Invisible Wounds: Meaning-Making, Survivorship, and the Structural Inequities That Shape Them



Deanna Marie Giraldi, MPH

Thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Social Intervention and Policy Evaluation

Department of Social Policy and Intervention

St. Antony's College

University of Oxford

May the lives taken and the lives forever changed never be just statistics.

Table of Contents

Acknowledgements....4
Statement of Authorship....6
Thesis Abstract....7
Overview of Thesis….....9
I. Introduction....11
A. Research Puzzle....12
B. Burden of Firearm Violence in the US....16
C. Debates on Definitions in the Field....24
D. Temporal Evolution in the Aftermath 28
E. Thesis Aims and Research Questions....33
II. Methodology.... 45
A. Research Design and Multi-Paper Structure....48
B. Survivorship as an Open Analytic Category....54
C. Multi-Pathway Recruitment Strategy....56
D. Challenges in Firearm Violence Research....58
E. Research Ethics 60
F. Reflexivity and Positionality....63
G. Methodological Limitations....64
H. Conclusion....66
III. Paper 1: Understanding the Broader Impacts of Nonfatal Firearm Violence Trauma in the United States: A scoping review....71
IV. Paper 2: Life in the Aftermath: Typologies of Firearm Violence Exposure and Emergent Survivorship....103
V. Paper 3: Inequitable Aftermath: Structural Mechanisms Shaping the Experience of Firearm Violence....134
VI. Paper 4: “We can endure suffering but not meaninglessness”: Identity, Meaning-Making, and Community in Online Firearm Violence Survivor Networks....178
VII. Conclusion....206
A. Returning to the Beginning....206
B. Answering the Puzzles....207
C. The Central Argument: Survivorship as Structurally Produced....213
D. Theoretical Contributions....215
E. Implications for Research, Policy, and Practice....217
F. Limitations and the Boundaries of Thesis Claims....223
G. Reflection: On Invisibility and Accountability....225
VIII. Appendices....230
Appendix 1A....216
Appendix 1B....217
Appendix 2A....237
Appendix 2B....240
Appendix 2C....241
Supplementary File 1 ....Submitted Separately

Acknowledgements

This page closes twenty-four years of formal education, shaped by so many people who inspired in me a curiosity, a deep love of learning, and a belief that what we learn must be turned toward change for the better.

Thank you to Professor David Humphreys, whose guidance shaped this thesis in more ways than I can name. I am equally grateful to my co-authors — Nelba Márquez-Greene, Sarah Lowe, Susan Swingler, Sara Jacoby, Elinore Kaufman, David Kirk, and GJ Melendez Torres — and to Drs Amiya Bhatia and Aaron Reeves, whose thoughtful engagement, gentle nudges for revision, and intellectual generosity made this work richer.

None of this would have been possible without the participants who trusted me with their experiences of violence, including their fears, their resilience, their calls to action, and their memories of loved ones. I am profoundly grateful for your voices.

To the lunch crew at St Antony's College: you have been a constant source of laughter and something close to informal therapy; I will miss you all deeply.

To my mom (Maria Luisa Tarantino Giraldi) and my dad (Natalino Giraldi), to my sister (Victoria Giraldi, soon-to-be Auriemma), my brother (Joseph Giraldi), and my new brother-in-law (Luigi Auriemma): Thank you for your love, patience, and unwavering faith in me when I told you I would be flying across the ocean to pursue this work, and for the video call debriefs of your days that became the highlights of mine. Someone brilliant told me that once your name is published,

you become immortal, and so I've included each of your names here alongside mine. I love you all immensely.

And to those I carry with me — especially Nonno Ralph, who spent his life calling me number one and cheering me on at every step of my academic journey. I wish you could see me here, at the number one institution in the world. I know you are still cheering, just from a different set of seats.

This thesis is written in memory of Kevin Jiang, whose last moments of life I witnessed stolen by gun violence and in whose name this work began, and for all those whose lives have been shaped or taken by gun violence.

Statement of Authorship

Paper 1, *Understanding the broader impacts of non-fatal firearm violence trauma in the United States: A scoping review,* was jointly produced by Deanna M Giraldi, Susan Swingler, David S Kirk, Sara F Jacoby, G.J. Melendez Torres, Elinore J Kaufman, and David K Humphreys. Paper 2, *Life in the Aftermath: Typologies of Firearm Violence Exposure and Emergent Survivorship,* was jointly produced by Deanna M Giraldi, Nelba Marquez-Greene, Sarah Lowe, and David K Humphreys.

In line with Examination regulations, all authors hereby certify that the majority of the work (over 70 percent) has been done by Deanna M. Giraldi. Papers 3 and 4 are solely authored by Deanna M. Giraldi.

18 June 2026

Susan Swingler 

David S Kirk 

Sara F Jacoby 

G.J. Melendez Torres 

Elinore J Kaufman 

Nelba Marquez-Greene 

Sarah Lowe 

David K Humphreys 

Thesis Abstract

Firearm violence in the United States generates harms that extend far beyond the fatalities and acute injuries that dominate media and policy discourse. Psychological trauma, disrupted identity, relational strain, and long-term economic and social consequences accumulate across interpersonal, community, and structural domains yet remain largely invisible in research and insufficiently addressed in practice. For some, violence constitutes a singular rupture; for others, in contexts of structural inequality, racialized poverty, and chronic exposure, it functions as a normalized condition of everyday life. This thesis asks: *what are the invisible wounds of firearm violence, and how do those affected understand, experience, and work to repair these harms?*

Through a four-paper investigation, this thesis examines the aftermath of firearm across a wider range of exposure than dominant frameworks capture, including physical injury, witnessing, bereavement, and residence in high-violence communities. A scoping review of 25 years of research reveals that the field has systematically underrepresented indirect, chronic, and community-level harms. Qualitative studies and an embedded phenomenological analysis demonstrate that recovery does not follow a singular trajectory: while some narrate violence as a discrete turning point, others experience it as cumulative and embedded in daily life, shaped by structural abandonment and differential access to support. A structural analysis identifies seven mechanisms through which structural racism and structural disadvantage produce differential aftermath experiences. Online survivor networks emerge as vital but unequally accessible spaces, providing resources beyond clinical reach while risking the reproduction of broader social hierarchies.

Taken together, these studies advance an empirically grounded argument: survivorship is not an outcome of exposure, but a selectively emergent process shaped by institutional recognition, structural position, and access to collective spaces in which identity can be narrated and legitimized. Effective intervention requires moving beyond physical injury to engage the social, structural, and temporal dimensions of lives lived in the wake of violence.

Overview of the Thesis

	Titles	Authors & Contribution	Research Questions	Data	Methods	Results	Publication Stage
Intro	Deanna M Giraldi		Elongated version **In Press** for an invited chapter of The Oxford Handbook of Victims and Victimology titled "Exposure to Firearm Violence: Multilevel Harms Beyond Physical Victimization"				
Paper 1	Understanding the broader impacts of non-fatal firearm violence trauma in the United States: A scoping review	Deanna M Giraldi; Susan Swingler; David S Kirk; Sara F Jacoby; G.J. Melendez Torres; Elinore J Kaufman; David K Humphreys	How have researchers conceptualized the harms of firearm violence over the past 25 years?	Of 3,172 screened articles, 87 met the inclusion criteria and formed the empirical base for the review.	Scoping Review	Research focuses on short-term and psychological impacts experienced by direct survivors; evidence on long-term, and cumulative impacts, especially among families, social networks, or communities, remains very limited.	**Published** in *Lancet Regional Health – Americas* DOI: https://doi.org/10.1016/j.lana.2025.101091
Paper 2	Life in the Aftermath: Typologies of Firearm Violence Exposure and Emergent Survivorship	Deanna M Giraldi; Nelba Marquez-Greene; Sarah Lowe; David K Humphreys	How do individuals who have experienced firearm violence, either directly or indirectly, describe and make sense of the aftermath of violence? What commonalities and differences emerge across typologies?	Screening instrument from 91 participants plus 33 in-depth interviews providing narratives across forms of firearm violence exposure	Qualitative study using inductive thematic analysis and iterative coding to derive exposure typologies and survivorship orientations from participant narratives	Four overlapping exposure typologies were identified (physically wounded, firsthand witness, bereaved, and chronically exposed) with three distinct orientations toward survivorship emerging selectively across them.	**Under Review** for *Critical Public Health* Published as pre-print on SocArxiv (OSF).
Paper 3	Inequitable Aftermath: Structural Mechanisms Shaping the Experience of Firearm Violence	Deanna M Giraldi	How do structural conditions, including structural racism and structural disadvantage, shape differential experiences of the aftermath of firearm violence across exposure typologies?	Same 33 interviews from Paper 2	Secondary qualitative analysis of 33 in-depth interview transcripts using iterative coding guided by intersectionality as a sensitizing	Seven mechanisms were identified through which structural racism and structural disadvantage produce differential aftermath experiences, and outlier analysis specifying the	**Under Review** for *Social Science and Medicine* Published as pre-print on SocArxiv (OSF).

					framework, cross-case matrices, and temporal analysis	structural conditions under which each mechanism can be suppressed.	
Paper 4	"We can endure suffering but not meaningless ness": Identity, Meaning-Making, and Community in Online Firearm Violence Survivor Networks	Deanna M Giraldi	How do survivors who participate in online networks conceptualize networks' use, purpose, and meaning in relation to identity, advocacy, and recovery?	A subset of 12 purposively selected, self-identified survivors, all affiliated with survivor networks, from a larger qualitative dataset of 33	An embedded subgroup analysis, using semi-structured interviews and van Manen's hermeneutic phenomenol ogical approach	Survivors viewed networks as sources of language and legitimacy, emotional and practical lifelines, pathways to civic engagement, and spaces where visibility and disclosure were negotiated, with engagement evolving over time.	**Published** in *Social Science & Medicine - Qualitative Research in Health* DOI: https://doi.org/10.1016/j.ssmqr.2026.100742

I. Introduction[1]

Firearm violence in the United States represents a persistent and complex public health, social, and structural challenge. Public discourse and policy frequently focus narrowly on fatalities, obscuring the broader harms experienced by those who are physically injured, witness violence, lose loved ones, or live in communities where shootings are chronic and normalized. These harms include psychological trauma, disruptions to identity and social roles, relational stress within families, and long-term economic and social consequences for both individuals and communities (Zatzick et al., 2008; Haider et al., 2018; Herrera-Escobar et al., 2019). Despite their significance, these impacts remain underexamined in research and insufficiently addressed in policy and practice, leaving large populations invisible and interventions inadequately tailored to their needs. Understanding these dynamics is critical to ensuring that research, policy, and interventions respond to the full spectrum of harms rather than just deaths or acute injuries.

Three terms are used consistently throughout this thesis. *Exposure* refers to the ways a person encounters firearm violence, whether through physical injury, firsthand witnessing, bereavement or living amid chronic community violence. *Exposure typologies* refer to the four participant-derived categories into which these experiences are grouped in Papers 2 and 3. *Aftermath* refers to the period that begins once immediate danger has passed, and *survivorship* to a process that may or may not emerge within it (Section I.C).

[1] An elongated version of this introduction has been accepted for publication as a book chapter ("Exposure to Firearm Violence: Multilevel Harms Beyond Physical Victimization") in the *Oxford Handbook of Victims and Victimology* (in press).

A. Research Puzzle

This thesis conceptualizes its core research objectives as three interlinked puzzles. The puzzle metaphor is a conceptual device used across the social sciences, particularly in political science and sociology, orienting inquiry toward the *why* and *how* of a phenomenon, rather than simply its presence or absence. The first puzzle of this thesis is: to what extent are the harms of firearm violence recognized, and which exposure typologies remain invisible? A scoping review of 25 years of literature (Paper 1) found that only 4 of 87 included studies addressed indirect exposure to firearm violence, that over half failed to disaggregate exposure types, and that community-level outcomes accounted for just 10% of the literature. Research has increasingly documented mortality and acute injury (Kaufman & Delgado, 2022), but the wider psychosocial, economic, and relational harms experienced across different forms of exposure remain systematically underexamined. Structural barriers, including political conditions, incomplete datasets, and chronic underfunding, begin to explain why these harms have remained largely invisible. Therefore, gaps in the existing literature are not incidental; they reflect whose suffering is legible to research and whose is not.

The second puzzle is: how do individuals with different forms of exposure make sense of their experiences in such varied ways, even when facing similar social and structural conditions? Existing frameworks, such as Semenza and Kravitz-Wirtz's (2025) categorization, offer useful population-level distinctions but often obscure the variation and nuance of how individuals experience and interpret harm within each tier. Their conceptual framework for classifies exposure to gun violence as direct, secondary or community exposure. The framework offers useful population-level distinctions; however, tt treats each category as relatively uniform, and so does

not capture how individuals within a category experience and interpret harm. This thesis' participant-derived typologies developed in Paper 2 refine these categories.

Research investigating these processes has begun to emerge. For example, Baker et al. (2024) highlighted how Black men who have survived firearm injury actively negotiate their post-injury identity, with participants variously embracing the label of "survivor," rejecting "victim" as disempowering, or declining both terms altogether in favor of alternative self-descriptions that better reflect their lived and social experiences. Bailey et al. (2013) and Sharpe et al. (2024) explored how *bereaved* mothers articulate their needs in the aftermath, emphasizing their reliance on informal social support, cultural and community-based coping mechanisms, and spiritually-grounded care over time. Although these studies offer valuable insight into specific populations and forms of exposure, they remain siloed within single typologies (e.g., bereaved family members) in the aftermath of firearm violence. To date, no research has systematically compared the aftermath across different forms of firearm violence exposure to identify where interpretations, needs, and trajectories converge or diverge, or to determine how support systems might be tailored accordingly.

Drawing on 33 in-depth interviews across four participant-derived typologies – physical injury, firsthand witnessing, bereavement, and chronic community violence – Papers 2 and 3 address this gap directly. Paper 2 finds that while the aftermath is broadly shared across typologies, survivorship emerges unevenly within it, shaped by relational, cultural, and institutional dynamics. Three analytically distinct orientations emerge from the data: survivorship as embraced, particularly where advocacy networks or bereavement communities provided frameworks for

collective meaning-making; contested or ambivalent, where the label implied a trajectory toward resolution that did not match lived experience; and rejected or inaccessible, either where violence was a sustained structural condition that precluded individualizing narratives, or where the absence of physical injury foreclosed the label entirely. Paper 3 notes that these orientations are not simply individual differences in meaning-making; they reflect differential access to recognition, legitimacy, and the institutional frameworks through which experiences of violence can be interpreted.

The third puzzle focuses on recovery and agency: what mechanisms allow individuals to rebuild identity, community, and agency in the aftermath of firearm violence, especially where formal systems fail them? Most work is population-specific, focusing primarily on survivors who were physically shot, often young, male, and racially marginalized (Bailey et al., 2013; Vella et al., 2020; Baker et al., 2024), which leaves out those exposed through witnessing, bereavement, or chronic community violence. The literature also tends to emphasize pathology (e.g., trauma symptoms, social isolation, risk of reinjury) (DeMello et al., 2025) rather than mapping out recovery trajectories, processes of identity reconstruction, community rebuilding, or the emergence of agency and meaning over time. To date, there is little comparative research examining whether and how recovery differs across exposure types (physical injury, direct witnessing, bereavement, chronic community violence), and few theoretically grounded, survivor-centered frameworks that trace mechanisms of healing, resilience, and reintegration (Pinderhughes et al., 2015; Timmer-Murillo et al., 2023). Without a comparative and survivor-centered understanding of recovery and agency, interventions risk remaining reactive and insufficient, focusing narrowly on pathology or acute injury, and overlooking the long-term needs,

strengths, and capacities of individuals. Clarifying processes of rebuilding is essential for interventions that promote equitable access to care, support, and meaningful participation in social life.

Papers 3 and 4 address this puzzle from complementary angles. Paper 3 examines how structural racism and structural disadvantage, operating as ongoing structural forces rather than merely as antecedents to exposure, produce differing access to care, recognition, and the conditions necessary for identity reconstruction. Paper 4 examines how self-identified survivors affiliated with online networks use these spaces to reconstruct identity, access shared language and legitimacy, and engage in civic life. Together, these papers reveal that the aftermath is not simply a matter of personal resilience; it is actively shaped by inequitable systems and by whether individuals have access to collective spaces in which survivorship can be narrated, legitimized, and performed.

These three puzzles – (1) which harms and populations remain invisible, (2) how survivors interpret and navigate exposure, and (3) what enables rebuilding and agency – frame the overarching questions of this thesis. The importance of these puzzles is clear: whose survivorship is recognized, and conversely whose is ignored, influences the care, support, and quality of life individuals and wider communities can access in the aftermath of violence. In a context where the conceptual breadth of survivorship is actively contested, this thesis advances an original, empirically grounded argument: survivorship is not an outcome of exposure, but a selectively emergent, relational process shaped by exposure type, institutional recognition, structural position, and access to collective spaces in which identity can be narrated and legitimized. This argument

has direct implications for research, policy, and practice, particularly for communities disproportionately affected by firearm violence who remain most visible to exposure and least visible to support.

B. Burden of Firearm Violence in the United States

A reasonable question is whether the aftermath of firearm violence differs from that of other interpersonal violence, and so whether it warrants its own analytic focus. This thesis does not claim that firearm violence produces harms unknown elsewhere. Several of the processes examined here, including disrupted identity, uneven recognition and the contested meaning of "survivor", have been documented in research on domestic violence and cancer survivorship (Aziz, 2002; Leisenring, 2006), and the survivorship framework used here draws on those literatures. The argument is that firearm violence in the United States combines four features that make these processes distinct in degree and social organization. First, firearms are more lethal than other weapons used in interpersonal violence (Braga et al., 2021), so exposure more often involves death, near-death or the threat of death, and produces large populations of the bereaved and of witnesses alongside those injured (Kaufman & Delgado, 2022). Second, firearm violence is public and ambient. It occurs on streets and in schools, workplaces and places of worship, extending exposure from victims and families to whole communities (Kravitz-Wirtz et al., 2022). Third, it is embedded in a distinctive political economy of weak regulation, organized lobbying and contested social meanings of guns (Carlson, 2015; Melzer, 2009), which shapes how harm is recognized, funded and researched. Fourth, its burden is sharply patterned by race, class and place (Beard et al., 2017), so the aftermath is distributed as unequally as exposure. Where the processes examined

here are shared with other forms of violence, firearm violence serves as a case in which they become especially visible.

