, and all the prior good will law enforcement had built with the community was gone.

Asking for law enforcement help may cause harm. Stakeholders reported incidents of use of force and certain other police activities make community members reluctant to ask for law enforcement help. Community members are aware of situations where law enforcement’s presence exacerbated a challenging situation. A participant provided an example of a family whose loved one with mental illness was killed by an officer that they (the family) had called for help. The family continues to blame themselves for their loved one’s death. Stakeholders noted that police are not adequately trained to address situations where individuals have mental health needs and therefore police may be quick to react with force in these situations. Participants also stated that family members’ fears of involving the police to assist with these situations are heightened in communities of color.

Stakeholders reported that use of force incidents have caused community members to fear and distrust police.

Lack of trust in law enforcement also erodes community safety. Respondents indicated that bad actors take advantage of community members’ fear of calling law enforcement. When criminals know the community will not call the police, they feel they have free rein to commit crimes. This, in turn, further compromises the safety of community members. Additionally, the lack of trust diminishes cooperation between communities and the criminal legal system, decreasing the individuals’ willingness to serve as a witness or answer subpoenas. They feel they have no incentive to trust law enforcement.

Lack of trust in law enforcement erodes trust in other institutions. Respondents reported that the lack of trust extends to other governmental institutions, such as social services, which they perceive to be associated with law enforcement. One participant provided an example of a free dental clinic that many community members did not attend, even though they needed the clinic’s services, because law enforcement were at the event for security.

There are significant concerns about the impacts of use of force and certain other police activities on youth. Stakeholders reported that youth, particularly Black and Brown youth, are impacted by over-policing in their communities. At a minimum, youth experience aggressive verbal commands by law enforcement. It is also traumatizing for youth to witness a use of force incident on a family member or in their home. Participants report that many youths have previously experienced trauma, and use of force experiences compound the trauma and impact their well-being and academic achievement.

The impacts of use of force and certain other police activities are long-lasting; youth will carry these experiences with them throughout their lives.

All types of exposures to use of force and certain other police activities have an impact. Participants noted that use of force doesn't take a life-threatening injury or a repeated event for it to be traumatizing. The impact of being thrown down, being threatened with a weapon, or verbally harassed can have long-lasting impact. Participants also noted that aggressive verbal commands can in some cases escalate to, and exacerbate, physical use of force incidents, particularly when individuals receive numerous conflicting commands that create significant difficulties with compliance.

Use of force does not need to be directly experienced to be traumatizing. Even social media exposure can impact mental health.

Impacts of use of force and certain other police activities are long-lasting. Stakeholders shared that families and communities struggle with the emotional impacts of police use of force incidents for years or even decades. They emphasized that these events are cumulative and impact future generations. The child who witnesses a family member experience use of force will carry that with them through their life.

Impacts are compounded/more frequent and more severe among some groups. Participants were clear that individuals of color (in particular, Black and Brown individuals), LGBTQI+, unhoused individuals, individuals with mental illness, sex workers, and immigrants more frequently experience more use of force incidents. Participants also discussed intersectionality, and how members who share representation with more than one marginalized group are at even greater risk, such as Black transgender women or Black LGBTQI+ youth.

Use of force and certain other police activities have financial impacts. Participants noted that there may be medical costs associated with injuries, or individuals may need mental health counseling to deal with the impacts to themselves or loved ones. Additionally, if a use of force incident results in a ticket or arrest, individuals will incur fines or legal costs, including posting bond if arrested, appearing in court, taking time off work, paying court fines and fees, and possibly being even convicted and incarcerated. While the economic impacts of use of force and certain other police activities is a salient area of research, it is outside the purview of this research review.

Social media expands trauma but facilitates transparency and helps with accountability. Consistent with research, stakeholders discussed how social media has expanded the vicarious trauma of use of force incidents beyond the immediate communities. Exposure of video footage and endless mentions on social media can be traumatizing. However, a benefit is that everyone now knows what use of force looks like from these videos, and the footage can play a vital role in documenting contradictions between official law enforcement reports and what video evidence shows. As one participant highlighted, social media sharing of videos may be the only chance at facilitating meaningful reporting because no one can say it didn't happen.

Recognize that a community does not have monolithic views on law enforcement or their preferred role in a community. Participants emphasized that one community (neighborhood, street, segment of a city) will have multiple perspectives on public safety and law enforcement. For example, older individuals may prefer more law enforcement presence to feel safe, whereas younger individuals may see law enforcement as a risk to their safety. Therefore, it is important to give thought to how researchers, policy makers, and others understand and interpret information about safety and the police.

Community Listening Sessions Participant Recommendations

Individuals participating in the listening sessions provided the following research and policy recommendations:

- Hold law enforcement accountable for unjustified use of force incidents, provide safe spaces for civilians to make complaints, and have standards for use of force reporting to improve transparency.
- End police practices that escalate or increase the risk for use of force situations, such as no-knock warrants or special units that focus on drug or guns. These units often have little oversight and use aggressive tactics.
- Refocus law enforcement on public safety and remove them from responses where they are not appropriate (e.g., mental health, traffic stops, behavioral health crisis response).
- Provide officers with training, including training that examines implicit bias and how to intervene with colleagues during a use of force incident, etc.
- Include individuals with lived experience in research and policy planning activities in ways that move beyond just retelling their story. However, care should be taken that these efforts do not impose additional trauma.

Despite the many long-standing negative impacts, some community groups in our listening sessions reported they have hope that there is a pathway forward for communities and law enforcement to build meaningful relationships. These groups also discussed that public safety is not just the responsibility of law enforcement and that communities need to be actively involved in reform efforts. However, some stakeholders noted that because there is little accountability or reform, they feel no motivation or incentive to trust law enforcement. One participant said, “Even if we were able to transform policing, we still have [a historical] path of destruction, so we need to be able to heal people affected from all the centuries of police abuse.”

In summary, community groups stress the importance of an expansive view of use of force and certain other police activities to fully account for the broad impacts to individuals and community. The stakeholder discussions about the impacts from use of force and certain other police activities largely align with the research literature.

RESEARCH GAPS, LIMITATIONS, AND PRIORITIES

Additional research is needed to better understand the impacts of use of force and certain other police activities on community and individual health and well-being. This section describes some of the limitations affecting current research, and priorities for future research.

I. Methodological and Data Limitations

Limited national data collections. Although lethal use of force incidents drive the national headlines, non-lethal use of force incidents occur more frequently.^{61; 68-71} However, there is also a lack of comprehensive national data about nonfatal use of force incidents. Less than one-half of all federal, state, local, and tribal agencies provided use of force data in 2022.⁵⁷ Further, the “use of force” definition employed by the FBI data collection is limited to incidents that involve discharge of a firearm or that result in a fatality or serious injury. Additionally, there is no robust information on the completeness of the use of force data submitted by law enforcement agencies. The federal government also collects estimated police contact and use of force data through the National Crime Victimization Survey, however this data does not provide information specific to location or agencies involved in the incidents, and typically is released years after collection. This information does not provide transparency with the community or specify which local law enforcement agency had the incident.