1. The United States as a Global Outlier

An estimated 90% of firearm deaths worldwide occur outside of conflict situations (Naghavi et al., 2018). In fact, there are currently more than 1 billion firearms in circulation, with the majority, 85%, in the hands of private civilians (Amnesty International, 2024). In 2019 alone, more than 250,000 people were killed by firearms, with nearly 71% of these deaths being homicides (Leach-Kemon et al., 2023). While firearm-related violence occurs globally, an estimated 65.9% of total firearm deaths occur in six countries: Brazil, the United States, Venezuela, Mexico, India, and Colombia (World Population Review, 2026).

Trends across these countries highlight the disproportionate impact of firearm violence on low-income people of color, with men being both the primary victims and perpetrators of firearm deaths (Naghavi et al., 2018). Women, however, experience an elevated risk of firearm violence, including threats with firearms, in situations of domestic and sexual violence (Tobin-Tyler, 2023). Additionally, women often carry long-term consequences of firearm violence, living as bereaved survivors of their fathers, husbands, brothers, and sons (Bailey et al., 2013; Hitchens, 2023; Sharpe et al., 2024). These disproportionate experiences of firearm violence are often exacerbated by policing which may not comply with international standards of human rights, a lack of access to public health services, easy access to and proliferation of firearms, and widening disparities across a host of socioeconomic factors (Patel et al., 2022; McMillan et al., 2024).

The structural and cultural dynamics that produce this global distribution reinforce the United States as a global outlier: a hub of firearm manufacturing, a major exporter of gun culture, a guarantor of civilian gun rights, and a weakly regulated firearms market (Stroud, 2012; Carlson, 2015). These dynamics reflect the broader political economy of U.S. gun policy, in which lobbying groups exert substantial influence over legislative agendas, public discourse, and the social meaning of guns (Melzer, 2009).

The United States experiences firearm violence at rates unmatched by other high-income nations, positioning it as a global outlier in both prevalence and consequence (Leach-Kemon et al., 2023). While public and policy discourses often emphasize individual responsibility or cultural attitudes, the unique U.S. context reflects historical, political, and structural factors, including widespread firearm availability, fragmented legislation, racialized patterns of violence, and persistent inequities in economic and social resources (Carlson, 2015; Pascoe & Bridges, 2016). These conditions collectively produce a landscape in which exposure to firearm violence is pervasive rather than rare, rendering nonfatal and indirect harms particularly salient.

2. Prevalence and Incidence of Firearm Violence in the United States

The United States is the only high-income country (HIC) with more firearms in circulation than people in residence and has a gun homicide rate that is 26 times higher than that of any other HIC (Leach-Kemon et al., 2023). Firearms are the leading cause of death for children, the second leading cause for 15- to 24-year-olds, and the most frequently used weapon in interpersonal violence against women (Grinshteyn & Hemenway, 2016). More than 120 people in the United States are killed with firearms each day, *twice as many are shot and wounded*, and countless others

are impacted by the ripple effects of this violence (Kaufman & Delgado, 2022). While fatalities are often the focal point of news reports and policy memos, the impacts of firearm violence on those living through it (i.e. directly injured, witnessing violence, bereaved, or communities chronically exposed) reverberate far beyond the immediate event, socially, physically, psychologically, and economically.

This thesis focuses on non-fatal, interpersonal and community firearm violence, rather than firearm suicide. A major public health crisis, firearm suicide is bracketed here because the mechanisms of exposure, harm, and aftermath differ from those in interpersonal and community violence, as do the populations most affected (Foote et al., 2022). People bereaved by firearm suicide, and those who survive attempts, may face aftermath dynamics that differ from the typologies examined here, and the findings should not be assumed to extend to them. This remains an important direction for future work.

Firearm violence in the United States is also unevenly distributed across states and regions, which national figures often conceal. In 2024, the national firearm death rate was 14.0 per 100,000, but state rates ranged from 3.8 in Massachusetts to 28 in Mississippi, a difference of more than sevenfold (CDC, 2025). The lowest rates are concentrated in the northeast, California, and Hawaii, and the highest in the South. High rates also appear in the Mountain West and Alaska, where firearm suicide contributes heavily. These differences track state firearm laws and gun ownership (Fleegler et al., 2013) as well as socioeconomic conditions. The national rate therefore reflects, in large part, the rate in the South, and the characterization of the United States as an outlier is not

uniform across the country. In this thesis, the interview sample spans 29 states and Washington DC, with 52% of participants in the South.

Non-fatal firearm injuries occur more than twice as often as deaths, with an average of 85,694 emergency department visits annually (Kaufman et al., 2021). Areas of heightened exposure, so-called "hot spots," are associated with modifiable social determinants including unemployment, lower income, and lower educational attainment (Lasky et al., 2021), underscoring that the conditions producing firearm violence are neither random nor inevitable. These disparities are not evenly distributed. Firearm violence tends to occur disproportionately in low-income hot spot areas with relatively high proportions of Black residents (Beard et al., 2017; MacDonald et al., 2022). A case study in Philadelphia, Pennsylvania utilizing police department data found an assault rate five times higher for Black individuals when compared to white people, regardless of income (Beard et al., 2017). This trend of profound disparity in exposure to firearm violence by socioeconomic class, race, and place is in line with a 2021 nationwide homicide report from the Federal Bureau of Investigation (FBI): 73% of homicides were committed with a firearm, 46% of victims were under 30 years old, and 55% of victims were Black or African-American (FBI, 2021).

3. Impacts of Nonfatal Firearm Violence Exposure

Exposure to firearm violence produces a spectrum of mental, emotional, social, and economic harms (Giraldi et al., 2025). Individuals who are physically injured may face lasting physical disability, chronic pain, and heightened risk of psychiatric conditions such as post-traumatic stress disorder, depression, and anxiety (Papachristos et al., 2015; Zeineddin et al., 2021). Witnesses to shootings, family members of homicide victims, and residents of high-violence neighborhoods

often also experience profound psychological stress, grief, and disruptions to personal and social identity (Zinzow et al., 2009; Lennon et al., 2024).

These harms ripple outward to communities and institutions. Schools, workplaces, and neighborhoods navigate collective trauma, loss of social cohesion, and reduced trust in local systems (Sampson et al. 1997). Economic consequences, such as lost productivity, medical costs, and diminished property values, further compound the burden (Braga & Cook, 2023). In sum, firearm violence generates a multi-level constellation of effects that extend far beyond the immediate act of violence and its most visible victims, highlighting the need for research that captures these broader dimensions of harm.

Non-fatal firearm injuries are more than twice as prevalent as deaths from firearm injuries (Kaufman & Delgado, 2022). The Centers for Disease Control and Prevention (CDC) recognize that those who survive firearm-related events may experience long-term consequences including difficulties with memory and emotion as well as decreased feelings of safety around areas where shooting incidents have occurred (e.g. homes, schools, houses of worship, shopping areas, or entire neighborhoods) (CDC, 2022). Survivors have reported increased chronic pain, new functional limitations, reduced physical and mental health composite scores, high rates of post-traumatic stress disorder, lower employment and return to work rates, poor social functioning, and increased alcohol and substance abuse (Zatzick et al., 2008; Gabbe et al., 2017; Haider et al., 2018; Herrera-Escobar et al., 2019; Joseph et al., 2019). Despite these reports of the implications of firearm violence on the lived experience, research disproportionately focuses on mass

shootings and fatalities rather than on the broader, ongoing impacts of firearm violence for survivors, witnesses, and wider communities.

Adolescents exposed to peer firearm suicide (either through directly witnessing it or through community affiliation) had higher subsequent rates of depression, anxiety, post-traumatic stress disorder, and suicidal thoughts (Brent et al., 1993). Youth exposed to mass shootings presented with poor mental health outcomes to varying degrees depending on the nature of the exposure, physical proximity to the shooting, and time since the event (Haravuori et al., 2011). Firearm injuries of all types (e.g., peer and partner violence, mass shootings, suicide and self-harm, and unintentional injury) were associated with high rates of mental and physical harms for children and adolescents (Ranney et al., 2019). Adult homicide survivors were also likely to experience poor physical and psychological outcomes, a decrease in cognitive abilities, and damaged friendship structures, with exposure to firearm violence (even without direct victimization) disproportionately concentrated in poor communities of color (Hertz et al., 2005; Joseph et al., 2019). Repeated exposures to firearm violence also have the potential to reinforce both the traumatic experiences and outcome burdens for individuals and communities (Eyerman, 2020).

Physical injury and fatalities have long dominated public and academic attention. Yet the mental health impacts among witnesses, bereaved family members, and those living in chronically affected communities are equally consequential, and the physical manifestations of psychological harm (e.g., hypervigilance, somatization, disrupted sleep) must be recognized as part of the broader burden of firearm violence, not as secondary or derivative effects.

According to the U.S. Government Accountability Office, firearm-related injuries result in approximately 30,000 initial in-patient hospital stays per year, with each stay estimated to cost an average of $31,000. In other words, the total annual economic cost of physical treatment for firearm injuries is estimated to be approximately $1 billion (GAO, 2021). These figures capture only the most immediate and visible costs. The extended economic and social burden of firearm injuries has been estimated to cost $557 billion (2.4% of GDP) when incorporating: (1) immediate costs starting at the scene of a shooting, such as police investigations and medical treatment; (2) subsequent costs, such as treatment, long-term physical and mental health care, earnings lost to disability or death, and criminal justice costs; and (3) estimates of quality of life lost over a victim's life span (Song, 2022). The largest component (88%, $489 billion) of these estimated costs is attributed to 'quality-of-life lost,' which represents the present value of elements irreparably damaged when a life is cut short or a person is permanently disabled (Everytown Research and Policy, 2024). These figures do not capture costs borne by witnesses, caregivers, or those navigating altered family roles as these populations do not often appear in official injury statistics yet may carry a significant burden.

The following section examines these conceptual tensions directly, tracing key debates over the victim-survivor dichotomy, the emergence of survivorship, and the challenges of defining who counts as affected by firearm violence.

C. Debates on Definitions: Victims, Survivors, and Survivorship in the Aftermath

1. Who Counts?

The question of who counts as a "survivor" of firearm violence is contested in both research and practice. Terminology varies, with some scholars and practitioners using "victim," "wounded," or "affected" interchangeably, while others emphasize subtle distinctions in meaning and implication. Many discussions around language sensitivity have taken place in the sexual violence space (Leisenring, 2006; Dunn, 2008; Williamson & Serna, 2018; Bower, 2026). The term *victim* often foregrounds harm, vulnerability, and the fact of having been harmed; it is particularly critical for access to legal rights, state recognition, and financial support such as victims' compensation schemes (National Association of Crime Victim Compensation Board, 2023). However, its social connotations are more complicated. In the literature, *victim* has been described as carrying implications of passivity, weakness, or dependence (Boyle & Clay-Warner, 2018); others reserve the label for those who did not survive their injuries (Rock, 1998; Sharpe et al., 2024); and some individuals acknowledge that they were victims of violence yet prefer not to think of themselves in those terms due to its emotional, moral, or identity-laden weight (Ahrens, 2006).

By contrast, the term *survivor* has become increasingly popularized through national survivor networks, mutual aid groups, and advocacy organizations (e.g., Everytown Survivor Network, Survivors Empowered, Solidarity for Survivors). Academic research on survivorship terminology remains largely confined to the domestic violence and cancer literatures, and its applicability to firearm violence has yet to be systematically examined. One study explored the adoption of the term "survivor" in the context of firearm violence, finding that participants emphasized agency, resilience, endurance, and the possibility of recovery (Baker et al., 2024). However, the label is

not universally embraced. This thesis finds that ambivalence and resistance to the label are not simply individual preferences but are often structurally produced: for those living amid chronic community violence, survivorship language was frequently inaccessible altogether, displaced by collective framings of violence as ambient and shared rather than as discrete events around which individual identity could coalesce. For others, the absence of physical injury was enough to foreclose the label entirely.

The harms of firearm violence continue to unfold through chronic pain, financial strain, legal proceedings, mental health difficulties, or disruptions to family life long after the event itself (Sabri & Campbell, 2023; Giraldi et al., 2025; Semenza et al., 2026). For many individuals who have lived through firearm violence, the label of "survivor" suggests closure or triumph when their reality is far more ongoing, unstable, or ambiguous (Rees, 2018; Tatebe et al., 2022).

Other designations (e.g., *witness, bereaved,* or *community member)* attempt to capture those indirectly affected by firearm violence and signal a broader, relational understanding of harm (Hannays-King et al., 2015; Mitchell et al., 2019; Sharpe et al., 2024). These terms highlight that the impacts of shootings extend well beyond those who are physically injured, encompassing individuals who observe the event, care for an injured loved one, lose someone close to them, or live in communities marked by chronic exposure and fear.

Together, these debates illustrate that no single term has adequately captured the diversity, complexity, and temporality of firearm violence experiences, nor the work individuals undertake in naming themselves within or outside of these categories. Who is included or excluded in these

definitions carries practical and ethical consequences. Recognition as either a victim or survivor often determines access to support services, inclusion in research studies, and visibility in policy discourse. Conversely, exclusion can render entire populations invisible, particularly those experiencing indirect or community-level harms.

Importantly, much of what we know about survivorship terminology (e.g., its meanings, boundaries, and implications) comes from studies of domestic violence, sexual assault, and cancer. These bodies of work have shaped dominant understandings of what it means to "survive," yet it remains unclear whether, and how, these terms map onto the lived realities of firearm violence. Debates over definitions in the firearm context therefore are not merely semantic; they expose persistent conceptual tensions and underscore the need to understand how these terms are defined, adopted, and experienced by those affected by gun violence, in particular.

2. Survivorship in the Aftermath

Whereas *survivor* is commonly defined as a person who lives through a hardship such as disease, violence, or disaster (Schrauf & de Victoria Rodríguez, 2023; Baker et al., 2024; Texler, 2025), *survivorship* refers not to a status but to a process (Aziz, 2002; van der Kolk, 2014). The concept is most developed in cancer and domestic violence research, which emphasize different aspects of the process. In cancer research, survivorship describes the ongoing experience of living with, through, and beyond harm, encompassing physical, emotional, and social dimensions that may extend across the life course (Frank, 2003). As Frank (2003) argues, survivorship is a relational, evolving process of making a life in the aftermath of harm. In domestic violence research, the emphasis falls on identity: Leisenring (2006) examines the identity work involved in

negotiating and resisting "victim" and "survivor" as categories. In both fields, survivorship is analytically distinct from identification as a "survivor": one can participate in survivorship processes without ever adopting the label.

This thesis adopts a related but distinct framework. Rather than treating survivorship as a universal outcome of exposure to firearm violence, it is understood here as a process that emerges selectively within the aftermath: claimed, contested, performed, or rejected depending on relational, cultural, and institutional conditions. The aftermath itself is the broader and more primary frame: the period that begins once immediate danger has passed, in which experiences are interpreted, identities reconfigured, and relationships renegotiated (Galiatsatos et al., 2020; Rice et al., 2024). Survivorship is one possible, but not inevitable, trajectory within that period.

This distinction matters because existing frameworks for understanding transformation after violence tend to assume a legible rupture between a "before" and an "after." Certain events alter who we are so profoundly that the self before and after cannot be straightforwardly compared (Paul & Healy, 2016). While this framing captures something important about bounded events (i.e., a mass shooting in a community with no prior exposure to gun violence) it is inadequate for those living amid chronic and ambient violence. For individuals in communities where gunfire is a routine feature of daily life, there may be no legible "before": exposure is not a rupture but a condition, and normalization, desensitization, and collective exhaustion replace before-and-after arc such frameworks presuppose. As one participant in this thesis described: "We never spoke about what happened that day…we don't have the luxury of allowing these things to impact us…. Are we comparing gun violence situations? Because we've all seen it. We've all experienced it"

(Dissertation Participant). This is not a statement of resilience; it is the foreclosure of the narrative itself. This thesis, therefore, resists a single framework of transformation, recognizing instead that the aftermath unfolds differently depending on the exposure type, frequency, and structural context of violence.

Firearm violence research has not yet articulated a parallel concept of survivorship to those developed in cancer or domestic violence fields. Narrative and qualitative approaches do suggest, however, that people affected by firearm violence engage in meaning-making and identity processes that parallel those described in these adjacent fields (Bailey et al., 2013; Galiatsatos et al., 2020; Rice et al., 2024). This thesis develops those parallels while attending to a feature that distinguishes firearm violence from illness or discrete assault: the possibility that for some participants in this thesis, there is no clear separation between exposure and aftermath, and no stable ground from which a survivorship identity can be constructed. Whether, and under what conditions, survivorship becomes available as a meaningful frame is itself a central empirical and theoretical question this thesis seeks to answer.

D. Temporal Evolution in the Aftermath

Understanding the aftermath of firearm violence requires attention to the temporal evolution of needs, which can be conceptualized across three interrelated dimensions:

1. Immediate versus Enduring Impacts

The consequences of firearm violence unfold over time. Acute responses to firearm violence, including physical trauma care, emergency services, crisis intervention, and the body's immediate

psychological and physiological reactions, remain the primary focus of much public health research and policy (Giraldi et al., 2025). These responses are critical, but they capture only a narrow temporal slice of the aftermath. A growing body of evidence illustrates that many harms develop, compound, or persist long after the incident itself, manifesting as chronic psychological distress, prolonged hypervigilance, grief, and post-traumatic symptoms (Johnson et al., 2002; Joseph et al., 2019); impaired social and relational functioning (King & Huang, 2022); stigma and identity disruption (Sabri & Campbell, 2023; Baker et al., 2024); and lasting economic instability linked to medical costs, job loss, or reduced earning potential (Spitzer et al., 2022). These enduring effects often unfold over months or years, interacting with structural conditions such as neighborhood disadvantage, racialized policing, and limited access to mental health care (Marmot, 2005).

Understanding how the aftermath unfolds, therefore, requires sustained attention to both immediate and long-term needs, as well as the transitions between them. Failure to recognize this temporality risks underestimating the full scope of harm, reinforcing intervention gaps, and obscuring critical opportunities for meaningful and sustained support. Where survivorship processes do emerge, they too are shaped by this temporal unevenness: accessible to some participants in the acute period, foreclosed for others until much later, and for some never available at all (Giraldi et al., 2026).

2. Individual, Interpersonal, and Community Level Ripples

Harms manifest across multiple, interconnected levels. Individuals contend with trauma, fear, grief, and disruptions to identity and daily functioning (O'Neill et al., 2020). Yet even within this

level, experiences vary; those who are physically wounded, those directly threatened, and those who witness violence each navigate distinct psychological, social, and embodied consequences**.** At the interpersonal level, gun violence reverberates through families, partners, and close networks, reshaping household dynamics, intensifying caregiving demands, straining financial resources, and altering patterns of trust and communication (Leibbrand et al., 2020). These relational effects can either support or derail individual recovery, demonstrating how interpersonal environments can buffer or amplify harm.

At the community level**,** chronic exposure to firearm violence contributes to collective trauma (Semenza et al., 2023) as well as weakened social cohesion and diminished trust in institutions (Buggs et al., 2023). Neighborhoods affected by recurrent violence may experience altered routines, reduced public life, and the normalization of threat, conditions that in turn shape individual and interpersonal behaviors (Braga, 2023; Sampson et al., 1997). These dynamics are neither uniform nor linear: community-level harms can constrain families' coping capacities, while strained relationships can hinder individual healing, illustrating the recursive feedback loops that characterize the aftermath in high-violence contexts.

Semenza and Kravitz-Wirtz's (2025) multi-level framework of violence exposure, distinguishing "direct," "secondary," and "community" exposure, offers a useful starting point but may obscure contested boundaries of proximity and experience**.** This thesis provides empirical evidence for this critique: firsthand witnesses are categorized as "community exposed," a classification that may obscure immediate sensory and emotional proximity to violence. Likewise, categories such as "family" or "community" risk masking substantial within-group variation shaped by role,

relational distance, neighborhood context, and exposure histories. Accounting for these nuances highlights that harms interact across levels and unfold over time, reinforcing the need for holistic and flexible frameworks capable of capturing complexities of the aftermath and the conditions under which survivorship may or may not emerge within it**.**

Firsthand witnessing has received comparatively little dedicated theoretical attention as a distinct exposure category. The existing literature most frequently folds witnessing into broader community exposure frameworks (Bancalari et al., 2022; Semenza & Kravitz-Wirtz, 2025) or aggregates it with direct victimization under composite measures of 'gun violence exposure' (Mitchell et al., 2019; Lanfear et al., 2023). Where witnessing is distinguished empirically, it is typically as a variable predicting psychological outcomes rather than as a form of exposure with its own distinct aftermath dynamics, identity implications, and institutional responses.

Collective trauma theory offers further resources for understanding community-level harm that individual and clinical frameworks cannot capture. While Erikson's (1976) foundational account established that the destruction of shared community (meanings, mutual trust, and sense of continuity) constitutes a distinct form of injury beyond the sum of individual harms, subsequent scholars have extended this insight to contexts of chronic urban violence and racialized harm (Alexander et al., 2004; Eyerman, 2020; Buggs et al., 2023). These frameworks underscore that firearm violence in its chronic and community forms produces injuries that are neither reducible to individual incidents nor adequately captured by event-focused models.

3. Structural and Institutional Barriers

Structural conditions and institutional responses profoundly shape how the aftermath unfolds and who can navigate it. Individuals frequently navigate fragmented healthcare systems, long waits for trauma-informed mental health services, and inconsistent follow-up care (Magee et al., 2023). Access to rehabilitation, counselling, and social support is often mediated by insurance status, employment, and geographic location, producing stark disparities in who receives sustained care (Henry et al., 2024). These disparities are not incidental; research on systemic racism in healthcare documents how institutional structures routinely produce differential treatment along racial lines, shaping who is recognized as deserving care and who is not (Feagin & Bennefield, 2014). Institutional responses, including policing practices, criminal-legal procedures, and victim compensation systems, have the potential to further complicate recovery as adversarial questioning, eligibility hurdles, or bureaucratic delays may compound psychological distress rather than alleviate it.

These barriers are not evenly distributed. They disproportionately burden communities already contending with structural racism, concentrated disadvantage, and historical underinvestment (Buggs et al., 2023). In many Black, Latino, and Indigenous communities, over-policing coexists with under-protection, meaning that individuals may face surveillance without feeling safe, or may avoid seeking assistance due to fear of criminalization or retraumatization (Wendel et al., 2022). Similarly, hospitals serving marginalized neighborhoods often lack stable funding, continuity of care, or culturally responsive services, contributing to cycles of unmet need (Himmelstein et al., 2023). Limited access to high-quality education, stable housing, and employment further

constrains the resources available to absorb the economic and emotional shocks of firearm violence.

These structural forces do more than shape outcomes; they actively interact with individual, interpersonal, and community-level harms. Resource-poor environments can intensify relational strain (Leibbrand et al., 2020), while adversarial institutional encounters can undermine trust in formal systems and push those affected toward informal or unsupported coping strategies (Brunson, 2007; Kirk & Papachristos, 2011). Placing individual experiences within these broader political, economic, and racialized structures is therefore essential for understanding the full spectrum of harms in the aftermath. Such an approach highlights that recovery is not simply a matter of personal resilience but is fundamentally shaped by inequitable systems (Marmot, 2005). What remains underexamined is precisely how these structural conditions shape the aftermath itself, not only as antecedents to violence but as ongoing forces determining who receives care, who is recognized, and who can access the resources necessary for recovery. This thesis addresses that gap directly.

E. Thesis Aims and Research Questions

The harms of firearm violence are thus experienced, interpreted, and shaped across diverse forms of exposure, yet research has not kept pace with this complexity. Through a combination of scoping review, qualitative inquiry, and structural analysis, this thesis addresses the following research questions:

1. How have researchers conceptualized the harms of firearm violence over the past 25 years?

2. How do individuals across different exposure typologies (i.e., physically wounded, direct witness, bereaved family, and chronically exposed) describe and make sense of their aftermath, and how does survivorship emerge, or fail to emerge, within it?
3. What mechanisms link structural conditions, including structural racism and structural disadvantage, to differential experiences of the aftermath of firearm violence across exposure typologies?
4. How do self-identified survivors participating in online networks use these spaces for identity formation, advocacy, and meaning-making?

Together, these inquiries challenge narrow, event-based definitions of the aftermath, illuminate the multi-level, temporal, and structural dimensions of harm, and foreground the voices of those often rendered invisible. Across the four papers, this thesis advances an original argument: survivorship is not an outcome of exposure, but a selectively emergent, relational process shaped by exposure type, institutional recognition, structural position, and access to collective spaces in which identity can be narrated and legitimized. The aftermath is not a neutral recovery period; it is actively produced by the same inequitable systems that structure exposure itself. Recognizing this has direct implications for research, policy, and practice. Interventions that address only acute injury or individual pathology leave intact the structural conditions that make equitable navigation of the aftermath unachievable for many.

References

Ahrens, C.E. (2006), Being Silenced: The Impact of Negative Social Reactions on the Disclosure of Rape. *American Journal of Community Psychology, 38*: 31-34. https://doi.org/10.1007/s10464-006-9069-9

Alexander, J. C., Eyerman, R., Giesen, B., Smelser, N. J., & Sztompka, P. (2004). *Cultural trauma and collective identity*. University of California Press.

Amnesty International. (2024). Gun Violence. https://www.amnesty.org/en/what-we-do/arms-control/gun-violence/

Aziz, N. M. (2002). Cancer survivorship research: Challenge and opportunity. *The Journal of Nutrition,* 132(11). https://doi.org/10.1093/jn/132.11.3494s

Bailey, A., Hannays-King, C., Clarke, J., Lester, E., & Velasco, D. (2013). Black mothers' cognitive process of finding meaning and building resilience after loss of a child to gun violence. *British Journal of Social Work, 43*(2), 336–354. https://doi.org/10.1093/bjsw/bct027

Baker, N. S., VanHook, C., Ziminski, D., Costa, J., Mitchell, M., & Lovelady, N. (2024). "I am a survivor!": Violently injured Black Men's perceptions of labeling after a violent firearm injury. *Journal of Urban Health, 101*(3), 535–543. https://doi.org/10.1007/s11524-024-00874-8

Beard, J. H., Morrison, C. N., Jacoby, S. F., Dong, B., Smith, R., Sims, C. A., & Wiebe, D. J. (2017). Quantifying disparities in urban firearm violence by race and place in Philadelphia, Pennsylvania: A cartographic study. *American Journal of Public Health, 107*(3), 371–373. https://doi.org/10.2105/ajph.2016.303620

Bower L. J. (2026). Is 'Victim-Survivor' Our Imperfect Alternative to Describing People with Lived Experience of Sexual Violence? A Feminist Symbolic Interactionist Analysis, Considering How Ethnicity, Gender, and Disability Interact with Language Choice. *Violence against women*, *32*(6-7), 1388–1409. https://doi.org/10.1177/10778012251338454

Boyle, K. M., & Clay-Warner, J. (2018). Shameful "Victims" and Angry "Survivors": Emotion, Mental Health, and Labeling Sexual Assault. *Violence and victims*, *33*(3), 436–452. https://doi.org/10.1891/0886-6708.v33.i3.436

Braga, A. A., Griffiths, E., Sheppard, K., & Douglas, S. (2021). Firearm Instrumentality: Do guns

make violent situations more lethal? *Annual Review of Criminology*, *4*(1), 147–164. doi:10.1146/annurev-criminol-061020-021528

Braga, A. A. (2023). Gun violence, community harm, and street stops. *Policing: A Journal of Policy and Practice, 17*. https://doi.org/10.1093/police/paac099

Braga, A. A., & Cook, P. J. (2023). The Social Burden of Gun Violence . *In Policing Gun Violence: Strategic Reforms for Controlling Our Most Pressing Crime Problem.* Essay, Oxford University Press.

Brent, D. A., Perper, J. A., Moritz, G., Allman, C., Friend, A., Roth, C., Schweers, J., Balach, L., & Baugher, M. (1993). Psychiatric risk factors for adolescent suicide: a case-control study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *32*(3), 521–529. https://doi.org/10.1097/00004583-199305000-00006

Brunson, R. K. (2007). "Police Don't Like Black People": African-American Young Men's Accumulated Police Experiences. *Criminology & Public Policy*, *6*(1), 71–101. https://doi.org/10.1111/j.1745-9133.2007.00423.x

Buggs, S. A. L., Kravitz-Wirtz, N. D., & Lund, J. J. (2023). Social and Structural Determinants of Community Firearm Violence and Community Trauma. *The ANNALS of the American Academy of Political and Social Science, 704*(1), 224-241.

Carlson, J. (2015). *Citizen-protectors: The everyday politics of guns in an age of decline*. Oxford University Press.

Centers for Disease Control and Prevention. (2022). Firearm injury and death. https://www.cdc.gov/firearm-violence/data-research/facts-stats/index.html

DeMello, A. S., Temple, J. R., de Vassal, L., Alvarado, I., Waguespack, A., Pappadis, M. R., Lee, J. O., & Wood, L. G. (2025). Psychosocial impacts of non-fatal firearm injuries on youth: Findings from a qualitative study. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing, 62*. https://doi.org/10.1177/00469580251339075

Dunn, J. L. (2008). Accounting for victimization: Social constructionist perspectives. *Sociology Compass*, *2*(5), 1601–1620. https://doi.org/10.1111/j.1751-9020.2008.00150.x

Erikson K. T. (1976). Disaster at Buffalo Creek. Loss of communality at Buffalo Creek. *The American journal of psychiatry, 133*(3), 302–305. https://doi.org/10.1176/ajp.133.3.302

Everytown Research and Policy. (2024, November 11). *The economic cost of gun violence*. Everytown Research & Policy. https://everytownresearch.org/report/the-economic-cost-

of-gun-violence/

Eyerman, R. (2020). *Memory, trauma, and identity.* Palgrave Macmillan.

Feagin, J., & Bennefield, Z. (2014). Systemic racism and U.S. health care. *Social Science & Medicine (1982)*, *103*, 7–14. https://doi.org/10.1016/j.socscimed.2013.09.006

Federal Bureau of Investigation. (2021). FBI — Expanded Homicide. https://ucr.fbi.gov/crime-in-the-u.s/2019/crime-in-the-u.s.-2019/topic-pages/expanded-homicide

Fleegler, E. W., Lee, L. K., Monuteaux, M. C., Hemenway, D., & Mannix, R. (2013). Firearm legislation and firearm-related fatalities in the United States. *JAMA internal medicine*, *173*(9), 732–740. https://doi.org/10.1001/jamainternmed.2013.1286

Frank, A. W. (2003). Survivorship as craft and conviction: Reflections on research in progress. *Qualitative Health Research, 13*(2), 247–255. https://doi.org/10.1177/1049732302239601

Gabbe, B. J., Simpson, P. M., Cameron, P. A., Ponsford, J., Lyons, R. A., Collie, A., Fitzgerald, M., Judson, R., Teague, W. J., Braaf, S., Nunn, A., Ameratunga, S., & Harrison, J. E. (2017). Long-term health status and trajectories of seriously injured patients: A population-based longitudinal study. *PLOS Medicine*, *14*(7). https://doi.org/10.1371/journal.pmed.1002322

Galiatsatos, P., Cudjoe, T. K., Bratcher, J., Heikkinen, P., Leaf, P., & Golden, S. H. (2020). Second victims: Aftermath of gun violence and faith-based responses. *Journal of Religion and Health*, *60*(3), 1832–1838. https://doi.org/10.1007/s10943-020-01112-6

Giraldi, D. M., Swingler, S., Kirk, D. S., Jacoby, S. F., Melendez-Torres, G. J., Kaufman, E. J., & Humphreys, D. K. (2025). Understanding the broader impacts of non-fatal firearm violence trauma in the United States: A scoping review. *The Lancet Regional Health – Americas, 46*, 101091. https://doi.org/10.1016/j.lana.2025.101091

Giraldi, D. M., Márquez-Greene, N., Lowe, S., & Humphreys, D. K. (2026, June 2). *Life in the Aftermath: Typologies of Firearm Violence Exposure and the Selective Emergence of Survivorship.* SocArXiv. https://doi.org/10.31235/osf.io/r5fnb_v1

Government Accountability Office. (2021, June). *Firearm Injuries: Health Care Service needs and costs*. Report to Congressional Requesters. https://www.gao.gov/assets/gao-21-515.pdf

Grinshteyn, E., & Hemenway, D. (2016). Violent death rates: The US compared with other high-income OECD countries, 2010. *The American Journal of Medicine, 129*(3), 266–273. https://doi.org/10.1016/j.amjmed.2015.10.025

Haider, A. H., Herrera-Escobar, J. P., Al Rafai, S. S., Harlow, A. F., Apoj, M., Nehra, D., Kasotakis, G., Brasel, K., Kaafarani, H. M., Velmahos, G., & Salim, A. (2018). Factors associated with long-term outcomes after injury. *Annals of Surgery, 271*(6), 1165–1173. https://doi.org/10.1097/sla.0000000000003101

Hannays-King, C., Bailey, A., & Akhtar, M. (2015). Social support and Black mothers' bereavement experience of losing a child to gun homicide. *Bereavement Care*, *34*(1), 10–16. https://doi.org/10.1080/02682621.2015.1028199

Haravuori, H., Suomalainen, L., Berg, N., Kiviruusu, O., & Marttunen, M. (2011). Effects of media exposure on adolescents traumatized in a school shooting. *Journal of Traumatic Stress*, *24*(1), 70–77. https://doi.org/10.1002/jts.20605

Henry, O. S., Batchu, S., Lachant, J., Armento, I., Hunter, K., Staffa, S. J., Porter, J., & Egodage, T. (2024). Disadvantaged neighborhoods continue to bear the burden of gun violence. *Journal of Surgical Research*, *293*, 396–402. https://doi.org/10.1016/j.jss.2023.09.002

Hertz, M. F., Prothrow-Stith, D., & Chery, C. (2005). Homicide survivors. *American Journal of Preventive Medicine*, *29*(5), 288–295. https://doi.org/10.1016/j.amepre.2005.08.027

Herrera-Escobar, J. P., Rivero, R., Apoj, M., Geada, A., Villanyi, M., Blake, D., Nehra, D., Velmahos, G., Kaafarani, H. M. A., Salim, A., Haider, A. H., & Kasotakis, G. (2019). Long-term social dysfunction after trauma: What is the prevalence, risk factors, and associated outcomes? *Surgery*, *166*(3), 392–397. https://doi.org/10.1016/j.surg.2019.04.004

Himmelstein, G., Ceasar, J. N., & Himmelstein, K. E. (2023). Hospitals That Serve Many Black Patients Have Lower Revenues and Profits: Structural Racism in Hospital Financing. *Journal of General Internal Medicine, 38*(3), 586–591. https://doi.org/10.1007/s11606-022-07562-w

Hitchens, B. K. (2023). The cumulative effect of gun homicide-related loss on neighborhood perceptions among street-identified black women and girls: A mixed-methods study. *Social Science & Medicine*, *320*, 115675. https://doi.org/10.1016/j.socscimed.2023.115675

Johnson, S. D., North, C. S., & Smith, E. M. (2002). Psychiatric disorders among victims of a courthouse shooting spree: a three-year follow-up study. *Community mental health journal*, *38*(3), 181–197. https://doi.org/10.1023/a:1015269521969

Joseph, B., Hanna, K., Callcut, R. A., Coleman, J. J., Sakran, J. V., & Neumayer, L. A. (2019). The hidden burden of mental health outcomes following firearm-related injuries. *Annals of Surgery, 270(*4), 593–601. https://doi.org/10.1097/sla.0000000000003473

Kaufman, E. J., & Delgado, M. K. (2022). The epidemiology of firearm injuries in the US. *JAMA, 328*(12), 1177. https://doi.org/10.1001/jama.2022.16894