Data collections related to lethal use of force are more robust than those related to non-lethal use of force, though there are still limitations. The CDC collects national mortality data through the NVSS, but likely undercounts the true rate of use of lethal force by law enforcement.⁷⁶ Additionally, open-source platforms such as *Washington Post’s* “Killed by Police, The Counted, Fatal Encounters, and Mapping Police Violence,” use journalist reports and other publicly available information to collate data on deaths resulting from law enforcement. These crowd-sourced databases are also not without issue,^{112; 122} and only focus on fatal use of force incidents. The CDC’s NVDRS is a violent death surveillance system that tracks violent deaths including homicides by law enforcement in all 50 states, the District of Columbia (DC), and Puerto Rico by integrating information from three main sources: death certificates, medical examiner/coroner’s reports (including toxicology reports), and law enforcement records. The NVDRS provides detailed, de-identified information about these deaths, with up to 600 standard data elements including circumstances surrounding the incident and links related deaths in the case of multi-victim incidents. The NVDRS has been shown to provide more comprehensive and reliable estimates of police-involved shootings than open-source data collections of police-involved fatal shootings.^{60; 123} Like the NVSS and open-source databases, the NVDRS does not provide information on nonfatal injuries resulting from legal intervention.¹²⁴

Reliance on cross-sectional data. Most studies we found rely on cross-sectional data to examine the contemporaneous association between use of force and certain other police activities and impacts on health and mental health. In addition to the relative dearth of longitudinal research, many studies do not account for the temporal sequence of use of force and the health/mental indicators under study. In addition to longitudinal methodologies, more robust research designs would, at a minimum, ensure the measurement of exposure to use of force and certain other police activities prior to the outcome of interest.

Measurement of law enforcement/ police use of force and related concepts. As described in this report, there are a wide range of definitions for use of force. This, in combination with the lack of a reliable national data collection, has left researchers to develop their own measures or to derive this measure from existing indicators. Although this isn’t negative, it makes it difficult to directly compare law enforcement activity that is variously labeled as “negative police encounters,” “high police contact,” or “intensity of police stops.” Although all the indicators described in the report are part of a constellation of police behaviors, the variability in measurement makes it difficult to disentangle unique impacts resulting from different forms of negative police-civilian encounters. For example, one survey item measuring “police brutality” from the SHUR⁹⁸ included “cursing” and “threatening with a ticket” alongside “pointing a gun at someone which makes it difficult to distinguish the impact of procedural justice-based considerations (that is, the fairness of law

enforcement procedures and decisions) versus from the impact of the threat of violence each contribute to negative health outcomes. Research that clearly delineates these exposures will make it easier to inform evidence-based policy recommendations. Relatedly, more elaboration of the measurement of both police use of force *and* health-related outcomes is necessary to tie specific types of force to specific types of outcomes.¹²⁵ Further, understanding use of force and certain other police activities in the context of different types of law enforcement personnel (i.e., police, correctional officers, sworn school resource officers, sworn personnel in hospitals) can help us understand the impacts of use of force and certain other police activities in various settings. Finally, at least one study used recorded crime incidents to measure neighborhood-level police contact; attempting to clearly delineate police behavior from police-recorded crime is important in isolating impacts resulting from use of force and certain other police activities.

Hospital data. Hospital data may fill in some gaps in knowledge for nonfatal injuries caused by police use of force; however, these data are not without limitations. Several issues with these data have been noted in the literature,¹²⁶ including that they inherently capture only injuries that lead to hospital visits. It is unclear how often it is accurately reported that legal intervention was involved in the injury, and it is further unclear whether employees always code legal intervention injuries correctly and consistently. Because some injuries sustained by individuals during an encounter with law enforcement do not rise to the level of requiring medical intervention (e.g., Kerr et al., 2010)¹²⁷ and/or because of the racial disparities noted above in the referral to medical intervention after police use of force incidents, hospital records cannot provide a comprehensive picture of these injuries. To remedy the limitations associated with hospital injury data, some researchers have integrated hospital data with law enforcement administrative data on use of force incidents (e.g., Strote & Hickman, 2020).¹²⁸

Law enforcement administrative data. Law enforcement administrative data can provide more detailed information on use of force encounters. Much like hospital data, if researchers are interested in assessing the outcomes associated with use of force and certain other police activities, they will need to integrate these data with another system to analyze this question. Additionally, transparency around these data can help identify appropriate policy and programmatic strategies. However, differences across law enforcement agencies in their use of force definitions, reporting requirements, and data collection systems currently preclude many cross-site comparisons in use of force incidents.

Community-level measures. While some studies included in this review involved qualitative data from individuals impacted by direct and indirect exposure to use of force and certain other police activities, much more information is needed to fully understand community-wide impacts and indirect impacts. These data may provide more contextual information on community members relationship with and perception of law enforcement, which could be informed by quantitative data on the officers' actions and behavior in communities, including number and types of calls for service, number of officer-initiated traffic stops, number of tickets given, and the level and type of engagement in community events or in various law enforcement capacities (e.g., school resource officers). Community-level context could also be explored through data on community economic and social indicators of resources and stressors.

II. Research Gaps and Priorities

The following highlight the potential directions for research to expand an understanding of the impacts of use of force and certain other police activities. These are derived from the limitations described above, input from stakeholders, and the research literature.

- **Assessment of the developmental, intergenerational, and longitudinal effects of use of force and certain other police activities.** Developmental considerations and examination of longitudinal and/or intergenerational impacts are largely absent in the research literature and are necessary to understand the immediate, short-term, and long-term impacts of use of force and certain other police activities on health, mental health, and social, and economic outcomes. Research findings that document associations with poor mental health, depression, and fear do not capture the long-term effects of use

of force and certain other police activities on individuals, the potential differential impacts by age or the intergenerational transmission of health and well-being impacts. Leveraging more robust research designs, generally, is needed to isolate the effects of use of force and certain other police activities from other correlates of poor health, including neighborhood levels of socioeconomic disadvantage and high violent crime rates, as well as to truly understand the developmental and intergenerational impacts of use of force and certain other police activities.

- **Understanding what the types of force and other tactics lead to what types of outcomes.** Use of force encompasses a wide variety of law enforcement actions. Much research focuses on incidents of fatal force (i.e., the frequency of police killings), or groups different types of exposure into large categories. Research that includes more nuance on use of force and certain other police activities, including information on the law enforcement agency and officers, police activity in the community, context of the encounter, and specific actions used may better inform the kinds of use of force incidents and practices that lead to specific health outcomes.¹²⁵
- **Understanding the potential financial and economic impacts of use of force and certain other police activities and how they may intersect with overall health and well-being.** As noted by participants in the community groups, direct experiences of use of force and certain other police activities may also lead to significant financial burdens on individuals, families, and communities. These impacts and how they interact with overall health and well-being are largely absent from the literature. Research is needed to understand potential costs of medical and/or mental health care, fines or legal costs as well as potential time off work, child care, transportation and other costs that may be associated with use of force incidents and their health impacts.
- **Understanding the mechanisms that are related to health and mental health impacts.** Most of the studies included in this review demonstrate statistically significant associations between use of force and certain other police activities and individual- or community-level impacts. While some studies have explored potential mediating effects of use of force and health outcomes (e.g., Kerr et al., 2010;¹²⁷ Alexander et al., 2022¹¹⁵), more attention should be paid to the potential mechanisms, such as links between fear of law enforcement^{131,132} and increased allostatic load, hypervigilance, and ‘weathering’ which may contribute to negative mental and physical health outcomes and premature aging, legal cynicism¹²⁹ (the view that police are illegitimate or ill-equipped to ensure public safety), perceptions of police legitimacy¹³⁰ (the sense that police should be granted authority), or general fear of law enforcement^{131,132} that may be related to poor physical health and mental health outcomes.
- **Expand our understanding of the impacts of use of force and certain other police activities on marginalized groups.** Black and Brown Americans experience the greatest impacts from use of force and certain other police activities, and research should continue to consider the risks and outcomes posed to them. Care should also be taken to understand the risks posed to other marginalized groups, including transgender and other sexual and gender minority populations, individuals with disabilities, and individuals with mental illness,¹³³ and the intersectional nature of these impacts, as well as risks to groups that encounter law enforcement due to criminalized activities, such as sex workers, individuals who use drugs, and people who are unhoused.
- **Understanding whether alternatives to police response reduce use of force and other relevant police activities.** Over the past few years, there has been a proliferation of communities implementing alternative response programs. There are a broad range of models, including programs with specially trained officers to respond to behavioral health issues, co-response teams that pair law enforcement with behavioral health service partner, and unarmed mobile response teams that respond in lieu of an officer. Currently there is little empirical evidence on these strategies and their relationship to use of force incidents and certain other police activities.

REFERENCES

1. Centers for Disease Control and Prevention. (2021, Sep 20). *Social determinants of health: Know what affects health*. <https://www.cdc.gov/socialdeterminants/index.htm>
2. Hood, C. M., Gennuso, K. P., Swain, G. R., & Catlin, B. B. (2016, Feb). County health rankings: Relationships between determinant factors and health outcomes. *American Journal of Preventive Medicine*, 50(2), 129-135. <https://doi.org/10.1016/j.amepre.2015.08.024>. PMID: 26526164.
3. Exec. Order No. 14074, 87 FR 32945. (2022, May 25).
4. American Civil Liberties Union (ACLU). (2020). *The other epidemic: Fatal police shootings in the time of Covid-19*. <https://www.aclu.org/report/other-epidemic-fatal-police-shootings-time-covid-19>
5. Zare, H., Meyerson, N. S., Delgado, P., Crifasi, C., Spencer, M., Gaskin, D., & Thorpe Jr, R. J. (2022). How place and race drive the numbers of fatal police shootings in the US: 2015–2020. *Preventive Medicine*, 161, 107132.
6. Zare, H., Meyerson, N. S., Delgado, P., Spencer, M., Gaskin, D. J., & Thorpe Jr, R. J. (2022). Association between neighborhood and racial composition of victims on fatal police shooting and police violence: An integrated review (2000–2022). *Social Sciences*, 11(4), 153.
7. Levchak, P. J. (2021). Stop-and-frisk in New York City: Estimating racial disparities in post-stop outcomes. *Journal of Criminal Justice*, 73, 1-13. <https://doi.org/10.1016/j.jcrimjus.2021.101784>.
8. Edwards, F., Lee, H., & Esposito, M. (2019, Aug 20). Risk of being killed by police use of force in the United States by age, race-ethnicity, and sex. *Proceedings of the National Academy of Sciences of the United States of America*, 116(34), 16793-16798. <https://doi.org/10.1073/pnas.1821204116>. PMCID: PMC6708348. PMID: 31383756.
9. Sheats, K. J., Wilson, R. F., Lyons, B. H., Jack, S. P. D., Betz, C. J., & Fowler, K. A. (2022, Jan 28). Surveillance for violent deaths - National Violent Death Reporting System, 39 states, the District of Columbia, and Puerto Rico, 2018. *MMWR Surveillance Summaries*, 71(3), 1-44. <https://doi.org/10.15585/mmwr.ss7103a1>. PMCID: PMC8807052. PMID: 35085227.
10. Cooper, H., Moore, L., Gruskin, S., & Krieger, N. (2004). Characterizing perceived police violence: implications for public health. *American Journal of Public Health*, 94(7), 1109-1118. <https://doi.org/10.2105/ajph.94.7.1109>.
11. Park, J. N., Linton, S. L., Sherman, S. G., & German, D. (2019, Feb). Police violence among people who inject drugs in Baltimore, Maryland. *International Journal of Drug Policy*, 64, 54-61. <https://doi.org/10.1016/j.drugpo.2018.12.005>. PMCID: PMC8370125. PMID: 30579221.
12. Perry, D. M., & Carter-Long, L. (2016). *The Ruderman white paper on media coverage of law enforcement use of force and disability*. Ruderman Family Foundation. https://rudermanfoundation.org/wp-content/uploads/2017/08/MediaStudy-PoliceDisability_final-final.pdf
13. West, B. S., Henry, B. F., Agah, N., Vera, A., Beletsky, L., Rangel, M. G., Staines, H., Patterson, T. L., & Strathdee, S. A. (2022, Jun). Typologies and correlates of police violence against female sex workers who inject drugs at the Mexico-United States Border: Limits of de jure decriminalization in advancing health and human rights. *Journal of Interpersonal Violence*, 37(11-12), NP8297-NP8324. <https://doi.org/10.1177/0886260520975820>. PMCID: PMC8166925. PMID: 33261533.
14. DeVyllder, J. E., Frey, J. J., Cogburn, C. D., Wilcox, H. C., Sharpe, T. L., Oh, H. Y., Nam, B., & Link, B. G. (2017, Oct). Elevated prevalence of suicide attempts among victims of police violence in the USA. *Journal of Urban Health*, 94(5), 629-636. <https://doi.org/10.1007/s11524-017-0160-3>. PMCID: PMC5610123. PMID: 28534243.
15. DeVyllder, J. E., Oh, H. Y., Nam, B., Sharpe, T. L., Lehmann, M., & Link, B. G. (2017, Oct). Prevalence, demographic variation and psychological correlates of exposure to police victimisation in four US cities. *Epidemiology and Psychiatric Science*, 26(5), 466-477. <https://doi.org/10.1017/S2045796016000810>. PMCID: PMC6998899. PMID: 27834166.
16. DeVyllder, J. E., Jun, H.-J., Fedina, L., Coleman, D., Anglin, D., Cogburn, C., Link, B., & Barth, R. P. (2018). Association of exposure to police violence with prevalence of mental health symptoms among urban residents in the United States. *JAMA Network Open*, 1(7), e184945-e184945. <https://doi.org/10.1001/jamanetworkopen.2018.4945>.
17. Salas-Hernández, L., DeVyllder, J. E., Cooper, H. L. F., Duarte, C. D., Sewell, A. A., Walker, E. R., & Haardorfer, R. (2022, Aug). Latent class profiles of police violence exposure in 4 US cities and their associations with anticipation of police violence and mental health outcomes. *Journal of Urban Health*, 99(4), 655-668. <https://doi.org/10.1007/s11524-022-00643-5>. PMCID: PMC9360379. PMID: 35668136.
18. Alang, S., Rogers, T. B., Williamson, L. D., Green, C., & Bell, A. J. (2021, Dec). Police brutality and unmet need for mental health care. *Health Services Research*, 56(6), 1104-1113. <https://doi.org/10.1111/1475-6773.13736>. PMCID: PMC8586484. PMID: 34350595.