Kaufman, E. J., Wiebe, D. J., Xiong, R. A., Morrison, C. N., Seamon, M. J., & Delgado, M. K. (2021). Epidemiologic Trends in Fatal and Nonfatal Firearm Injuries in the US, 2009-2017. *JAMA internal medicine, 181*(2), 237–244. https://doi.org/10.1001/jamainternmed.2020.6696

King, C., & Huang, X. (2022). Neighbourhood violence and housing instability: An exploratory study of low-income women. Housing Studies, 39(3), 651–670. https://doi.org/10.1080/02673037.2022.2074970

Kirk, D. S., & Papachristos, A. V. (2011). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology*, *116*(4), 1190–1233. https://doi.org/10.1086/655754

Kravitz-Wirtz, N., Bruns, A., Aubel, A. J., Zhang, X., & Buggs, S. A. (2022). Inequities in Community Exposure to Deadly Gun Violence by Race/Ethnicity, Poverty, and Neighborhood Disadvantage among Youth in Large US Cities. *Journal of Urban health: Bulletin of the New York Academy of Medicine*, *99*(4), 610–625. https://doi.org/10.1007/s11524-022-00656-0

Lanfear, C. C., Bucci, R., Kirk, D. S., & Sampson, R. J. (2023). Inequalities in Exposure to Firearm Violence by Race, Sex, and Birth Cohort From Childhood to Age 40 Years, 1995-2021. *JAMA network open*, *6*(5), e2312465. https://doi.org/10.1001/jamanetworkopen.2023.12465

Lasky, T., Richmond, B. K., Samanta, D., & Annie, F. (2021). A 10-year review of spatio-temporal patterns of firearm injury in a rural setting. *The American Surgeon, 88*(5), 834–839. https://doi.org/10.1177/00031348211054559

Leach-Kemon, K., Glenn, S., & Sirull, R. (2023, October 31). On gun violence, the United States is an outlier. Institute for Health Metrics and Evaluation. https://www.healthdata.org/news-events/insights-blog/acting-data/gun-violence-united-states-outlier

Leibbrand, C., Hill, H., Rowhani-Rahbar, A., & Rivara, F. (2020). Invisible wounds: Community exposure to gun homicides and adolescents' mental health and behavioral outcomes. *SSM – Population Health*, *12*, 100689. https://doi.org/10.1016/j.ssmph.2020.100689

Leisenring, A. (2006). Confronting "victim" discourses: The identity work of battered women. *Symbolic Interaction, 29*(3), 307–330. https://doi.org/10.1525/si.2006.29.3.307

Lennon, T., Kemal, S., Heffernan, M. E., Bendelow, A., Sheehan, K., Davis, M. M., & Macy, M. L. (2024). Childhood exposure to firearm violence in Chicago and its impact on Mental Health. *Academic Pediatrics*, *24*(6), 982–986. https://doi.org/10.1016/j.acap.2023.12.001

MacDonald, J., Mohler, G., & Brantingham, P. J. (2022). Association between race, shooting hot spots, and the surge in gun violence during the COVID-19 pandemic in Philadelphia, New York and Los Angeles. *Preventive Medicine, 165,* 107241. https://doi.org/10.1016/j.ypmed.2022.107241

Magee, L. A., Ortiz, D., Adams, Z. W., Marriott, B. R., Beverly, A. W., Beverly, B., Aalsma, M. C., Wiehe, S. E., & Ranney, M. L. (2023). Engagement with mental health services among survivors of Firearm Injury. *JAMA Network Open, 6*(10). https://doi.org/10.1001/jamanetworkopen.2023.40246

Marmot M. (2005). Social determinants of health inequalities. *Lancet (London, England)*, *365*(9464), 1099–1104. https://doi.org/10.1016/S0140-6736(05)71146-6

McMillan, J. A., Banerjee, S., Gonzales-Lagos, R., & Harris, W. (2024). Social factors related to gun violence in urban United States. *Journal of Medicine, Surgery, and Public Health, 4*, 100155. https://doi.org/10.1016/j.glmedi.2024.100155

Melzer, S. (2009). *Gun crusaders: The NRA's Culture War.* New York University Press.

Mitchell, K. J., Jones, L. M., Turner, H. A., Beseler, C. L., Hamby, S., & Wade, R. (2019). Understanding the impact of seeing gun violence and hearing gunshots in public places: Findings from the Youth Firearm Risk and safety study. *Journal of Interpersonal Violence, 36*(17–18), 8835–8851. https://doi.org/10.1177/0886260519853393

Naghavi, M., Marczak, L. B., Kutz, M., Shackelford, K. A., Arora, M., Miller-Petrie, M., Aichour, M. T., Akseer, N., Al-Raddadi, R. M., Alam, K., Alghnam, S. A., Antonio, C. A., Aremu, O., Arora, A., Asadi-Lari, M., Assadi, R., Atey, T. M., Avila-Burgos, L., Awasthi, A., … Murray, C. J. (2018). Global mortality from firearms, 1990-2016. *JAMA, 320*(8), 792. https://doi.org/10.1001/jama.2018.10060

National Association of Crime Victim Compensation Boards. (2023, August). Victim Compensation in America: The State-Federal Partnership. https://nacvcb.org/wp16/wp-content/uploads/2023/08/NACVCB-Special-Report-1.pdf

O'Neill, K. M., Vega, C., Saint-Hilaire, S., Jahad, L., Violano, P., Rosenthal, M. S., Maung, A. A., Becher, R. D., & Dodington, J. (2020). Survivors of gun violence and the experience of recovery. *The journal of trauma and acute care surgery*, *89*(1), 29–35. https://doi.org/10.1097/TA.0000000000002635

Papachristos, A. V., Wildeman, C., & Roberto, E. (2015). Tragic, but not random: The social contagion of nonfatal gunshot injuries. *Social Science & Medicine*, *125*, 139–150. https://doi.org/10.1016/j.socscimed.2014.01.056

Pascoe, C. J., & Bridges, T. (2016). *Exploring masculinities: Identity, inequality, continuity and change.* Oxford University Press, UK.

Patel, J., Leach-Kemon, K., Curry, G., Naghavi, M., & Sridhar, D. (2022). Firearm injury—a preventable public health issue. *The Lancet Public Health, 7*(11). https://doi.org/10.1016/s2468-2667(22)00233-x

Paul, L. A., & Healy, K. (2016). Transformative treatments. *Noûs*, *52*(2), 320–335. https://doi.org/10.1111/nous.12180

Pinderhughes H, Davis R, Williams M. (2015). *Adverse Community Experiences and Resilience: A Framework for Addressing and Preventing Community Trauma.* Prevention Institute.

Ranney, M., Karb, R., Ehrlich, P., Bromwich, K., Cunningham, R., & Beidas, R. S. (2019). What are the long-term consequences of youth exposure to firearm injury, and how do we prevent them? A scoping review. *Journal of Behavioral Medicine, 42*(4), 724–740. https://doi.org/10.1007/s10865-019-00035-2

Rees, S. (2018). A qualitative exploration of the meaning of the term "survivor" to young women living with a history of breast cancer. *European journal of cancer care*, *27*(3), e12847. https://doi.org/10.1111/ecc.12847

Rice, H. E., Owen, M., Johnson, A., Swandell, J., Nicholson, C. P., Provencher, S., Horne, E., Solomon, C., Ratliff, W., Knechtle, W., Campbell, D., Smith, R., & Graves, L. (2024a). Lived experiences of people impacted by gun violence: Qualitative analysis of the prescriptions for Repair Project. *Trauma Surgery & Acute Care Open,* 9(1). https://doi.org/10.1136/tsaco-2024-001503

Rock, P. (1998). Murderers, victims and "survivors": The social construction of

deviance. *British Journal of Criminology*, *38*(2), 185–200. https://doi.org/10.1093/oxfordjournals.bjc.a014231

Sabri, B., & Campbell, J. C. (2023). Firearm-related risks and consequences for immigrant women in abusive relationships: Barriers to reporting threats to safety and recommendations for Safety Planning. *Journal of Aggression, Maltreatment &Trauma, 33*(4), 407–431. https://doi.org/10.1080/10926771.2023.2224257

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: a multilevel study of collective efficacy. *Science (New York, N.Y.)*, *277*(5328), 918–924. https://doi.org/10.1126/science.277.5328.918

Schrauf, R. W., & de Victoria Rodríguez, P. C. (2023). Disaster Solidarity and survivor ethics: A case study of Hurricane María in Puerto Rico. *Disasters, 48*(1). https://doi.org/10.1111/disa.12593

Semenza, D. C., Stansfield, R., Silver, I. A., & Savage, B. (2023). Reciprocal Neighborhood Dynamics in Gun Violence Exposure, Community Health, and Concentrated Disadvantage in One Hundred US Cities. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, *100*(6), 1128–1139. https://doi.org/10.1007/s11524-023-00796-x

Semenza, D. C., & Kravitz-Wirtz, N. (2025). Gun violence exposure and population health inequality: a conceptual framework. *Injury prevention: Journal of the International Society for Child and Adolescent Injury Prevention, 31*(1), 1–8. https://doi.org/10.1136/ip-2023-045197

Semenza, D. C., & Engels, L. C. (2026). What doesn't kill us, hurts us longer: A cross-sectional analysis of gun violence exposure and chronic pain in the United States. *BMC Public Health*, *26*(1). https://doi.org/10.1186/s12889-026-26386-5

Sharpe, T., Aqil, N., & Donkin, V. (2024). Invisible Wounds: Exploring the Coping Strategies of Black Survivors of Homicide Victims in Canada. *Omega*, 302228241246423. Advance online publication. https://doi.org/10.1177/00302228241246423

Song, Z. (2022). The business case for reducing firearm injuries. *JAMA, 328*(12), 1185. https://doi.org/10.1001/jama.2022.16890

Spitzer, S. A., Forrester, J. D., Tennakoon, L., Spain, D. A., & Weiser, T. G. (2022). A decade of hospital costs for firearm injuries in the United States by region, 2005–2015: government healthcare costs and firearm policies. *Trauma Surgery & Acute Care Open*, *7*(1).

Stroud, A. (2012). Good guys with guns. Gender & Society, 26(2), 216–238. https://doi.org/10.1177/0891243211434612

Tatebe, L. C., Thomas, A., Regan, S., Stone, L., Sr, & Dicker, R. (2022). Language of violence: Do words matter more than we think?. *Trauma surgery & acute care open*, *7*(1), e000973. https://doi.org/10.1136/tsaco-2022-000973

Texler, C. E. (2025). Am I a Survivor? *JAMA, 333*(1), 28. https://doi.org/10.1001/jama.2024.23388

Timmer-Murillo, S. C., Schroeder, M. E., Trevino, C., Geier, T. J., Schramm, A. T., Brandolino, A. M., Hargarten, S., Holena, D., de Moya, M., Milia, D., & deRoon-Cassini, T. A. (2023). Comprehensive framework of Firearm Violence Survivor Care. *JAMA Surgery, 158*(5), 541. https://doi.org/10.1001/jamasurg.2022.8149

Tobin-Tyler E. (2023). Intimate Partner Violence, Firearm Injuries and Homicides: A Health Justice Approach to Two Intersecting Public Health Crises. *The Journal of Law, Medicine & Ethics: A journal of the American Society of Law, Medicine & Ethics*, *51*(1), 64–76. https://doi.org/10.1017/jme.2023.41

Van der Kolk, B. A. (2014). *The body keeps score: Integration of mind, Brain, and body in the treatment of trauma*. Milton H. Erickson Foundation.

Vella, M. A., Warshauer, A., Tortorello, G., Fernandez-Moure, J., Giacolone, J., Chen, B., Cabulong, A., Chreiman, K., Sims, C., Schwab, C. W., Reilly, P. M., Lane-Fall, M., & Seamon, M. J. (2020). Long-term functional, psychological, emotional, and social outcomes in survivors of firearm injuries. *JAMA Surgery, 155*(1), 51. https://doi.org/10.1001/jamasurg.2019.4533

Williamson, J., & Serna, K. (2018). Reconsidering forced labels: Outcomes of sexual assault survivors versus victims (and those who choose neither). *Violence Against Women*, *24*(6), 668–683. https://doi.org/10.1177/1077801217711268

Wendel, M. L., Jones, G., Jr, Nation, M., Howard, T., Jackson, T., Brown, A. A., Kerr, J., Williams, M., Ford, N., & Combs, R. (2022). “Their help is not helping”: Policing as a Tool of Structural Violence against Black Communities. *Psychology of violence, 12*(4), 231–240. https://doi.org/10.1037/vio0000411

World Population Review. (2026, May 1). *Gun deaths by country 2026*. https://worldpopulationreview.com/country-rankings/gun-deaths-by-country

Zatzick, D., Jurkovich, G. J., Rivara, F. P., Wang, J., Fan, M.-Y., Joesch, J., & Mackenzie, E. (2008). A national US study of posttraumatic stress disorder, depression, and work and functional outcomes after hospitalization for traumatic injury. *Annals of Surgery*, *248*(3), 429–437. https://doi.org/10.1097/sla.0b013e318185a6b8

Zeineddin, S., Zeineddin, A., Jain, A., Olufajo, O. A., Koolaee, S., Cornwell, E. E., & Williams, M. (2021). Disfiguring firearm injuries in children in the United States. *The American Surgeon™*, *89*(5), 2070–2072. https://doi.org/10.1177/00031348211023432

Zinzow, H. M., Rheingold, A. A., Hawkins, A. O., Saunders, B. E., & Kilpatrick, D. G. (2009). Losing a loved one to homicide: prevalence and mental health correlates in a national sample of young adults. *Journal of traumatic stress*, *22*(1), 20–27. https://doi.org/10.1002/jts.20377

II. Methodology

The research questions outlined in the preceding chapter require an approach capable of capturing not only the presence of harm, but its variability and evolution across time, exposure type, and structural context. Specifically, understanding which harms remain invisible, how individuals across different forms of exposure make sense of their experiences, and how recovery and agency are shaped by institutional and structural conditions demands an analytic strategy that can move between lived experience, narrative meaning-making, and broader socio-ecological systems. These questions cannot be adequately addressed through designs that isolate variables or treat firearm violence as a uniform event; rather, they require methods that foreground interpretation, attend to temporality, and situate experience within its social and institutional conditions. Accordingly, this dissertation adopts a qualitative, interpretive, and survivor-centered epistemological stance grounded in constructivist and interpretivist traditions.

Rather than treating the aftermath of firearm violence as a bounded clinical outcome, this research conceptualizes it as a dynamic, ongoing process shaped by social, political, and technological contexts. The methodological orientation is informed by phenomenology (van Manen, 1997), narrative inquiry (Clandinin and Connelly, 2004), and the socio-ecological model (Bronfenbrenner, 1986), enabling analysis of both lived experience and the broader systems that structure how those experiences are produced, interpreted, and sustained.

These three frameworks operate across distinct but complementary registers. Phenomenology, particularly in its hermeneutic form, attends to the nature of lived experience from within, foregrounding meaning, embodiment, and temporality. Narrative inquiry extends this by

recognizing that experience is not only felt but narrated, shaped by relational, cultural, and temporal contexts. The socio-ecological model provides an analytical scaffold for situating experience within the structural and institutional conditions that produce it. A genuine tension exists between the phenomenological tradition (which brackets structural explanation in favor of describing experience as it presents itself) and the explanatory logic of socio-ecological frameworks. This tension is navigated here through the lens of critical phenomenology (Weiss et al., 2019), which explicitly connects lived experience to structural conditions of race, class, and institutional power, enabling movement between experiential depth and structural analysis without collapsing one into the other. In practice, this meant that structural conditions became the spaces within which meanings were interpreted rather than variables imposed upon meanings; coding in Papers 2 and 4 remained close to participant meaning-making, allowing structural patterns to surface inductively, while Paper 3 shifted explicitly into structural mechanism analysis using critical realist rather than phenomenological logic.

These epistemological commitments directly shaped methodological design choices. A qualitative approach was selected to privilege narratives and subjective experience over measurement or variable isolation. Semi-structured interviews were employed to enable participant-led storytelling while retaining analytic coherence across cases. Narrative inquiry, in the tradition of Clandinin and Connelly (2004), was prioritized to center participant meaning-making, attending to how individuals construct, negotiate, and revise stories of their experience over time and within relational contexts, rather than focusing on linguistic structure or theory generation per se. This is distinguished from structural narrative analysis (Riessman, 2008) and Frank's (1995) typological approach, both of which are referenced at the analytic level in specific papers but do not constitute

the overarching narrative epistemology of the project. Phenomenological methods foreground lived experience, embodiment, and temporality, while socio-ecological frameworks structured analysis across individual, relational, institutional, and structural levels. These foundations informed not only interpretation, but also sampling strategies, recruitment design, interview construction, and analytic frameworks across all four papers.

This multi-paper thesis integrates diverse methods, including scoping review methodology, hermeneutic phenomenology, narrative analysis, and embedded subgroup analysis, to generate a layered understanding of experiences and meaning-making in the aftermath of firearm violence across empirical, conceptual, and theoretical domains. Each paper is methodologically distinct, yet theoretically coherent, unified by a constructivist-interpretivist orientation, a commitment to survivor-centered epistemology, and a shared analytical concern with how experience and meaning are produced, structured, and sustained across levels of analysis.

Survivor-centered epistemology is operationalized through narrative sovereignty, interpretive respect, and participant epistemic authority. Narrative sovereignty was enacted through participant-led interviewing, minimal narrative interruption, and analytic privileging of participant meaning-making over externally imposed theoretical frames. Participants were treated as authoritative knowers of their own experiences rather than as data objects. In Paper 4, this was further operationalized through optional participant validation (member checking), in which six participants engaged in post-analysis reflection to assess whether interpretive themes accurately reflected their experiences, meanings, and self-understandings. Member checking was incorporated in Paper 4 given its focus on a self-identified subgroup whose interpretive authority

over their own network experiences was particularly salient to the study's aims. Survivor-centered practice thus functioned as a procedural commitment to shaping data collection, interpretation, and representation.

A. Research Design and Multi-Paper Structure

The thesis is structured as a four-paper cumulative dissertation, with each paper addressing a distinct analytical scale and methodological purpose. The four-paper structure follows a cumulative research architecture rather than a parallel design. In a parallel design, individual papers typically function as stand-alone studies with related themes but limited conceptual or empirical interdependence. By contrast, this dissertation adopts a sequential and integrative approach, in which each paper builds on the conceptual, methodological, or empirical foundations of the previous one, resulting in a coordinated progression of inquiry.

Paper 1 establishes the conceptual and evidentiary foundation by mapping existing knowledge and identifying structural and conceptual gaps. Paper 2 constitutes the core empirical base of the thesis, generating original qualitative data on lived experience and meaning-making in the aftermath of firearm violence. Paper 3 deepens this empirical base through structural analysis, examining how inequality, institutions, and stratification shape experiences, access to resources, and life trajectories following firearm violence. Paper 4 provides interpretive deepening, exploring meaning-making, identity reconstruction, and civic participation within digital survivor networks. Together, the papers operate as layered research, comprising conceptual foundation, empirical core, structural analysis, and interpretive expansion.

Paper 1 employed a scoping review methodology to map the existing literature on non-fatal firearm violence. The review focused on breadth, including peer-reviewed and grey literature, to identify prevailing definitions, conceptual frameworks, and methodological approaches. We searched PubMed, Embase, Scopus, PsycINFO, CINAHL, ProQuest Social Science Premium (ASSIA, NCJRS, and ERIC) and Web of Science until March 2024 (Appendix 1A). Among 3172 articles, 87 met inclusion criteria. By synthesizing findings across disparate fields, the scoping review provided a foundation for empirical studies, highlighting gaps in knowledge, the heterogeneity of impacts, and the limited attention to structural and social determinants of recovery. Findings from Paper 1 directly informed the design of the interview guide used in Paper 2 (Appendix 2A). Across all four papers, the thesis focuses specifically on the aftermath of interpersonal and community firearm violence. Firearm suicide and suicide bereavement are excluded from the scope, as the mechanisms of exposure, harm, and identity in those contexts differ sufficiently from interpersonal and community violence to warrant separate treatment (Foote et al., 2022); findings here should not be assumed to extend to those populations.

Readers will note that Paper 1 uses the term 'survivor-witnesses' to describe those directly exposed to firearm violence. This terminology reflects an early attempt within the thesis to disrupt the binary of direct versus indirect exposure that dominates the existing literature, making conceptual space for emerging work, including Sharpe et al. (2024) and Baker et al. (2024), in which those affected by firearm violence define themselves in the grey space between victim and survivor, witness and injured. The four-typology framework – physical injury, firsthand witnessing, bereavement, and chronic community violence – emerged from that empirical work and represents a conceptual refinement of the broader categories Paper 1 maps. Where Paper 1 collapses these

experiences, Papers 2 and 3 demonstrate why that collapse obscures meaningful differences in harm, institutional recognition, and aftermath experience. The terminological shift across papers is therefore not a contradiction but a record of the thesis's own conceptual development.

Paper 2 represents the primary empirical study, drawing on 33 in-depth, semi-structured interviews with adults who had experienced firearm violence in the United States. Participants were selected to capture a diverse range of exposures; these included direct injury, bereavement, witnessing violence firsthand, and living amid chronic community violence.

The study employed a qualitative design with a questionnaire as a screening instrument. The online questionnaire functioned as a recruitment and sampling tool rather than a data source for analysis. Recruitment materials opened the study to any individual aged 18 or older who had experienced firearm violence in the United States and served to generate a broad, inclusive recruitment pool (Appendix 2B). All respondents (n = 91) were initially invited to interview, with 12 completing interviews in the first recruitment phase. Subsequently, the full questionnaire pool was revisited, and purposive re-invitations were issued to broaden demographic, geographic, and exposure diversity in the final sample. Figure 1 illustrates the iterative recruitment process, showing the progression from the initial questionnaire pool (n = 91) through the exploratory interviews (n = 12) to the final purposive sample (n = 33) and the embedded subgroup selected for Paper 4 (n = 12).

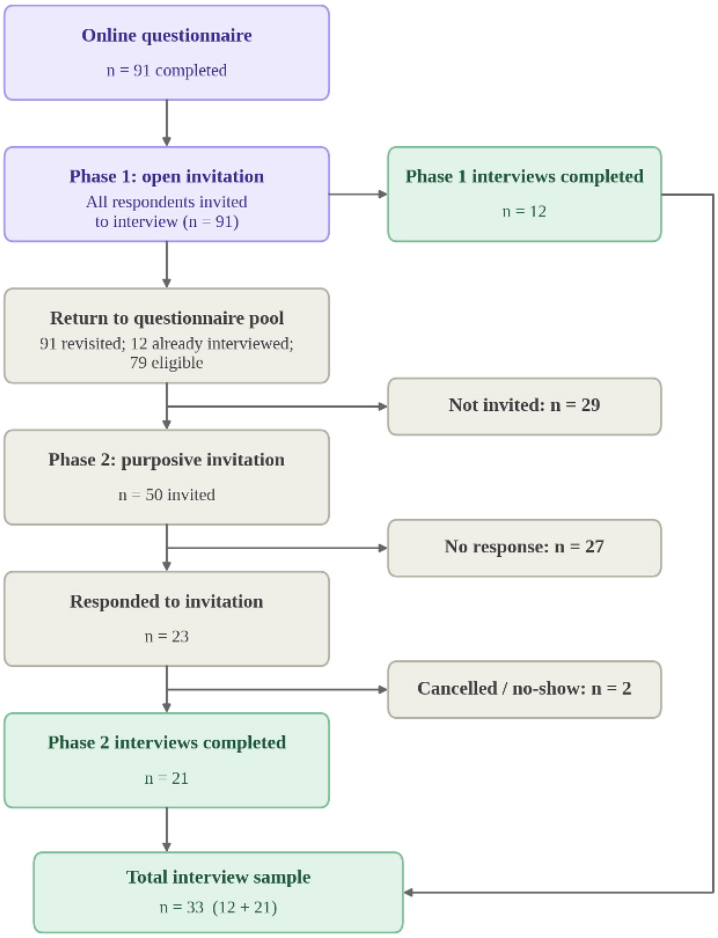


Figure 1. Recruitment and sampling flow. Ninety-one respondents completed the online questionnaire, and all were invited to interview in phase 1; 12 completed interviews. In phase 2, the questionnaire pool was revisited, and 50 of the 79 respondents not yet interviewed were purposively invited to broaden representation by race, age, gender, geographic region, household income, and exposure type. Of these, 23 responded (21 completed interviews; 2 cancelled or did not attend), 27 did not respond, and 29 were not invited. The final sample comprised 33 interviews.

The first 12 interviews came from respondents who self-selected into the first recruitment phase. They served as an exploratory sample, allowing early identification of emergent themes and refinement of the interview guide. In the second phase, respondents were purposively invited to broaden variation by race, age, gender, geographic region, household income, and type of firearm violence exposure. These additional interviews added new themes, including pronounced accounts of compounded racial and economic outcomes, and extended the sample's range. Over the final

interviews, no substantive new themes emerged. Sampling was shaped by both purposive logic and the practical constraints of recruiting from a hard-to-reach population affected by trauma (see Appendix 2C). Recruitment challenges are discussed in section D. Following Malterud et al.'s (2015) information power framework, adequacy was assessed in relation to the specificity of the aim, sample characteristics, quality of dialogue, and analytic strategy rather than a fixed redundancy threshold.

Data analysis for Paper 2 was conducted in NVivo 13, employing iterative coding and thematic development. Coding frameworks evolved iteratively throughout the 33 interviews. Consensus meetings ensured analytic rigor, and analytic memoing documented emerging interpretations. Reflexive memoing was conducted after every interview and at each analytic stage, documenting emotional responses, interpretive assumptions, positional influence, and emerging theoretical insights, and directly informing code development and theme refinement.

Paper 3 conducted a secondary qualitative analysis of the same 33 interviews to examine structural inequities shaping experiences and life trajectories following firearm violence. Using an intersectional lens, this analysis focused on mechanisms through which structural racism, structural disadvantage, and institutional contexts influenced access to resources, identity reconstruction, and agency. Intersectionality is employed here as a sensitizing framework that directed analytic attention toward the compounding rather than additive operation of race and class, the two axes most consistently implicated across participant accounts. A fuller intersectional analysis would attend to how gender, sexuality, disability, and immigration status co-constitute

these dynamics; the present study's sample size and primary aims precluded that level of analysis, and future work should extend the framework accordingly.

Coding employed a parent–child structure, with parent codes including structural factors, barriers, post-violence trajectories, institutional interactions, stigma and discrimination, and temporal processes. Child codes captured participant-specific experiences such as race, socioeconomic status, housing and transportation access, and coping strategies. Cross-case matrices and pattern-matching techniques were used to examine variation and illuminate how structural inequities constrain or enable recovery across different exposure types. Analyses were conducted using NVivo 13. As the sole analyst and primary author of the original dataset, analytic rigor was maintained through analytic memos, cross-case matrices, and reflexive attention to how positional proximity to the data may have shaped what structural dynamics were visible. Coding frameworks evolved iteratively throughout analysis (see Supplementary File 1 for full codebook).

Paper 4 conducted an embedded subgroup analysis of the 12 participants who self-identified as survivors and were affiliated with online survivor networks. This subsample is analytically and compositionally distinct from the initial exploratory 12 participants described above. The study examined how survivors engage with digital communities to navigate trauma, reconstruct identity, and participate in civic life. The analysis employed van Manen's hermeneutic phenomenological approach (1997), focusing on interpretive engagement with participants' narratives to uncover essential meanings of network participation.

Analysis proceeded through recursive interpretive cycles, reflexive memoing, and movement between parts and whole consistent with the hermeneutic circle. Interviews were analyzed holistically, selectively, and line-by-line to capture nuances in language, legitimacy, emotional support, and civic engagement. Coding and thematic development were managed in NVivo 13, with ongoing reflexive discussions to mitigate interpretive bias.

Optional participant validation (member checking) was incorporated in Paper 4, with six participants engaging in post-analysis reflection to assess whether interpretive themes accurately reflected their experiences, meanings, and self-understandings. This process supported interpretive credibility, experiential validity, and narrative sovereignty.

Integration Across Papers

Conceptual insights from Paper 1 informed empirical design in Paper 2; experiential narratives from Paper 2 enabled structural interrogation in Paper 3; and both experiential and structural findings contextualized the interpretive focus of Paper 4. This design enables vertical integration across analytical scales (individual, relational, institutional, digital, and structural), producing a coherent interpretive model of experiences in the aftermath of firearm violence as a dynamic, socially embedded process.

B. Survivorship as an Open Analytic Category

This research deliberately does not impose "survivor" as a predefined identity category at the point of recruitment or sampling (Appendix 2B). Recruitment materials did not use the term "survivor," and eligibility criteria were framed in terms of experiences of firearm violence rather than identity

labels. This design reflects a constructivist epistemological commitment: survivorship is treated as an emergent, negotiated, and socially constructed process rather than a fixed status or classification (Herman, 2015; Denzin, 1990).

Participants entered the study through experience-based criteria, not identity-based categorization. Whether, how, and when individuals came to understand themselves as survivors was treated as an empirical and interpretive question rather than a methodological assumption, reflecting broader work on narrative identity and the contingent construction of selfhood (Herman, 2015; Frank, 1995; Somers, 1994). While this approach sacrifices ease of categorization at the sampling stage, it enabled a more analytically rigorous examination of how survivorship is variably constituted. It also captured forms of meaning-making, non-identification, ambivalence, resistance, and alternative identity constructions that would be structurally excluded by survivor-labelled recruitment.

Survivorship therefore functions in this thesis as an analytic category, not a sampling category, aligning with research that treats social categories as historically contingent and analytically produced rather than given (Hacking, 2007; Foucault, 1970). This is not because it describes a universal experience, but because it names the intersection of lived process, institutional recognition, and material access conditions, making visible the structural work that determines whether recovery becomes narratable, resourced, and socially legible.

C. Multi-Pathway Recruitment Strategy

Recruitment across the empirical papers employed a purposive sampling strategy (Patton, 2002) implemented through a multi-pathway digital recruitment model designed to maximize accessibility, safety, and geographic reach in a high-risk, ethically sensitive research field (Pink et al., 2016). Recruitment began with national gun violence survivor organizations: Everytown Survivor Network, the Brady Campaign, Moms Demand Action, Students Demand Action, and Sandy Hook Promise, through posts on their public platforms and flyers circulated through internal newsletters. This combination reflects established approaches to purposive, maximum variation (Patton, 2002) and network-based sampling in qualitative research (Salganik & Heckathorn, 2004).

Initial recruitment prioritized survivor networks due to the researcher's dual positionality as both researcher and firsthand witness, which facilitated access to internal platforms that are typically less accessible to external researchers. This aligns with longstanding methodological debates regarding insider positionality and its implications for access, trust, and field engagement (Merton, 1972). At the same time, it reflects the ways in which survivorship may be socially mediated, with legitimacy often shaped by participation in organized survivor networks and advocacy spaces. However, significant gatekeeping and protective practices within survivor spaces limited access to broader survivor populations.

In response, recruitment pathways were iteratively expanded to public social media platforms (e.g., Facebook, Bluesky, X), including posts in Facebook community bulletin boards for every U.S. state, and, where group rules permitted, multiple cities per state. This expansion reflects an adaptive and iterative sampling strategy consistent with qualitative fieldwork in constrained or

hard-to-reach populations, where recruitment evolves in response to access barriers and emerging field conditions (Charmaz, 2014; Denzin, 1990). It also recognizes that many individuals affected by firearm violence may not identify as "survivors" or participate in survivor-designated spaces, particularly those whose exposure is indirect, relational, or socially unrecognized. Some recruitment pathways remained structurally inaccessible, including community platforms in politically conservative regions where posts were frequently blocked or removed, further shaping the resulting sample. The 33 interviewees came from 29 states and Washington DC, with 52% living in the South (Paper 2, Table 1).

1. Reflexive Evaluation of Matrix-Based Sampling

The matrix-based purposive sampling strategy used in this study sought maximum variation, not representativeness (Patton, 2002). It aimed to include the widest range of experiences relevant to the research questions, supporting conceptual diversity across exposure type, geography, and demographic characteristics (Appendix 2C). However, this approach also introduces structural privileges and exclusions that are well documented in interpretivist and digital qualitative methodologies (Pink et al., 2016). Digital access, platform visibility, literacy, trust in research, and willingness to narrate trauma shape who becomes reachable and who remains invisible.

Individuals most structurally marginalized, including those with limited digital access or deep institutional distrust, are least likely to enter digital recruitment pipelines. Such dynamics are widely recognized in digital ethnography (Pink et al., 2016) and online qualitative research, where participation is mediated by infrastructural and social inequalities (Lupton & Watson, 2020; St. Pierre et al., 2016).

This strategy therefore privileged participants who were both digitally connected and willing to articulate their experiences, as well as those with sufficient temporal and emotional stability to engage in reflective interviewing. While this supports interpretive depth and analytic coherence, it limits engagement with highly precarious populations whose experiences may be structured by different forms of violence, constraint, and survival logic. From an interpretivist standpoint, this reflects the inherently situated nature of qualitative knowledge production rather than a failure of design (Denzin, 1990; Haraway, 1988). The sampling design thus produces interpretive insight rather than population representation, and the knowledge generated must be understood as structurally situated rather than comprehensive.

D. Challenges in Firearm Violence Research

This research explicitly recognizes firearm violence as a politically sensitive, legally complex, and emotionally high-risk field that presents distinct methodological constraints. Widely documented in research on violence-affected and structurally marginalized populations, access, trust, and safety shape both participation and knowledge production. This is reflected in epidemiological and sociological work on firearm violence and neighborhood effects (Sharkey, 2018), firearm injury prevention (Hemenway, 2017), policy evaluation (Cook & Ludwig, 2000), and state-level firearm legislation and mortality outcomes (Crifasi et al., 2018).

1. Contextual Access and Structural Constraints

Individuals impacted by firearm violence are often not reachable through formal systems due to distrust of institutions (e.g., healthcare, law enforcement, academia), criminalization of affected

communities, fear of surveillance or data misuse, legal entanglements, immigration vulnerabilities, and trauma-related avoidance (Brunson, 2007; Kirk & Papachristos, 2011). These barriers are well established in research on hidden, marginalized, and violence-exposed populations, where institutional systems capture fewer of those most affected (Rockett et al., 2010) and are further reflected in firearm epidemiology and injury surveillance limitations (Hemenway, 2017).

Consequently, traditional clinical or institutional research recruitment pipelines systematically exclude large segments of impacted populations, particularly those who are not physically wounded or formally captured within service-based datasets. In violence epidemiology and public health research, this has been recognized as a structural limitation of "system-reliant" sampling approaches that privilege those who interact with formal institutions over those whose experiences remain outside them (Hemenway, 2017; Rockett et al., 2010; Cook & Ludwig, 2000).

This thesis responded to these constraints in three ways. It recruited through survivor organizations' public platforms and newsletters and through community bulletin boards in every state, rather than through hospitals, courts, or victims services, so that those outside institutional pipelines could take part (Section C). The thesis also defined eligibility by experience of firearm violence, not by injury, service contact, or identification with the label "survivor," so that witnesses, bereaved people, and members of chronically exposed communities were eligible (Section B). It also revisited the questionnaire pool to invite respondents purposively for variation in geography, income, and exposure type. These responses reduced but did not remove the exclusions described above. Digital recruitment favored people with stable access, and gatekeeping within survivor spaces limited initial reach (Section C).

Research in this field is also shaped by funding restrictions, political polarization, policy suppression, and advocacy surveillance (Kellermann & Rivara, 2013). In addition, recruitment and dissemination are increasingly mediated through digital infrastructures, where platform governance, content moderation, and algorithmic visibility (Noble, 2018; Gillespie, 2018) shape what kinds of research participation opportunities remain visible or removed. This occurs via data access, recruitment pathways, and the production of knowledge, reinforcing the importance of understanding violence research as structurally situated rather than purely methodological (Hemenway, 2017).

In this thesis, platform moderation shaped where recruitment posts remained visible: posts in community groups in politically conservative regions were frequently blocked or removed (Section C). Funding constraints also ruled out in-person fieldwork across multiple states, so interviews were conducted online (Chapter VII, Section F).