19. Alang, S., VanHook, C., Judson, J., Ikiroma, A., & Adkins-Jackson, P. B. (2022). Police brutality, heightened vigilance, and the mental health of Black adults. *Psychology of Violence, 12*(4), 211.
20. Alang, S., McAlpine, D., & McClain, M. (2021). Police encounters as stressors: Associations with depression and anxiety across race. *Socius, 7*, 2378023121998128. <https://doi.org/10.1177/2378023121998128>.
21. Bor, J., Venkataramani, A. S., Williams, D. R., & Tsai, A. C. (2018, Jul 28). Police killings and their spillover effects on the mental health of black Americans: a population-based, quasi-experimental study. *Lancet, 392*(10144), 302-310. [https://doi.org/10.1016/S0140-6736\(18\)31130-9](https://doi.org/10.1016/S0140-6736(18)31130-9). PMID: PMC6376989. PMID: 29937193.
22. Curtis, D. S., Washburn, T., Lee, H., Smith, K. R., Kim, J., Martz, C. D., Kramer, M. R., & Chae, D. H. (2021, Apr 27). Highly public anti-Black violence is associated with poor mental health days for Black Americans. *Proceedings of the National Academy of Sciences of the United States of America, 118*(17). <https://doi.org/10.1073/pnas.2019624118>. PMID: PMC8092615. PMID: 33875593.
23. Das, A., Singh, P., Kulkarni, A. K., & Bruckner, T. A. (2021, Jan). Emergency Department visits for depression following police killings of unarmed African Americans. *Social Science and Medicine, 269*, 113561. <https://doi.org/10.1016/j.socscimed.2020.113561>. PMID: 33309152.
24. Kyriopoulos, I., Vandoros, S., & Kawachi, I. (2022, Jul). Police killings and suicide among Black Americans. *Social Science and Medicine, 305*, 114964. <https://doi.org/10.1016/j.socscimed.2022.114964>. PMID: 35660700.
25. Tynes, B. M., Willis, H. A., Stewart, A. M., & Hamilton, M. W. (2019, Sep). Race-related traumatic events online and mental health among adolescents of color. *Journal of Adolescent Health, 65*(3), 371-377. <https://doi.org/10.1016/j.jadohealth.2019.03.006>. PMID: 31196779.
26. Mullinix, K. J., Bolsen, T., & Norris, R. J. (2021). The feedback effects of controversial police use of force. *Political Behavior, 43*, 881-898. <https://doi.org/10.1007/s11109-020-09646-x>.
27. Sewell, A. A., & Jefferson, K. A. (2016, Apr). Collateral damage: The health effects of invasive police encounters in New York City. *Journal of Urban Health, 93 Suppl 1*(Suppl 1), 42-67. <https://doi.org/10.1007/s11524-015-0016-7>. PMID: PMC4824697. PMID: 26780583.
28. Theall, K. P., Francois, S., Bell, C. N., Anderson, A., Chae, D., & LaVeist, T. A. (2022, Feb). Neighborhood police encounters, health, and violence in a southern city. *Health Affairs (Millwood), 41*(2), 228-236. <https://doi.org/10.1377/hlthaff.2021.01428>. PMID: PMC9037135. PMID: 35130074.
29. Hardeman, R. R., Chantarat, T., Smith, M. L., Karbeah, J., Van Riper, D. C., & Mendez, D. D. (2021, Dec 1). Association of residence in high-police contact neighborhoods with preterm birth among Black and White individuals in Minneapolis. *JAMA Network Open, 4*(12), e2130290. <https://doi.org/10.1001/jamanetworkopen.2021.30290>. PMID: PMC8655601. PMID: 34878551.
30. Freedman, A. A., Papachristos, A. V., Smart, B. P., Keenan-Devlin, L. S., Khan, S. S., Borders, A., Kershaw, K. N., & Miller, G. E. (2022, Jan 21). Complaints about excessive use of police force in women's neighborhoods and subsequent perinatal and cardiovascular health. *Science Advances, 8*(3), eab15417. <https://doi.org/10.1126/sciadv.ab15417>. PMID: PMC8769548. PMID: 35044830.
31. Alang, S., McAlpine, D. D., & Hardeman, R. (2020). Police brutality and mistrust in medical institutions. *Journal of Racial and Ethnic Health Disparities, 7*, 760-768.
32. Legewie, J., & Fagan, J. (2019). Aggressive policing and the educational performance of minority youth. *American Sociological Review, 84*(2), 220-247. <https://doi.org/10.1177/0003122419826020>.
33. Del Toro, J., Wang, M. T., Thomas, A., & Hughes, D. (2022). An intersectional approach to understanding the academic and health effects of policing among urban adolescents. *Journal of Research on Adolescence 32*(1), 34-40.
34. Ang, D. (2021). The effects of police violence on inner-city students. *The Quarterly Journal of Economics, 136*(1), 115-168. <https://doi.org/https://doi.org/10.1093/qje/qjaa027>.
35. Gomez, M. B. (2016, Apr). Policing, community fragmentation, and public health: Observations from Baltimore. *Journal of Urban Health, 93 Suppl 1*(Suppl 1), 154-167. <https://doi.org/10.1007/s11524-015-0022-9>. PMID: PMC4824692. PMID: 26753881.
36. Graham, A., Haner, M., Sloan, M. M., Cullen, F. T., Kulig, T. C., & Jonson, C. L. (2020). Race and worrying about police brutality: The hidden injuries of minority status in America. *Victims & Offenders, 15*(5), 549-573. <https://doi.org/10.1080/15564886.2020.1767252>.
37. Hawkins, D. S. (2022, Aug). "After Philando, I had to take a sick day to recover": Psychological distress, trauma and police brutality in the Black community. *Health Communication, 37*(9), 1113-1122. <https://doi.org/10.1080/10410236.2021.1913838>. PMID: 33902344.