E. Research Ethics

Firearm violence research carries risk of retraumatization, narrative exploitation, epistemic harm, political exposure, community surveillance, and identity misrepresentation. This sections sets out how ethical commitments were put into practice.

1. Approval and Informed Consent

The study was approved by the University of Oxford's Central University Research Ethics Committee (CUREC R94701/RE001). Consent was sought at three points. Participants gave

written consent before completing the questionnaire, gave written consent again when signing up for the interview, and gave verbal consent at the start of the interview. Consent procedures emphasized voluntariness, ongoing participation choice, and the right to withdraw without consequence.

2, Ethical Risk and Trauma Exposure

Each paper of the thesis is situated within established trauma-informed qualitative research ethics frameworks that recognize the heightened sensitivity of violence-related inquiries (Ellsberg & Heise, 2005; Draucker, Martsolf, & Poole, 2009). This is particularly salient where participants are asked to recount experiences of harm, loss, or ongoing insecurity.

To address these risks, interviews were designed to be trauma-informed and participant-controlled. Participants could pause, stop, or resume the interview at any point and determined the pace, depth, and boundaries of disclosure. This aligns with established best practices in sensitive-topic interviewing, which emphasize minimizing re-exposure and prioritizing participant autonomy during narrative disclosure (Campbell et al., 2019). Participants were also provided with information on mental health and support resources where needed, consistent with ethical guidance for sensitive research practice (Ellsberg & Heise, 2005; Dickson-Swift et al., 2009).

3. Confidentiality and Data Protection

All participants were given pseudonyms. Data were stored securely on encrypted servers, with access limited to the research team.

4. Participant Compensation

Participants who completed both the survey and a follow-up interview received a $25 digital Visa voucher as a token of appreciation for their time. This approach was designed to acknowledge participant time and contribution while minimizing undue inducement, particularly given the sensitive nature of the research topic and the potential vulnerability of individuals with lived experience of firearm violence (U.S. Department of Health and Human Services, 2021). The incentive structure was approved through institutional ethical review (CUREC - R94701/RE001) and was consistent with established guidance on compensation in qualitative research involving sensitive or trauma-exposed populations (Liamputtong, 2007).

5. Knowledge Production and Reciprocity

This research treats knowledge production as an ethical and political act. Methodological choices were guided not only by epistemic rigor but by harm reduction principles, emphasis on the dignity of participants, narrative sovereignty, anti-extractive research ethics, and reciprocity. These commitments reflect broader critiques of extractive knowledge production in research with marginalized and trauma-exposed populations (Fine et al., 2021; Smith, 1999). Narrative sovereignty was enacted through participant-led interviewing and minimal interruption, and, in Paper 4, through member checking, in which participants were invited to review the interpretive themes. Dignity and protection from identity misrepresentation were supported through the use of pseudonyms. Reciprocity was pursued through compensation for participants' time and by published the study's papers open access and disseminating them through the channels used for recruitment, so that the communities who took part could rea the findings.

F. Reflexivity and Positionality

The research is grounded in reflexive qualitative inquiry which emphasizes researchers' roles in co-producing, rather than neutrally observing, knowledge (Charmaz, 2014; Haraway, 1988). I occupy a dual positionality as both a trauma-informed public health scholar and an individual with lived experience of firsthand witnessing firearm violence. This positionality informed ethical sensitivity and interpretive orientation, as well as shaped methodological decision-making and engagement in recruitment and rapport-building. It facilitated access to established survivor networks, deepened interpretive sensitivity, and at times allowed participants to speak more fully than they might have with a researcher who had not stood somewhere adjacent to where they stood. It may also have introduced blind spots, particularly around the firsthand witness typology, where my own experience risked over-identification with participant accounts. To mitigate this, interpretations of that typology were subject to ongoing scrutiny through engagement with external firearm violence researchers throughout the analytic process, so that witness narratives in particular were examined from perspectives less proximate to that experience. These effects have been documented and managed through reflexive practice but cannot be entirely eliminated.

Reflexive memoing, positional journaling, and reflexive distancing were used throughout data collection and analysis to monitor interpretive assumptions, manage emotional proximity, and maintain analytic discipline. These practices align with constructivist grounded theory approaches that emphasize ongoing memoing and reflexivity as integral to the analytic process (Charmaz, 2014).

Positionality in Practice

Where access was gained, my positionality shaped interactions in ways that are worth naming explicitly. Upon introducing myself as a doctoral researcher at the University of Oxford, I also disclosed that I grew up in the Bronx (NY) before studying in New Haven (CT), and in numerous interviews, particularly with participants of color, that disclosure visibly shifted the register of conversation. Participants codeswitched into more colloquial language, often mid-sentence, in ways that suggested a recalibration of who I was and whether I could be trusted with the full weight of what they were carrying. That shift is not a methodological footnote; it is evidence of how much narration is shaped by perceived audience, and how much may remain unsaid when the researcher's institutional affiliation or perceived identity cuts off rather than invites that recalibration.

Rather than claiming neutrality, I wish to state transparently that I believe that those who dedicate themselves to firearm violence research do so because of the lasting impacts of this violence visible in ourselves, in our families, in our communities, and in a country that has normalized a preventable crisis. This research is inherently political, conducted within a context that is itself also political. The violence that produced the experiences examined in this thesis does not occur in a social vacuum, and neither does the scholarship that attempts to account for it.

G. Methodological Limitations

Despite the methodological rigor and interpretive depth of this multi-paper dissertation, several challenges emerged across the project. The purposive, multi-pathway recruitment strategy prioritized conceptual diversity and accessibility; however, as is characteristic of qualitative and purposive sampling approaches, it does not aim for population representativeness and may

underrepresent individuals disconnected from digital networks, offline communities, or survivor-focused platforms (Patton, 2002). Data sources were also constrained: semi-structured interviews relied on participant narratives and retrospective accounts, which are shaped by processes of memory, interpretation, and meaning-making rather than functioning as neutral representations of events (Frank, 1995). The online questionnaire functioned solely as a recruitment tool and did not contribute analytically to the dataset.

Systemic and structural blind spots remain. While socio-ecological frameworks illuminate relational and institutional influences, macro-level forces such as policy dynamics, law enforcement practices, and broader structural inequalities may not be fully visible through participant narratives alone (Metzl, 2019; Sharkey, 2018). Temporal constraints further delimit findings, as experiences were captured at specific points in time and may evolve beyond the study period.

Ethical, safety, and trauma-informed considerations also shaped the scope of engagement, limiting access to highly sensitive or politically constrained experiences, including regions or networks that were inaccessible due to gatekeeping, platform moderation, or political polarization. These constraints reflect the broader conditions under which violence research is conducted.

Collectively, these barriers indicate that while the findings provide a nuanced and contextually grounded understanding of how individuals and communities make meaning in the aftermath of firearm violence, they represent a situated and partial account rather than a comprehensive representation of all experiences (Haraway, 1988).

H. Conclusion

This overarching methodological framework reflects a deliberately integrated, ethically grounded, and structurally aware research design. By combining interpretive qualitative methods, survivor-centered epistemology, trauma-informed data collection, and adaptive recruitment infrastructures, the thesis produces a robust, multi-level understanding of experiences and meaning-making in the aftermath of firearm violence.

This research positions methods as a relational, political, and ethical practice, one that shapes whose voices are heard, whose experiences are legitimized, and what forms of knowledge become possible in firearm violence scholarship. The methodological choices made here reflect a conscious commitment to rigor, reflexivity, and responsibility in a field where silence, exclusion, and misrepresentation have historically constrained knowledge production.

References

Baker, N. S., VanHook, C., Ricks, T., Vil, C. St., Lassiter, T., & Bonne, S. (2024). Protect and provide: Perceptions of manhood and masculinities among disabled violently injured black men in a hospital-based violence intervention program. *American Journal of Men's Health*, *18*(1). https://doi.org/10.1177/15579883231221390

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22*(6), 723–742. https://doi.org/10.1037/0012-1649.22.6.723

Brunson, R. K. (2007). "Police Don't Like Black People": African-American Young Men's Accumulated Police Experiences. *Criminology & Public Policy*, *6*(1), 71–101. https://doi.org/10.1111/j.1745-9133.2007.00423.x

Campbell, R., Goodman-Williams, R., & Javorka, M. (2019). A Trauma-Informed Approach to Sexual Violence Research Ethics and Open Science. *Journal of Interpersonal Violence*, *34*(23-24), 4765–4793. https://doi.org/10.1177/0886260519871530

Clandinin, D. J., & Connelly, F. M. (2004). *Narrative inquiry: Experience and story in Qualitative Research*.

Charmaz, K. (2014). *Constructing grounded theory*. 2nd Edition. SAGE Publications.

Cook, P. J., & Ludwig, J. (2000). *Gun violence: The Real Costs*. Oxford University Press.

Crifasi, C. K., Merrill-Francis, M., McCourt, A., Vernick, J. S., Wintemute, G. J., & Webster, D. W. (2018). Association between Firearm Laws and Homicide in Urban Counties. *Journal of urban health: Bulletin of the New York Academy of Medicine*, *95*(3), 383–390. https://doi.org/10.1007/s11524-018-0273-3

Denzin, Norman K. 1990. "Presidential Address on The Sociological Imagination Revisited." *Sociological Quarterly* 31(1):1–22.

Dickson-Swift, V., James, E. L., Kippen, S., & Liamputtong, P. (2009). Researching sensitive topics: Qualitative research as emotion work. *Qualitative Research*, *9*(1), 61–79. https://doi.org/10.1177/1468794108098031

Draucker, C. B., Martsolf, D. S., & Poole, C. (2009). Developing distress protocols for research on sensitive topics. *Archives of psychiatric nursing*, *23*(5), 343–350. https://doi.org/10.1016/j.apnu.2008.10.008

Ellsberg, M., & Heise, L. (2005). *Researching violence against women: A practical guide for researchers and activists*. World Health Organization; Program for Appropriate Technology in Health (PATH).

Fine, M., Torre, M. E., Oswald, A. G., & Avory, S. (2021). Critical participatory action research: Methods and praxis for intersectional knowledge production. *Journal of Counseling Psychology*, *68*(3), 344–356. https://doi.org/10.1037/cou0000445

Foote, C. W., Doan, X. L., Vanier, C., Cruz, B., Sarani, B., & Palacio, C. H. (2022). Suicide versus homicide firearm injury patterns on trauma systems in a study of the National Trauma Data Bank (NTDB). *Scientific reports*, *12*(1), 15672. https://doi.org/10.1038/s41598-022-17280-2

Foucault, M. (1970). *The Order of Things: An Archaeology of the Human Sciences*. Tavistock Publications.

Frank, A. W. (1995). *The wounded storyteller: Body, illness & ethics*. University of Chicago Press.

Gillespie, T. (2018). *Custodians of the Internet: Platforms, Content Moderation, and the Hidden Decisions That Shape Social Media*. https://doi.org/10.12987/9780300235029

Hacking, I. (2007). Kinds of people: Moving targets. *Proceedings of the British Academy, Volume 151, 2006 Lectures*. https://doi.org/10.5871/bacad/9780197264249.003.0010

Haraway, D. (1988). Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. *Feminist Studies*, *14*(3), 575–599. https://doi.org/10.2307/3178066

Hemenway, D. (2017). *Private Guns, Public Health*. University of Michigan Press.

Herman, J. (2015). *Trauma and recovery: The aftermath of violence - from domestic abuse to political power*. Basic Books.

Kellermann, A. L., & Rivara, F. P. (2013). Silencing the science on gun research. *JAMA*, *309*(6), 549–550. https://doi.org/10.1001/jama.2012.208207

Kirk, D. S., & Papachristos, A. V. (2011). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology*, *116*(4), 1190–1233. https://doi.org/10.1086/655754

Liamputtong, P. (2007). *Researching the vulnerable: A guide to sensitive research methods*. SAGE Publications Ltd.

Lupton, D. & Watson, A. (2020). Towards More-Than-Human Digital Data Studies: Developing

Research-Creation Methods. *Qualitative Research* 21(4), 463–80.

Malterud, K., Siersma, V. D., & Guassora, A. D. (2015). Sample size in qualitative interview studies. *Qualitative Health Research*, *26*(13), 1753–1760. https://doi.org/10.1177/1049732315617444

Metzl, J. M. (2019). *Dying of Whiteness How the Politics of Racial Resentment is Killing America's Heartland*. Basic Books.

Merton, R. K. (1972). Insiders and Outsiders: A Chapter in the Sociology of Knowledge. *American Journal of Sociology*, *78*(1), 9–47. http://www.jstor.org/stable/2776569

Noble, S. U. (2018). *Algorithms of Oppression: How Search Engines Reinforce Racism*. NYU Press. https://doi.org/10.2307/j.ctt1pwt9w5

Patton, M. Q. (2002). *Qualitative research & evaluation methods: integrating theory and practice.* SAGE Publications, Inc,.

Pink, S., Horst, H. A., Postill, J., Hjorth, L., Lewis, T., & Tacchi, J. (2016). *Digital Ethnography: Principles and practice*. SAGE.

Riessman, C. K. (2008). *Narrative methods for the human sciences.* Sage Publications, Inc.

Rockett, I. R., Wang, S., Stack, S., De Leo, D., Frost, J. L., Ducatman, A. M., Walker, R. L., & Kapusta, N. D. (2010). Race/ethnicity and potential suicide misclassification: window on a minority suicide paradox? *BMC psychiatry*, *10*, 35. https://doi.org/10.1186/1471-244X-10-35

Salganik, M. J., & Heckathorn, D. D. (2004). 5. Sampling and Estimation in Hidden Populations Using Respondent-Driven Sampling. *Sociological Methodology*, *34*(1), 193-240.

Sharkey, P. (2018). *Uneasy peace: The great crime decline, the renewal of city life, and the next war on violence*. W.W. Norton & Company.

Sharpe, T., Aqil, N., & Donkin, V. (2024). Invisible Wounds: Exploring the Coping Strategies of Black Survivors of Homicide Victims in Canada. *OMEGA - Journal of Death and Dying, 0*(0). https://doi.org/10.1177/00302228241246423

Smith, L. T. (1999). *Decolonizing methodologies: Research and indigenous peoples*. Zed Books Ltd.; University of Otago Press.

Somers, M. R. (1994). The Narrative Constitution of Identity: A Relational and network approach. *Theory and Society*, *23*(5), 605–649. https://doi.org/10.1007/bf00992905

St. Pierre, E. A., Jackson, A. Y. & Mazzei, L. A. (2016). New Empiricisms and New

Materialisms: Conditions for New Inquiry. *Cultural Studies ←→ Critical Methodologies 16* (2), 99–110.

U.S. Department of Health and Human Services. (2021, June 16). *Attachment A - Addressing Ethical Concerns Offers of Payment to Research Participants*. HHS.gov. https://www.hhs.gov/ohrp/sachrp-committee/recommendations/attachment-a-september-30-2019/index.html

van Manen, M. (1997). From meaning to method. *Qualitative Health Research, 7*(3), 345–369. https://doi.org/10.1177/104973239700700303

Weiss, G., Salamon, G., & Murphy, A. V. (2019). *50 concepts for a critical phenomenology*. Northwestern University Press.

III. Paper 1: Understanding the broader impacts of non-fatal firearm violence trauma in the United States: A scoping review[2]

Deanna M. Giraldi, Susan Swingler, David S. Kirk, Sara F. Jacoby, G. J. Melendez-Torres, Elinore J. Kaufman, and David K. Humphreys

Abstract

Exposure to firearm violence produces ripples of impact that extend far beyond the physical wounds of direct survivors. This scoping review aimed to describe the breadth of the last 25 years of literature on short-term, long-term, and cumulative impacts of firearm violence in the United States across physical, psychological, social, and economic domains. We searched PubMed, Embase, Scopus, PsycINFO, CINAHL, ProQuest Social Science Premium (ASSIA, NCJRS, and ERIC) and Web of Science until March 2024. Among 3172 articles, 87 met inclusion criteria. Our findings suggest that research most often explores short-term and psychological impacts on direct survivor-witnesses. The review highlights notable gaps, particularly regarding long-term and cumulative impacts among both the immediate social networks of survivor-witnesses and their wider communities. Further research is necessary for the effective development of trauma-informed interventions and the provision of economic resources aimed at supporting a growing population of survivors and communities affected by violence.

Keywords

Firearm violence; trauma; exposure; survivors; burden; guns; non-fatal; United States

[2] This chapter was published in *Lancet Regional Health – Americas* (https://doi.org/10.1016/j.lana.2025.101091).

Introduction

Every year, more than 40,000 Americans are killed in acts of firearm violence, and approximately 85,000 more are shot and wounded (Kaufman & Delgado, 2022). In addition to individuals with physical injuries, there is a multitude of individuals affected by firearm violence, either as witnesses or through their relationships with family or other com- munity members (Francis, 2018). These individuals and communities often live with consequences of violence that span physical, psychological, social, and economic spheres, often in combination (Orlas et al., 2021). Thus, the impacts of firearm violence extend far beyond the statistics that dominate national debates and daily media coverage.

Non-fatal firearm injuries occur more than twice as often as deaths from firearm injuries (Kaufman et al., 2021). Wounded individuals have reported increased chronic pain, new functional limitations, reduced physical and mental health composite scores, high rates of post-traumatic stress disorder, lower employment and return to work rates, poor social functioning, and increased alcohol and substance abuse (Zatzick et al., 2008; Gabbe et al., 2017; Haider et al., 2018; Herrera-Escobar et al., 2019; Joseph et al., 2019). Despite these reports of the implications of firearm violence on lived experience, research must explore the broader, ongoing impacts of firearm violence for survivors, their immediate social networks, and wider communities with shared identities, particularly geographic proximity in neighborhoods that experience disproportionate rates of violence.

In a national poll, 59 percent of adults in the United States reported that they or someone they care for had experienced firearm violence in their lifetime (Everytown Research & Policy, 2024). Adult

homicide survivors often experience poor physical and psychological outcomes, a decrease in cognitive abilities, and damaged friendship structures with exposure to firearm violence disproportionately concentrated in poor communities of color (Hertz et al., 2005). Likewise, youth indirectly exposed to community violence exhibit poor mental health outcomes to varying degrees depending on physical proximity to the shooting and time since the event (Bancalari et al., 2022).

Firearm injuries of all types (e.g., peer and partner violence, mass shootings, suicide and self-harm, and unintentional injury) are associated with high rates of mental and physical harm for children and adolescents (Ranney et al., 2019). Each year, these injuries lead to approximately 30,000 initial in-patient hospital stays, with each stay costing around $31,000. In other words, the annual economic cost of initial physical treatments for firearm injuries is an estimated $1 billion (United States Government Accountability Office, 2024). Repeated, or cumulative, exposures to firearm violence have the potential to reinforce both the traumatic experiences and linked outcome burdens for individuals and communities; therefore, this cost analysis may be an underestimate, illuminating a critical theme in firearm violence: disproportionate attention to short-term outcomes.

The National Trauma Research Action Plan Scoping Review explored the long-term impacts of firearm violence on survivors across the United States (Orlas et al., 2021). Similar reviews addressed youth exposure to firearm violence, noting a need to conceptualize the ‘multiple dimensions of firearm violence exposure’ (Ranney et al., 2019; Bancalari et al., 2022). Sorenson and Schut (2016) investigated non-fatal firearm use in intimate partner violence, underscoring a need to expand homicide research to include the impact non-fatal usage of firearms for control.

Notably, these reviews focus on mass shootings, emphasize prevention, and highlight a lack of evidence regarding cumulative impacts of firearm violence.

This scoping review aims to assess the breadth of research that encompasses witnesses of violence, their families, and communities with shared identities in addition to wounded survivors. Unlike previous reviews, we aim to examine short-term, long-term, and cumulative impacts of exposure to a range of firearm violence (e.g., mass shootings, interpersonal violence) on individual, interpersonal, and community levels. The following research question was formulated: *How have researchers conceptualized the harms of firearm violence over the last 25 years?*

Methods

We conducted our scoping review based on a prospectively registered protocol (https://doi.org/10.17605/OSF.IO/M3S79) and reported it in accordance with the PRISMA Extension for Scoping Reviews (PRISMA-ScR) (Munn et al., 2018; Tricco et al., 2018).

Search strategy and selection criteria

We searched seven databases until March 2024 – PubMed, EMBASE, Scopus, PsycINFO, CINAHL, Pro-Quest Social Science Premium (ASSIA, NCJRS, and ERIC) and Web of Science Core Collection – for English-language articles published after the April 1999 mass shooting at Columbine High School that describe a range of outcomes (e.g., physical, psychological, social, and economic) of firearm violence on survivors, witnesses, and wider communities. We created the original search in PubMed and subsequently adapted it to the additional databases (see Appendix 1A for the search strategy across databases). To enhance the search scope, we also

reviewed grey literature, namely published dissertations and reference lists of included articles. We included any full-length empirical (quantitative, qualitative, or mixed-methods study) or non-empirical (scoping reviews) articles focusing on the impacts of firearm violence on exposed individuals and communities in the United States. Like Ranney et al. (2019), we defined "exposure" broadly as a personal injury or experience of injury of another person by a firearm, including witnessing the firearm tragedy directly or belonging to the same family as someone affected. Articles describing non-lethal impacts of firearm violence, including interpersonal violence, unintentional shootings, and mass shootings were included; however, we excluded articles with "violence" measurements that did not disaggregate the impacts of firearm violence. Impacts of firearm violence spanned physical injury, psychological and social changes, shifts in quality of life, and economic burdens.

We included only articles published after the 1999 mass shooting at Columbine High School. As a watershed event, Columbine catalyzed a national reckoning with the prevalence of shootings, resulting in increased scholarly focus on the underlying causes, societal impacts, and policy implications of gun violence (Cook & Goss, 2020). This time frame ensures that the findings are grounded in the modern context of firearm-related discourse and legislation, reflecting the contemporary socio-political and cultural shifts in understanding firearm violence and thereby enhancing the relevance and applicability of the insights generated.

We excluded anatomical wound evaluations and surgical interventions to ensure that our analysis remained centered on broader physical impacts on civilians' post-firearm violence exposure rather than on acute clinical management. We also excluded suicide reports, as the mechanisms of

exposure, harm, and aftermath in firearm suicide differ fundamentally from those in interpersonal and community violence which are the primary focus of this review (Foote et al., 2022). Collapsing these distinct pathways would obscure rather than illuminate the dynamics under examination; suicide-related firearm harms warrant a dedicated evidence synthesis. We additionally excluded shooting events outside of the United States, policy studies, non-English articles, studies focusing on war-related consequences, air-soft or BB guns, and firearm injuries beyond the civilian-on-civilian context (e.g., legal intervention).

Article selection and data extraction

We initially screened the identified articles' titles and abstracts using Covidence. Authors involved in this phase piloted the screening guidance by reviewing the same 15 titles and abstracts. Two authors (DG & SS) then screened the remaining titles and abstracts, and any uncertainties about a record's exclusion led to a discussion with another author. We adopted the same process for full text review.

Two reviewers (DG & SS) jointly developed a data extraction form in Covidence to determine which variables to extract. One author (DG) performed the data extraction, with a second author (SS) verifying all entries. The extraction form captured the following data fields: publication year, authors, aim of study, design, population description, type of firearm violence exposure, type of outcome, timeframe of outcome considered, main findings, limitations and notable strengths, funding, and conflicts of interest. We extracted this information for each article under full-text review, and mapped a flow chart of retained and excluded materials (Fig. 1) utilizing the PRISMA-ScR guideline.

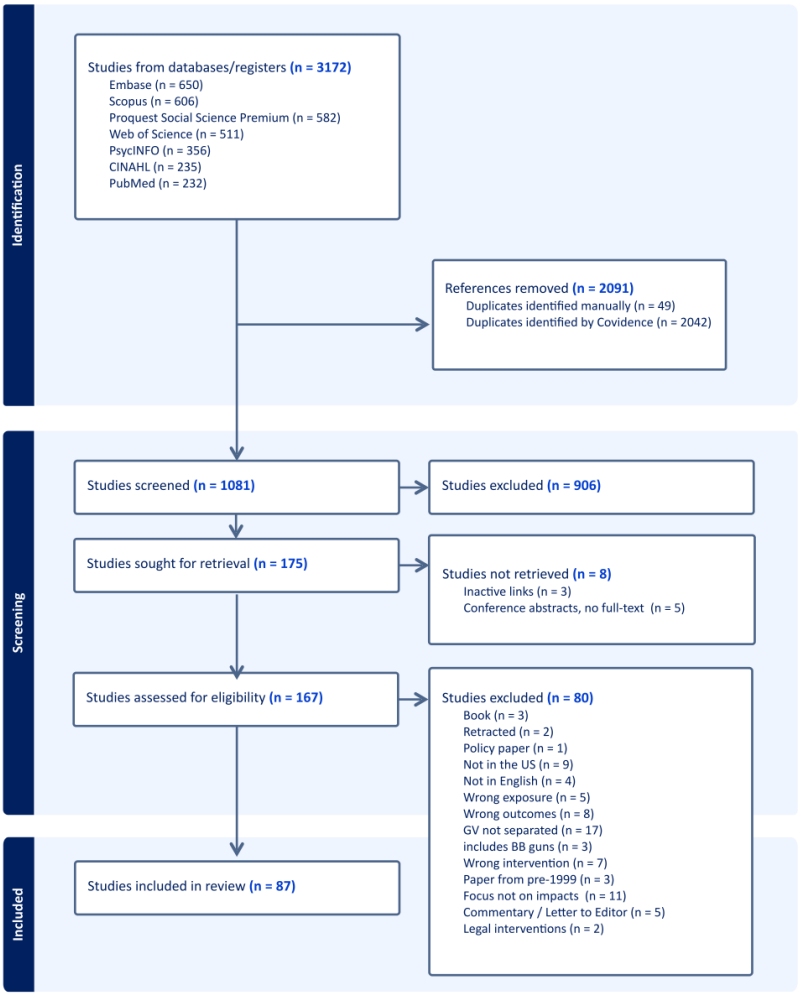


Figure 1. PRISMA-ScR flow chart.

Synthesis methods

We categorized each study based on the primary domain emphasized in the study's objectives, results, or discussion. When a study addressed multiple domains without a clear primary focus, we assigned it to the domain most prominently featured in the analysis. To avoid duplication, each study was counted only once within the results; however, in cases where a study contributed meaningfully to more than one domain, we noted these cross-domain findings in the narrative synthesis. Studies categorized within the "Quality of Life" (QoL) domain specifically utilized QoL measurements.

We created a visual summary of evidence (Fig. 2) to synthesize the data, showing each included article within a three-dimensional matrix of outcome (psychological, physical, quality of life, social, and economic), temporality as 'short-term' (i.e., up to one year from the point of firearm violence exposure),'long-term' (i.e., one year or more since the exposure), and 'cumulative' (i.e., repeated, compounded exposures); and socioecological level as 'individual' (i.e., any personal impact of firearm violence, whether direct (e.g., being shot) or indirect (e.g., witnessing a shooting)),'interpersonal' (e.g., ripple effects on their families, caretakers, or immediate networks), and 'community' (e.g., harms to those with geographical proximity). As the purpose of a scoping review is to map available evidence, we did not conduct any risk of bias assessment or quality appraisal of included studies. This approach aligns with the methodology outlined by Munn and colleagues (2018).

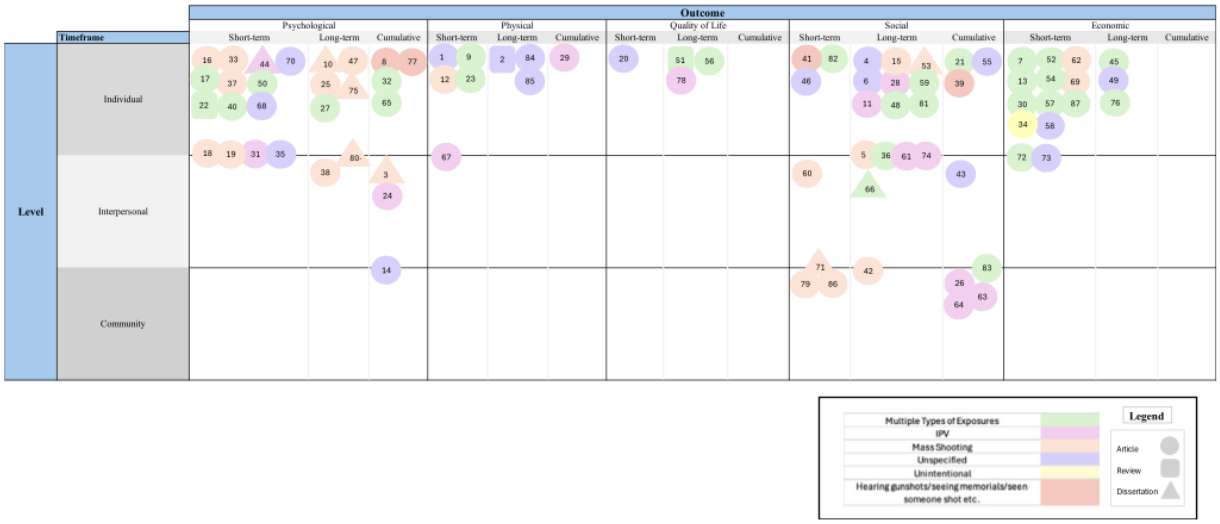


Figure 2. Visual summary of evidence and gaps in the literature. A list of studies corresponding to each number can be found in Appendix 1B. Note, Unspecified = studies that did not desegregate types of firearm violence (e.g., interpersonal violence, mass shootings, unintentional) and multiple types of exposure = did not define what type of firearm violence was explored. Each shape (squares refer to reviews and triangles designate dissertations) represents an individual study; the color of each shape indicates the type of firearm violence explored. The placement underscores the domain of the research (psychological, physical, quality of life, social, or economic) as well as the temporality (short-term, long-term, or cumulative) and people impacted.

We grouped articles by outcome to ensure that mixed methods were reported comprehensively, giving attention to both qualitative insights and quantitative findings by adopting aspects of both the ENTREQ and SWiM guidelines, respectively (Tong et al., 2012; Campbell et al., 2020). ENTREQ guided contextual understanding and thematic synthesis, while SWiM guidelines informed the incorporation of descriptive statistics and effect direction, accounting for trends where the data is too heterogeneous for a traditional meta-analysis. Consistent with scoping review methods, we used tabular and thematic strategies to summarize the extracted data (Munn et al., 2018; Tricco et al., 2018). The effect directions of each study were categorized as positive, negative, or neutral based on the reported outcomes. We then mapped each effect direction to the relevant themes identified during the thematic synthesis, providing a nuanced understanding of how these effects varied across different outcomes.

Results

After removing duplicates, we retained 1081 articles for review by title and abstract for potential inclusion (Fig. 1). Of these, 167 abstracts moved forward to full text review. After full text review, 87 articles met full eligibility criteria and were included in the final sample for the scoping review.

Among included articles (n = 87), 44.8% (n = 39) used cohort study designs to examine the impact of firearm violence exposure; of the remaining studies, 7% (n = 6) were case–control studies, 19.5% (n = 17) cross-sectional studies, and 28.7% (n = 25) qualitative studies. Eight of the studies (9.2%) were grey literature in the form of dissertations; the other 79 (90.8%) were peer-reviewed journal articles. We categorized all included studies based on the outcomes analyzed, the type of

firearm violence exposure, the populations affected, and the timeframe over which the outcomes were measured, visually summarizing evidence and gaps in literature (Fig. 2).

Approximately half of the total studies (52.9%, n = 46) examined "multiple types of exposure" or "unspecified" categories of firearm exposure, meaning that these studies did not desegregate types of firearm violence or did not define what type or types of firearm exposure were explored, respectively. Twenty-three studies (26.4%) described exposure to mass shootings, thirteen (14.9%) discussed interpersonal violence, and one article centered on unintentional shootings (1.1%). Only four studies highlighted indirect exposure to firearm violence (e.g., hearing gunshots, seeing street memorials, or seeing a deceased person) (4.6%). Approximately one-third of studies (32.2%) centered on psychological impacts of exposure; sixteen (18.4%) investigated economic impacts; four (4.6%) presented quality-of-life measures.

Two-thirds (n = 58) of the included studies utilized quantitative methods, twenty-five studies (28.7%) employed qualitative methods, and four (4.6%) reported mixed methods. In Box 1, we present a synthesis matrix of our included studies; the qualitative insights of included studies are presented alongside quantitative findings to highlight matches and gaps.

Box 1. Synthesis Matrix	
Qualitative Insights	**Quantitative Findings**
Isolation caused by physical and social restriction due to **fear** is particularly common in urban areas and may lead to negative coping mechanisms including gun carrying or avoidance of medical services as a result of distrust.[18,19] • "*It made me think that anything can happen at any given time. Anything. So, I just created my own little circle and my own little zone and stayed in it. That's what I did."* • *"I could stay in the house and never come out never again; or, I gotta protect myself...If I had my*	• Urban youth reported more violence exposures than their non-urban counterparts, including hearing gunshots (69% vs. 19%, respectively), witnessing a shooting (24% vs. 6%), and witnessing an arrest (58% vs. 27%).[38] • The odds of gun carrying were increased by approximately 43% in recall periods for men with a history of criminal offending.[39] • Witnesses of gun violence were no more or less likely to

gun, I probably woulda shot him before he shot me. You know?"	demonstrate a propensity for carrying a handgun across adolescence and into adulthood compared to those who did not witness gun violence after controlling for theoretical covariates (β = 0·015, 95% CI = 0·022, 0·052).[40] • Among exposed youth, 50% took protective action to keep themselves safe, and 58% reported being very or extremely afraid, sad, or upset as a result of the indirect gun violence. More youth living in urban compared with non-urban areas took some protective action.[41] • The significant decrease in the high-risk behavior of firearm weapon carriage at 3–6 months post-injury suggests that there is an important post-injury "teachable moment" that should be targeted with preventive interventions.[42]
• Individuals note the importance of their family and social networks as their main source of **emotional support**.[20-24] • *"My friends have really showed up in all sorts of ways I never would have imagined. They are the reason I keep going. I could see that I'm important to them and they are important to me. I took 2 weeks off work and they paid me, and my boss visited me at the hospital ... I just had so much support."* • Being able to publicly **tell the stories** of the loss of loved ones is a critical part of the healing process when dealing with a traumatic loss.[25-27] • *"We need to embrace their memories."*	• Students reported on participation in and helpfulness of organized events in the first weeks post-tragedy: 35·3% participated in candlelight vigils, 14% in "Not One More" rallies, 59·1% in the campus memorial service, 51·8% in class discussions about the event, and 43% in community-building activities.[43]
Perceptions of **manhood**, loss of independence and a perceived burden on others, and lessened mobility post-injury characterize the psychological and physical experience of the violent aftermath for Black men.[28,19] • *"I'm so used to always being able to get up, go out the door and come back with whatever we need, whether it's food, rent money, you know? It's been taken away from me...Now... I'm dependent on everybody around me for everything. So now, I just stay at one spot, don't move around too much this way. I don't work up an appetite. I feel like a burden."*	• Black race and firearm injury were associated with more than 3-fold higher likelihood of repeat injury compared to white race after adjusting for age, sex, insurance, and child opportunity index.[44] • Males ages 18 to 64 have more than double the percentage of all disability types in high shooting rate neighborhoods compared to low rate neighborhoods; social isolation, chronic illness, unhealthy behavior, and poverty were consistently associated with higher prevalence of community disability irrespective of age.[45]
Linguistic and cultural competence is critical to responding to acts of firearm violence that target racially-marginalizedcommunities.[26,29,30] • In reference to 98% of individuals and families from Pulse receiving services in Spanish: *"That's their major language, that is how they express their feelings."*	
First responders, clinicians, and staff, particularly those who share the ethnic background of those wounded, bear the brunt of trauma, second only to the families and communities that suffer the loss of loved ones.[31,32,26.33] • *"It is 5 AM. Page reads: '29-year-old male, GSW to the head ETA 10 mins.' I walk to the trauma bay delirious, rubbing the crust between my eyes. The patient comes in. Paramedics rattle off information. I approach the patient and look down at his face. It is me."* • *"Every time I hear about a school shooting in the news, anything like that, I just remember [my patient] in my bay."*	• More than 50% of violence interventionists reported (at least rarely) experiencing 9 of the 17 STSS (Secondary Traumatic Stress Survey) items; further, only 6% of the interventionists reported experiencing *none* of the STSS items in the last 7 days, indicating that 94% of workers experienced at least one of the STSS items in the last 7 days.[46]