38. Smith Lee, J. R., & Robinson, M. A. (2019). "That's my number one fear in life. It's the police": Examining young Black men's exposures to trauma and loss resulting from police violence and police killings. *Journal of Black Psychology*, 45(3), 143-184, Article 0095798419865152. <https://doi.org/10.1177/0095798419865152>.
39. Mehra, R., Alspaugh, A., Franck, L. S., McLemore, M. R., Kershaw, T. S., Ickovics, J. R., Keene, D. E., & Sewell, A. A. (2022, Jan 20). "Police shootings, now that seems to be the main issue" - Black pregnant women's anticipation of police brutality towards their children. *BMC Public Health*, 22(1), 146. <https://doi.org/10.1186/s12889-022-12557-7>. PMCID: PMC8781435. PMID: 35057776.
40. French, L. A. (2018). *The history of policing America: From militias and military to the law enforcement of today*. Rowman & Littlefield.
41. Potter, G. (2013). The history of policing in the United States. *EKU School of Justice Studies*, 1, 16.
42. Spruill, L. H. (2016). Slave patrols, "Packs of negro dogs" and and policing Black communities. *Phylon (1960-)*, 53(1), 42-66.
43. Kappeler, V. E. (2014). *A brief history of slavery and the origins of American policing*. Eastern Kentucky University Police Studies Online. Retrieved February 22, 2023, from <https://ekuonline.eku.edu/blog/police-studies/brief-history-slavery-and-origins-american-policing/>
44. Brown, R. A. (2019). Policing in American History. *Du Bois Review*, 16(1), 189–195. <https://doi.org/10.1017/S1742058X19000171>.
45. Equal Justice Initiative. (2020). *Reconstruction in America: Racial violence after the Civil War, 1865-1876*.
46. Adamson, C. R. (1983). Punishment after slavery: Southern state penal systems, 1865-1890. *Social Problems*, 30(5), 555-569.
47. Bland, R. (2020). On riots and resistance: Freedpeople's struggle against police brutality during reconstruction. *The Journal of the Civil War Era*, Found in Muster: How the Past informs the Present.
48. Goel, S., Rao, J. M., & Shroff, R. (2016). Precinct or prejudice? Understanding racial disparities in New York City's stop-and-frisk policy.
49. Grabiner, G. (2016). Who polices the police? *Social Justice*, 58-79. <http://www.jstor.org/stable/26380303>
50. Drug Policy Alliance. (2021). *The 1033 Program, Police Militarization, and the War on Drugs*. <https://drugpolicy.org/resource/1033-program-police-militarization-and-war-drugs>
51. Cooper, H. L. (2015). War on drugs policing and police brutality. *Substance Use and Misuse*, 50(8-9), 1188-1194. <https://doi.org/10.3109/10826084.2015.1007669>. PMCID: PMC4800748. PMID: 25775311.
52. Cooper, H. L., & Fullilove, M. (2016, Apr). Editorial: Excessive police violence as a public health issue. *Journal of Urban Health*, 93 Suppl 1(Suppl 1), 1-7. <https://doi.org/10.1007/s11524-016-0040-2>. PMCID: PMC4824695. PMID: 26984303.
53. Blumstein, A., & Beck, A. J. (1999). Population growth in -- Prisons, 1980–1996. In M. Tonry & J. Petersilia (Eds.), *Crime and Justice: A Review of Research* (Vol. 26, pp. 17-61). The University of Chicago Press.
54. Mitchell, O., & Lynch, M. (2011). Racial disparities in drug arrests. In N. Parsons-Pollard (Ed.), *Disproportionate minority contact: Historical and contemporary perspectives*. Carolina Academic.
55. Centers for Disease Control and Prevention. (2007). *REACHing across the divide: Finding solutions to health disparities*. Atlanta, GA, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.
56. Canady, V. A. (2021, Feb 22). SAMHSA launches new African American Center of Excellence. *Mental Health Weekly*, 31(8), 5-5. <https://doi.org/10.1002/mhw.32694>.
57. Federal Bureau of Investigation (FBI). (n.d.). *Crime Data Explorer. Law enforcement collections: Use-of-Force. Explorer Page Filters: Federal View*. <https://cde.ucr.cjis.gov/LATEST/webapp/#/pages/le/uof>
58. FBI National Press Office. (2020). *FBI releases 2019 participation data for the national use-of-force data collection*. Washington, DC. <https://www.fbi.gov/news/press-releases/fbi-releases-2019-participation-data-for-the-national-use-of-force-data-collection>
59. Wilson, R. F., Liu, G., Lyons, B. H., Petrosky, E., Harrison, D. D., Betz, C. J., & Blair, J. M. (2022, May 20). Surveillance for violent deaths - National Violent Death Reporting System, 42 states, the District of Columbia, and Puerto Rico, 2019. *MMWR: Surveillance Summaries*, 71(6), 1-40. <https://doi.org/10.15585/mmwr.ss7106a1>. PMCID: PMC9129903. PMID: 35588398.
60. Conner, A., Azrael, D., Lyons, V. H., Barber, C., & Miller, M. (2019). Validating the national violent death reporting system as a source of data on fatal shootings of civilians by law enforcement officers. *American Journal of Public Health*, 109(4), 578-584. <https://doi.org/10.2105/AJPH.2018.304904>.

61. Bozeman, W. P., Stopyra, J. P., Klinger, D. A., Martin, B. P., Graham, D. D., Johnson, J. C., 3rd, Mahoney-Tesoriero, K., & Vail, S. J. (2018, Mar). Injuries associated with police use of force. *Journal of Trauma and Acute Care Surgery*, 84(3), 466-472. <https://doi.org/10.1097/TA.0000000000001783>. PMID: 29283961.
62. HCUP Databases. (2021, Sep). *Healthcare Cost and Utilization Project (HCUP)*. Rockville, MD, Agency for Healthcare Research and Quality. www.hcup-us.ahrq.gov/seddoverview.jsp
63. Loder, R. T., Young, A., & Atoa, B. (2021, Oct). Firearm injuries associated with law enforcement activity. *Journal of Forensic and Legal Medicine*, 83, 102249. <https://doi.org/10.1016/j.jflm.2021.102249>. PMID: 34461598.
64. Hickman, M. J., Strote, J. N., Scales, R. M., Parkin, W. S., & Collins, P. A. (2021). Police use of force and injury: Multilevel predictors of physical harm to subjects and officers. *Police Quarterly*, 24(3), 267-297. <https://doi.org/10.1177/1098611120972961>.
65. Kerrison, E. M., & Sewell, A. A. (2020, Oct). Negative illness feedbacks: High-frisk policing reduces civilian reliance on ED services. *Health Services Research*, 55 Suppl 2(Suppl 2), 787-796. <https://doi.org/10.1111/1475-6773.13554>. PMCID: PMC7518820. PMID: 32976631.
66. Harrell, E., & Davis, E. (2020). *Contacts between police and the public, 2018—statistical tables*. Bureau of Justice Statics Report, NCJ. <https://bjs.ojp.gov/content/pub/pdf/cbpp18st.pdf>
67. Jackson, D. B., Del Toro, J., Semenza, D. C., Testa, A., & Vaughn, M. G. (2021, Aug). Unpacking racial/ethnic disparities in emotional distress among adolescents during witnessed police stops. *Journal of Adolescent Health*, 69(2), 248-254. <https://doi.org/10.1016/j.jadohealth.2021.02.021>. PMID: 33814280.
68. Bozeman, W. P., Klinger, D. A., & Vail, S. J. (2013). Suspect and officer injuries associated with modern police use of force. *Annals of Emergency Medicine*, 62(4), S74. <https://doi.org/10.1016/j.annemergmed.2013.07.489>.
69. Castillo, E. M., Chan, T. C., Brennan, J. J., Roberts, E. E., & Vilke, G. M. (2013). What contributes to subject and officer injuries during law enforcement use of force events? *Annals of Emergency Medicine*, 62(4), S107. <https://doi.org/10.1016/j.annemergmed.2013.07.120>.
70. Castillo, E. M., Chan, T. C., Luu, B., Prabhakar, N., & Vilke, G. M. (2010). Factors associated with injuries among subjects and deputies during law enforcement use of force events. *Annals of Emergency Medicine*, 56(3), S46–S47. <https://doi.org/10.1016/j.annemergmed.2010.06.182>.
71. Castillo, E. M., Prabhakar, N., & Luu, B. (2012, May). Factors associated with law enforcement-related use-of-force injury. *American Journal of Emergency Medicine*, 30(4), 526-531. <https://doi.org/10.1016/j.ajem.2011.01.017>. PMID: 21406323.
72. Coombs, A. V., Eyerly-Webb, S. A., Solomon, R. J., Sanchez, R., Lee, S. K., Carrillo, E. H., Kiffin, C., Rosenthal, A. A., Whitehouse, J., & Germain, B. (2019). Investigating clinical and cost burdens of law enforcement-related K9 injuries: The Impact of “the bite” on a community hospital. *The American Surgeon*, 85(1), 64-70.
73. Lin, Y.-S., & Jones, T. R. (2010). Electronic control devices and use of force outcomes: Incidence and severity of use of force, and frequency of injuries to arrestees and police officers. *Policing: An International Journal of Police Strategies & Management*, 33(1), 152-178. <https://doi.org/10.1108/13639511011020647>.
74. Smith, M. R., Kaminski, R. J., Rojek, J., Alpert, G. P., & Mathis, J. (2007). The impact of conducted energy devices and other types of force and resistance on officer and suspect injuries. *Policing: An International Journal of Police Strategies & Management*, 30(3), 423-446. <https://doi.org/https://doi.org/10.1108/13639510710778822>.
75. Strote, J., Verzemnieks, E., Walsh, M., & Hutson, H. R. (2010, Nov). Use of force by law enforcement: An evaluation of safety and injury. *Journal of Trauma*, 69(5), 1288-1293. <https://doi.org/10.1097/TA.0b013e3181c45302>. PMID: 20130486.
76. G. B. D. Police Violence US Subnational Collaborators. (2021, Oct 2). Fatal police violence by race and state in the USA, 1980-2019: A network meta-regression. *Lancet*, 398(10307), 1239-1255. [https://doi.org/10.1016/S0140-6736\(21\)01609-3](https://doi.org/10.1016/S0140-6736(21)01609-3). PMCID: PMC8485022. PMID: 34600625.
77. Mapping Police Violence. 2022 police violence report. <https://policeviolencereport.org/>
78. Feldman, J. M., Chen, J. T., Waterman, P. D., & Krieger, N. (2016). Temporal trends and racial/ethnic inequalities for legal intervention injuries treated in emergency departments: US men and women age 15–34, 2001–2014. *Journal of Urban Health*, 93, 797-807. <https://doi.org/10.1007%2Fs11524-016-0076-3>.
79. Premkumar, D., & Hsia, R. Y. (2021). *Police use of force and misconduct in California*. Public Policy Institute of California. <https://www.ppic.org/publication/policy-brief-police-use-of-force-and-misconduct-in-california/>
80. Laniyonu, A., & Goff, P. A. (2021, Oct 12). Measuring disparities in police use of force and injury among persons with serious mental illness. *BMC Psychiatry*, 21(1), 500. <https://doi.org/10.1186/s12888-021-03510-w>. PMCID: PMC8513301. PMID: 34641794.

81. Jun, H. J., DeVlyder, J. E., & Fedina, L. (2020, May 27). Police violence among adults diagnosed with mental disorders. *Health and Social Work, 45*(2), 81-89. <https://doi.org/10.1093/hsw/hlaa003>. PMID: 32393967.
82. Rossler, M. T., & Terrill, W. (2017). Mental illness, police use of force, and citizen injury. *Police Quarterly, 20*(2), 189–212. <https://doi.org/10.1177/1098611116681480>.
83. Engel, R. S. (2015). Police encounters with people with mental illness: Use of force, injuries, and perceptions of dangerousness. *Criminology & Public Policy, 14*, 247. <https://doi.org/10.1111/1745-9133.12146>.
84. Wright, A. (2016, May 18). Police interactions with individuals with developmental disabilities: Use of force, training, and implicit bias. *Training, and Implicit Bias*. <https://doi.org/10.2139/ssrn.2903331>.
85. Hodge, J. P., & Sexton, L. (2020). Examining the blue line in the rainbow: the interactions and perceptions of law enforcement among lesbian, gay, bisexual, transgender and queer communities. *Police Practice and Research, 21*(3), 246-263. <https://doi.org/10.1080/15614263.2018.1526686>.
86. Wolff, K. B., & Cokely, C. L. (2007). "To protect and to serve?": An exploration of police conduct in relation to the gay, lesbian, bisexual, and transgender community. *Sexuality and Culture, 11*, 1-23.
87. Mallory, C., Hasenbush, A., & Sears, B. (2015). *Discrimination and harassment by law enforcement officers in the LGBT community*. The Williams Institute. <https://escholarship.org/uc/item/5663q0w1>
88. English, D., Carter, J. A., Bowleg, L., Malebranche, D. J., Talan, A. J., & Rendina, H. J. (2020, Aug). Intersectional social control: The roles of incarceration and police discrimination in psychological and HIV-related outcomes for Black sexual minority men. *Social Science and Medicine, 258*, 113121. <https://doi.org/10.1016/j.socscimed.2020.113121>. PMID: PMC7506501. PMID: 32590189.
89. National Coalition of Anti-Violence Programs (NCVAP). (2018). *Lesbian, gay, bisexual, transgender, queer and HIV-affected hate and intimate partner violence in 2017*. Report.
90. Wu, Y., Triplett, R., & Sun, I. Y. (2012). Chinese immigrants' contact with police. *Policing: An International Journal of Police Strategies & Management, 35*(4), 741-760. <https://doi.org/10.1108/13639511211275634>.
91. Correia, M. E. (2010). Determinants of attitudes toward police of Latino immigrants and nonimmigrants. *Journal of Criminal Justice, 38*, 99-107.
92. Theodore, N. (2013). *Insecure communities: Latino perceptions of police involvement in immigration enforcement*. Corpus ID: 211450275. <https://www.semanticscholar.org/paper/Insecure-Communities%3A-Latino-Perceptions-of-Police-Theodore/ba607ce7ff9021f8b6a505895924bbb8d3df58b7>
93. Footer, K. H. A., Park, J. N., Allen, S. T., Decker, M. R., Silberzahn, B. E., Huettner, S., Galai, N., & Sherman, S. G. (2019, Feb). Police-related correlates of client-perpetrated violence among female sex workers in Baltimore City, Maryland. *American Journal of Public Health, 109*(2), 289-295. <https://doi.org/10.2105/AJPH.2018.304809>. PMID: PMC6336048. PMID: 30571295.
94. Crenshaw, K. W. (1991). Mapping the margins: intersectionality, identity politics, and violence against women of color. *Stanford Law Review, 43*, 1241-1299.
95. Alang, S., Haile, R., Hardeman, R., & Judson, J. (2023, Jan). Mechanisms connecting police brutality, intersectionality, and women's health over the life course. *American Journal of Public Health, 113*(S1), S29-S36. <https://doi.org/10.2105/AJPH.2022.307064>. PMID: PMC9877369. PMID: 36696613.
96. Neighborhood Data for Social Change. (2020, October 30). *How racial disparities in policing harm community health*. KCET. <https://www.kcet.org/shows/power-health/how-racial-disparities-in-policing-harm-community-health>
97. Feldman, J. M., Gruskin, S., Coull, B. A., & Krieger, N. (2019, Mar). Police-related deaths and neighborhood economic and racial/ethnic polarization, United States, 2015-2016. *American Journal of Public Health, 109*(3), 458-464. <https://doi.org/10.2105/AJPH.2018.304851>. PMID: PMC6366529. PMID: 30676802.
98. Alang, S., Pando, C., McClain, M., Batts, H., Letcher, A., Hager, J., Person, T., Shaw, A., Blake, K., & Matthews-Alvarado, K. (2021, Aug). Survey of the Health of Urban Residents: A community-driven assessment of conditions salient to the health of historically excluded populations in the USA. *Journal of Racial and Ethnic Health Disparities, 8*(4), 953-972. <https://doi.org/10.1007/s40615-020-00852-1>. PMID: PMC7444865. PMID: 32839897.
99. Meade, B., Steiner, B., & Klahm IV, C. F. (2017). The effect of police use of force on mental health problems of prisoners. *Policing and Society, 27*(2), 229-244. <https://doi.org/10.1080/10439463.2015.1049602>.
100. National Institute of Mental Health. (n.d.). *Post-traumatic stress disorder*. <https://www.nimh.nih.gov/health/topics/post-traumatic-stress-disorder-ptsd>
101. Post-Traumatic Stress Disorder. (n.d.). *Psychology Today*.
102. Anderson, K. F. (2013). Diagnosing discrimination: Stress from perceived racism and the mental and physical health effects. *Sociological Inquiry, 83*(1), 55-81.

103. Bryant-Davis, T., Adams, T., Alejandre, A., & Gray, A. A. (2017). The trauma lens of police violence against racial and ethnic minorities: Trauma lens of police violence against ethnic minorities. *Journal of Social Issues, 73*, 852-871. <https://doi.org/10.1111/josi.12251>.
104. Geller, A., Fagan, J., & Tyler, T. R. (2017). *Police contact and mental health. Columbia public law research paper No. 14-571*. New York, NY, Columbia Law School.
105. Hirschtick, J. L., Homan, S. M., Rauscher, G., Rubin, L. H., Johnson, T. P., Peterson, C. E., & Persky, V. W. (2019, Feb 5). Persistent and aggressive interactions with the police: potential mental health implications. *Epidemiology and Psychiatric Sciences, 29*, e19. <https://doi.org/10.1017/S2045796019000015>. PMCID: PMC8061162. PMID: 30714560.
106. Sawyer, P. J., Major, B., Casad, B. J., Townsend, S. S., & Mendes, W. B. (2012, May). Discrimination and the stress response: Psychological and physiological consequences of anticipating prejudice in interethnic interactions. *American Journal of Public Health, 102*(5), 1020-1026. <https://doi.org/10.2105/AJPH.2011.300620>. PMCID: PMC3483920. PMID: 22420818.
107. Stansfield, R. (2022). Police–community relations, excessive force, and community stress: Evidence from a community survey. *Psychology of Violence, 12*(4), 201. <https://doi.org/10.1037/vio0000404>.
108. Alang, S., Haile, R., Mitsdarffer, M. L., & VanHook, C. (2022, Aug 17). Inequities in anticipatory stress of police brutality and depressed mood among women. *Journal of Racial and Ethnic Health Disparities*. <https://doi.org/10.1007/s40615-022-01390-8>. PMID: 35976605.
109. Jackson, D. B., Fahmy, C., Vaughn, M. G., & Testa, A. (2019, Nov). Police stops among at-risk youth: Repercussions for mental health. *Journal of Adolescent Health, 65*(5), 627-632. <https://doi.org/10.1016/j.jadohealth.2019.05.027>. PMID: 31495640.
110. Gearhart, M. C., Berg, K., Barnhart, S., Bender, A., & Jones, C. (2023). Police behaviors and procedural justice: Testing predictors of police-initiated post-traumatic stress symptoms. *Children and Youth Services Review, 144*, 106740.
111. Webb, L., Jackson, D. B., Jindal, M., Alang, S., Mendelson, T., & Clary, L. K. (2022). Anticipation of racially motivated police brutality and youth mental health. *Journal of Criminal Justice, 83*, 101967.
112. Nix, J., & Lozada, M. J. (2021). Police killings of unarmed Black Americans: A reassessment of community mental health spillover effects. *Police Practice and Research, 22*(3), 1330-1339. <https://doi.org/10.1080/15614263.2021.1878894>.
113. Bor, J., Venkataramani, A. S., Williams, D. R., & Tsai, A. C. (2020). *Reply to: Nix and Lozada (2020), "Do police killings of unarmed persons really have spillover effects? Reanalyzing Bor et al. (2018)"*.
114. Beauliere, G. I. (2022). Assessing vicarious trauma in Black people who never experienced police violence. *Dissertation Abstracts International, 83*(9-B).
115. Alexander, A. C., Waring, J. J. C., Noble, B., Bradley, D., Olurotimi, O., Fronheiser, J., Sifat, M., Ehlke, S. J., Boozary, L. K., McQuoid, J., & Kendzor, D. E. (2022, May 20). Perceptions of mental health and exploring the role of social activism among African Americans exposed to media coverage of police brutality and protests. *Journal of Racial and Ethnic Health Disparities, 1-11*. <https://doi.org/10.1007/s40615-022-01326-2>. PMCID: PMC9122242. PMID: 35595915.
116. Bailey, J. A., Jacoby, S. F., Hall, E. C., Khatri, U., Whitehorn, G., & Kaufman, E. J. (2022). Compounding trauma: The intersections of racism, law enforcement, and injury. *Current Trauma Reports, 8*(3), 105-112. <https://doi.org/10.1007/s40719-022-00231-7>. PMCID: PMC9096065. PMID: 35578594.
117. Lewis, S., & Bueno de Mesquita, B. (2020, Dec). Racial Differences in hospital evaluation after the use of force by police: A tale of two cities. *Journal of Racial and Ethnic Health Disparities, 7*(6), 1178-1187. <https://doi.org/10.1007/s40615-020-00742-6>. PMID: 32430729.
118. Browning, C. R., Tarrence, J., LaPlant, E., Boettner, B., Schmeer, K. K., Calder, C. A., Way, B. M., & Ford, J. L. (2021, Mar). Exposure to police-related deaths and physiological stress among urban black youth. *Psychoneuroendocrinology, 125*, 104884. <https://doi.org/10.1016/j.psyneuen.2020.104884>. PMCID: PMC7904570. PMID: 33453595.
119. Fix, R. L. (2021, Nov). Mental and physical health consequences of police brutality toward Black community members in the United States. *Public Health in Practice, 2*, 100188. <https://doi.org/10.1016/j.puhip.2021.100188>. PMCID: PMC9461483. PMID: 36101618.
120. Sewell, A. A., Feldman, J. M., Ray, R., Gilbert, K. L., Jefferson, K. A., & Lee, H. (2021). Illness spillovers of lethal police violence: the significance of gendered marginalization. *Ethnic and Racial Studies, 44*(7), 1089-1114. <https://doi.org/10.1080/01419870.2020.1781913>.

121. Ibragimov, U., Beane, S., Friedman, S. R., Smith, J. C., Tempalski, B., Williams, L., Adimora, A. A., Wingood, G. M., McKetta, S., Stall, R. D., & Cooper, H. L. (2020, Sep). Police killings of Black people and rates of sexually transmitted infections: A cross-sectional analysis of 75 large US metropolitan areas, 2016. *Sexually Transmitted Infections*, 96(6), 429-431. <https://doi.org/10.1136/sestrans-2019-054026>. PMID: PMC7377537. PMID: 31444277.
122. Klinger, D. A., & Slocum, L. A. (2017). Critical assessment of an analysis of a journalistic compendium of citizens killed by police gunfire. *Criminology & Public Policy*, 16, 349.
123. Conner, A., Miller, M., Barber, C., & Azrael, D. (2022, Apr 30). Homicides by law enforcement: case definitions matter. *Lancet*, 399(10336), 1693. [https://doi.org/10.1016/S0140-6736\(22\)00167-2](https://doi.org/10.1016/S0140-6736(22)00167-2). PMID: 35490685.
124. McDowall, D. (2019, Apr). The National Violent Death Reporting System and police-involved firearm deaths. *American Journal of Public Health*, 109(4), 537-538. <https://doi.org/10.2105/AJPH.2019.304976>. PMID: PMC6417571. PMID: 30865506.
125. DeVyllder, J., Fedina, L., & Link, B. (2020, Nov). Impact of police violence on mental health: A theoretical framework. *American Journal of Public Health*, 110(11), 1704-1710. <https://doi.org/10.2105/AJPH.2020.305874>. PMID: PMC7542293. PMID: 32941068.
126. Mitchell, O. (2018, Sep 7). Understanding police use of force via hospital administrative data: Prospects and problems. *JAMA Network Open*, 1(5), e182231. <https://doi.org/10.1001/jamanetworkopen.2018.2231>. PMID: 30646150.
127. Kerr, A. N., Morabito, M., & Watson, A. C. (2010, Jan 1). Police encounters, mental illness and injury: An exploratory investigation. *Journal of Police Crisis Negotiations*, 10, 116-132. <https://doi.org/10.1080/15332581003757198>. PMID: PMC2991059. PMID: 21113331.
128. Strote, J., & Hickman, M. J. (2020, Mar). The relationship of injury and complaints of police use of excessive force. *American Journal of Forensic Medicine and Pathology*, 41(1), 5-10. <https://doi.org/10.1097/PAF.0000000000000537>. PMID: 32000222.
129. Kirk, D. S., & Papachristos, A. V. (2011, Jan). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology*, 116(4), 1190-1233. <https://doi.org/10.1086/655754>. PMID: 21648250.
130. Tyler, T. R., & Wakslak, C. J. (2004). Profiling and police legitimacy: Procedural justice, attributions of motive, and acceptance of police authority. *Criminology*, 42(2), 253-282.
131. Williams, D. R., & Williams-Morris, R. (2000). Racism and mental health: The African American experience. *Ethnicity and Health*, 5(3-4), 243-268.
132. Pickett, J. T., Graham, A., & Cullen, F. T. (2022). The American racial divide in fear of the police. *Criminology*, 60(2), 291-320.
133. Zelle, H., Kelley, S., Agee, E. R., & Siebert, W. L. (2022, Jan-Feb). Police use of force standards and mental health crises in the United States: Identifying research and policymaking targets. *International Journal of Law and Psychiatry*, 80, 101750. <https://doi.org/10.1016/j.ijlp.2021.101750>. PMID: 34864333.
134. McMahan, W. W., & Oketch, M. (2013). Education's effects on individual life chances and on development: An overview. *British Journal of Educational Studies*, 61(1), 79-107.
135. Ross, C. E., & Wu, C. L. (1995). The links between education and health. *American sociological review*, 719-745.
136. Gustafsson, J. E., Allodi Westling, M., Alin Åkerman, B., Eriksson, C., Eriksson, L., Fischbein, S., ... & Persson, R. S. (2010). School, learning and mental health: A systematic review.
137. Brännlund, A., Strandh, M., & Nilsson, K. (2017). Mental-health and educational achievement: the link between poor mental-health and upper secondary school completion and grades. *Journal of Mental Health*, 26(4), 318-325.



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

200 Independence Avenue SW
Washington, D.C. 20201

COPYRIGHT INFORMATION

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.