The disconnect between **law enforcement** and families makes the grieving process more difficult as direct information, support, and closure are often lacking.[34] • *"But I've never got any kind of closure, like from the police, they never came and said 'Well Miss we got him, we caught him' or this and that and then everything else was happening and I didn't forget...They never did that for me."*	
Gun ownership and gun access, unsafe storage, direct and symbolic **threats**, and financial and immigration-related concerns exacerbate the harms of **domestic violence** with firearms.[35,36] • *"He's also come to my car with a fake gun. Which I know what that meant. That's a real subtle sign of I can kill you. The judge wouldn't think anything of it. But I know what his cues are."* • *"He could very well leave one of those weapons in my vehicle and turn things around by alleging that I purchased that weapon with the sole intent of physically harming him . . . and there's no defense."*	• Women who witnessed violence are more likely to experience physical and mental health problems with direct associations being 0·06 and 0·042, and those in poor physical and mental health in turn are at higher risk of experiencing housing instability with direct associations being 0·065 and 0·155, respectively.[47]
Financial struggles in the aftermath of firearm violence complicate the already difficult experience of injury.[37] • *"Getting shot has caused all sorts of hassles. I have to do everything by myself so it's hard to do things when I can't move, making it hard to go to work. I have had a lot of medical bills and have no kind of insurance."* • Individuals universally noted the importance of their family and social networks, and having financial safety-nets through health insurance, victims of crime assistance, and other financial assistance programs.[22] • *"Just cause of my job, I had good insurance. Most people don't have good insurance. That was one thing I didn't have to worry about. I didn't have to worry about paying and a lot of that stress was taken off."*	• After nonfatal firearm injury, medical spending increased $2495 per person per month (402%) and cost sharing increased $102 per person per month (176%) among impacted individuals relative to control participants ($P < 0·001$) in the first year after injury.[48] • Children and adolescents' health care spending increased by an average of $34,884—a 17·1-fold increase—with 95 percent paid by insurers or employers.[49] • In the Northeast, hospital costs were $1·98 billion (13·9% of total), of which 56·0% was covered by government payers; for the Midwest, costs were $1·53 billion (19·7% of total), 40·4% of which was covered by government payers; in the South costs were highest at $3·2 billion (41·4% of total), but government payers only covered 34·3%; and costs for the West were $1·94 billion (25·0% of total), with government programs covering 41·6% of the cost burden.[50]

In addition to stratification by timeframe, we stratified the findings by ecological level at which the research was conducted. This underscores a notable scarcity of research examining the impacts of firearm violence at the community level (n = 9; 10.2%), with the majority (n = 60; 69%) of included studies focusing primarily on individual-level outcomes (Fig. 3).

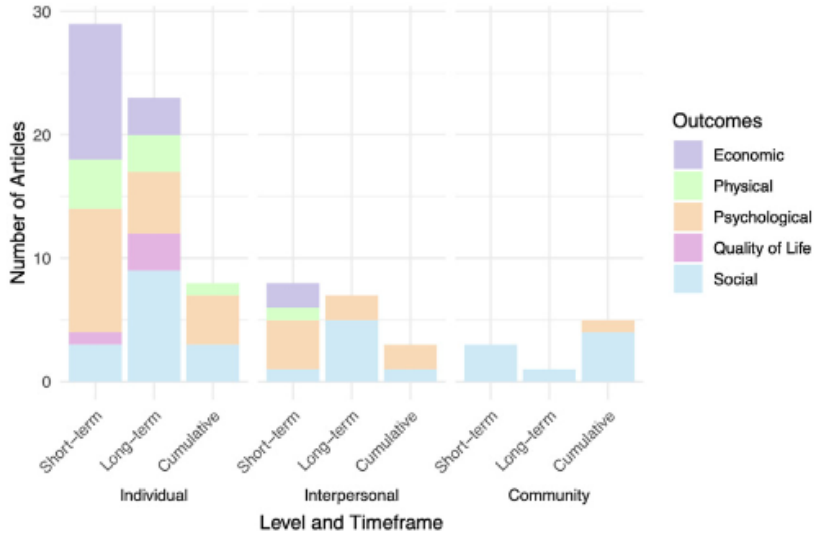


Figure 3. A clustered and stacked bar chart depicting the distribution of outcomes across ecological level and time.

At the individual level, twenty-nine of the sixty studies (48.3%) evaluated short-term impacts, twenty-three (38.3%) explored long-term burdens, and eight (13.3%) highlighted cumulative harms. Most individual level studies centered on psychological outcomes, exploring direct survivor-witnesses' experiences of anxiety, depression, and post-traumatic stress disorder (PTSD) (n = 19; 67.9%). Conversely, only nine studies (10.2%) form the community level with three studies (33.3%) highlighting short-term impacts, one (11.1%) underscoring long-term outcomes, and five (55.6%) exploring cumulative effects. Most community-level studies (n = 8; 88.9%) were explorations of social impacts, highlighting how repeated exposure to violence amplifies trauma over time, leading to deeper and more intractable harms.

Adopting aspects from both the ENTREQ and SWiM guidelines, we describe the physical, psychological, economic, and social outcomes of firearm violence exposure documented within the 87 included articles below.

Impacts on physical well-being

A total of nine studies (10.3%) explored the physical outcomes of firearm injuries, with consideration of short-term (n = 5; 55.6%), long-term (n = 3; 33.3%), and cumulative (n = 1; 11.1%) effects (Fig. 2). Eight of these articles (88.9%) reported on individual-level (i.e., survivor-witnesses) experiences, highlighting chronic complications and functional impairments (Fig. 3). Czaja and colleagues reported a retrospective case series of nonfatal injuries, including fractures, soft tissue damage, and traumatic brain injuries, sustained during mass shootings (2023). Retained bullet fragments in patients with gunshot wounds were found to contribute to long-term complications, such as chronic pain, infection, and, in rare cases, lead toxicity (Apte et al., 2019; Andrade et al., 2022). Zeineddin and colleagues explored the disfiguring effects of firearm injuries in children, underscoring severe, lifelong consequences for those who often require multiple reconstructive surgeries (2021). Only one study reported on physical outcomes for children in homicide-suicide cases, identifying a range of traumatic injuries, many of which caused severe disability or death (Sillito & Salari, 2011).

Of the nine studies, all but the mixed methods systematic review by Apte and colleagues utilized quantitative methods (Apte et al., 2019). Most (n = 5; 55.6%) were retrospective cohort studies, followed by cross-sectional studies (n = 2; 22.2%). While most studies have strong methodological foundations, those with smaller or more specific samples, such as Sillito and Salari, may face limitations in broad applicability (Sillito & Salari, 2011). The effect direction across studies on physical well-being trends toward negative impacts on health and well-being, with notable subgroup effects on children and adolescents, particularly those in low-income, minoritized communities (Zeineddin et al., 2021).

Attention to the psychological outcomes

Twenty-eight studies (32.2%) focused on psychological outcomes associated with firearm violence, emphasizing the profound and often long-lasting mental health consequences for both directly and indirectly exposed. A majority (67.9%, n = 19) of the studies explored individual-level experiences, while a smaller subset (28.6%, n = 8) investigated interpersonal outcomes, and only one (3.6%) accounted for the community-level impacts. Across both quantitative and qualitative research, studies highlighted the role of support systems and interventions in mitigating psychological distress (Johnson et al., 2002; Bruns, 2013).

Quantitative research consistently demonstrated a strong association between exposure to firearm violence and heightened rates of PTSD, anxiety, and depression. Structured interventions such as cognitive behavioral therapy (CBT), group therapy, and community-based support programs, particularly critical for marginalized individuals with limited access to mental health care, were found to be effective in reducing psychological distress (Semenza et al., 2024; Lennon et al., 2024). However, qualitative studies (35.7%, n = 10) added depth to these findings by capturing individuals' lived experiences, illustrating how trauma manifests in daily life, and revealing barriers to accessing mental health support (Mancini et al., 2015). For instance, as noted in Box 1, while statistical models indicate the efficacy of CBT in symptom reduction, qualitative accounts suggest that cultural stigma, financial barriers, and distrust in the healthcare system often prevent individuals from seeking treatment, limiting generalizability of intervention outcomes (Hawkins et al., 2007; Piskorik, 2020; Hink et al., 2021; Spinuzzi, 2022; Magee et al., 2023; Webb et al., 2024).

Moreover, qualitative research identified protective factors, such as social support and personal agency, that contribute to psychological resilience and recovery (Mancini et al., 2015). Survivor-witnesses expressed how strong family ties, peer networks, and a sense of purpose helped mitigate the long-term psychological damage caused by firearm violence. These narratives align with quantitative findings that suggest a possible positive effect direction, where increased social support correlates with improved outcomes (Mancini et al., 2015; Semenza et al., 2024). Together, these studies demonstrate that while firearm violence is strongly linked to psychological distress, the pathways to recovery are complex, shaped by both structural interventions and personal experiences.

Quality of life

Four studies (4.6%), all (100%) at the individual level and primarily (75%) assessing long-term effects, addressed quality of life (QoL) outcomes of firearm violence. Quantitative findings consistently revealed significant reductions in both physical and mental health-related QoL, particularly those with severe injuries or complications. Both Orlas and colleagues (2021) and Herrera-Escobar and colleagues (2019) found persistent reports of physical disability and chronic pain, particularly among those with severe injuries or complications.

In a prospective cohort study, Vella and colleagues illustrated the multi-dimensional impact of firearm injuries on mental and social well-being, noting an array of functional, psychological, and emotional outcomes including not only physical limitations but also high rates of depression, anxiety, and social withdrawal. Survivor-witness self-reports provide deeper insight into the lived reality of these effects, describing struggles with reintegration into work and social life (Vella et

al., 2020), ongoing fears related to the shooting (O'Neill et al., 2020), and challenges in securing adequate medical and psychological support (Box 1). Qualitative narratives contextualize the quantitative data, illustrating how reduced QoL is not merely a clinical outcome but an experience shaped by social and emotional factors.

Most studies reporting on QoL (n = 3, 75%) used a cohort study design, with two (50%) incorporating prospective approaches that improve data quality by reducing recall bias and collecting real-time data on QoL changes. While the studies demonstrate robust design and careful follow-up, variations in sample size and study scope influence the generalizability and applicability of findings across different populations. Nonetheless, the effect direction across these studies consistently shows ongoing, negative impacts on those with firearm injuries, not only through physical disability but also in psychological and social burdens.

Social burden of firearm exposure

Thirty (34.5%) studies examined the intersection of social factors, such as family dynamics, peer relationships, and community environments, with firearm violence and its aftermath. These studies explored individual (50%, n = 15), interpersonal (23.3%, n = 7), and community-level (26.7%, n = 8) outcomes. Quantitative analyses revealed that exposure to firearm violence significantly disrupts social functioning. For example, Mitchell and colleagues (2019) found that youth who witnessed firearm violence reported heightened fear, diminished trust in their communities, and withdrawal from social activities. Nehra and colleagues (2021) identified a significant drop in firearm weapon carriage at 3- and 6-months post-injury, followed by a return to pre-injury levels at 12-months, suggesting complex behavioral adaptations to trauma.

Qualitative research provided deeper insight into these trends, contextualizing social ramifications of firearm violence. As noted in Box 1, ethnographic studies of Black males highlighted how cultural expectations, particularly perceptions of manhood and masculinity, shaped social recovery (Baker et al., 2024). Similarly, researchers found that social marginalization and trauma, reinforcing cycles of exclusion and distrust, were common outcomes in ethnic minority communities affected by firearm violence (Zhao, 2021; Webb et al., 2024). These narratives complement quantitative findings on social withdrawal by revealing underlying emotional and cultural factors that shape how impacted individuals navigate the aftermath of violence.

Combined qualitative and quantitative findings indicate a predominantly negative effect direction regarding social outcomes, including increased social isolation and community division after incidents of firearm violence. However, research also points to mitigating factors: Vicary and Fraley (2010) demonstrated that access to support networks— both online and in-person— can significantly buffer the psychological and social impacts of violence. This aligns with broader quantitative trends showing that strong social support is linked to improved mental health outcomes post-trauma. Thus, while social consequences of firearm violence are largely detrimental, findings suggest that fostering community support may mitigate these effects.

The economic cost alongside healthcare need and utilization

Sixteen studies (18.4%) addressed the economic burden associated with firearm injuries, highlighting both direct healthcare burden and indirect societal costs. Fourteen of these (87.5%) report on individual-level (i.e., direct survivor-witness) impacts. National analyses of healthcare costs related to pediatric firearm injuries and family care demonstrated a significant rise in

healthcare charges over the last two decades (Bongiorno et al., 2021; Song et al., 2022; Song et al., 2023). Quantitative research further illustrated the increasing strain on healthcare systems, particularly following mass shootings, driven by individuals' need for rapid transport services, often multiple specialized procedures, and prolonged hospital stays (Sarani et al., 2021). Zuo and colleagues (2018) investigated sex differences in post-injury healthcare spending, revealing that male survivors tend to incur higher costs and risk readmission due to more severe injuries. Additionally, researchers found that recurrent firearm injuries were particularly common in urban trauma centers, predominantly affecting uninsured (50%), Black (96%), and male (93%) communities (Mueller et al., 2023). Significant regional variation in costs further underscored disparities in access to care and financial strain (Spitzer et al., 2022).

While quantitative studies established clear patterns in healthcare spending and financial hardship, qualitative findings illuminated the experiences behind these statistics. For instance, as noted in Box 1, survivors reported struggling with loss of employment and the cascading economic effects of long-term disability, highlighting the limitations of insurance coverage and social safety nets (Hink et al., 2021; Webb et al., 2024). These narratives contextualize large-scale economic trends, revealing impacts on long-term socioeconomic stability.

Of the included studies, twelve (75%) used a cohort study design, with nine (56.2%) employing a retrospective approach. Researchers increased external validity by including multiple trauma centers and diverse patient populations. However, some studies, like Zuo and colleagues (2018), focused on more limited datasets or specific demographic groups, potentially introducing bias or limiting the generalizability of their findings. Overall, findings across methodologies consistently

pointed to increased healthcare costs and financial instability among survivors. The integration of quantitative cost analyses with qualitative accounts of survivor hardship underscores the need for comprehensive interventions – both policy-driven and community-based – to mitigate the long-term economic toll of firearm exposure.

Cross-domain insights: the interconnected burdens of firearm violence

Although we categorized findings into distinct outcome domains (psychological, physical, social, economic, and quality of life) by the focus of their primary analysis, many studies highlighted the interconnected nature of these burdens, revealing how impacts of firearm violence ripple outward across multiple domains and ecological levels. For example, psychological trauma often manifested in social withdrawal (Bancalari et al., 2022), reinforcing isolation (O'Neill et al., 2020) and economic instability (Webb et al., 2024), while chronic physical injuries led to long-term healthcare costs and reduced quality of life (Hink et al., 2021). Research on support systems illustrated how strong social networks could buffer psychological distress and improve overall well-being, demonstrating that protective factors are just as multi-faceted as the harms they counteract (Hawkins et al., 2007; Felix et al., 2018; Piskorik, 2020; Hink et al., 2021; Spinuzzi, 2022; Magee et al., 2023). By integrating qualitative narratives with quantitative patterns, this review highlights the necessity of cross-sectoral interventions that acknowledge the complex, compounding nature of firearm violence's consequences.

Discussion

To our knowledge, this is the first scoping review that encompasses 25 years of literature to explore the ecological landscape of firearm violence. The findings of this scoping review emphasize that

research on the enduring impacts of firearm violence, especially on the interpersonal and community level, are exceptionally limited. By applying a dynamic socioecological lens, we are able to better conceptualize the multi-dimensional impacts of firearm violence as it intersects with individual, interpersonal, community-level factors.

Consistent with previous literature (Ranney et al., 2019; Orlas et al., 2021), studies in this review confirm high rates of psychological trauma, chronic pain, and long-term functional impairments among those physically wounded. Our review also shows that individuals exposed to firearm violence often experience additional burdens of social isolation and stigmatization, particularly within racially marginalized communities (Zhao, 2021; Webb et al., 2024). Studies on the interpersonal level (n = 18; 20.7%), highlight that exposure to firearm violence can exacerbate individuals' sense of vulnerability and decrease their ability to engage with supportive networks shown to mitigate negative mental health outcomes and improve resilience (Johnson 2002; Bruns, 2013). Community-level studies (n = 9; 10.4%) underscore that cumulative, or repeated, firearm violence often results in reports of heightened fear, a diminished sense of safety, and weakened social cohesion (Mitchell et al., 2019).

This review highlights a range of research gaps that deserve further attention. The disproportionate focus on mass shootings (n = 23; 26.4%) and short-term psychological outcomes (n = 14; 16.1%), as opposed to cumulative, interpersonal violence (n = 3; 3.4%), limits our conceptualization of the broader spectrum of firearm violence. Few studies adequately account for indirect exposures to firearm violence, such as the relational impact of injury and trauma on families and caregivers (n = 18; 20.7%). Moreover, a significant proportion of studies (n = 46; 52.9%) did not specify the

type of firearm violence or failed to disaggregate the data. This disaggregation or "splitting" is crucial, as different forms of firearm violence exposure (e.g., mass shootings vs. intimate partner violence) necessitate distinct and diverse immediate and long-term responses (Chaimani et al., 2019). Without measures that record the kinds of exposure people experienced, how often, in what combination, and over what period, it is difficult to see how harms accumulate, or how they differ for those who are injured, bereaved, witnesses, or live amid chronic community violence. Large national longitudinal surveys (e.g., Add Health) often measure violence exposure in ways that make it difficult to see cumulative effects with any nuance. Future surveys and cohort studies should therefore collect exposure data that distinguishes direct from indirect exposure and records frequency and timing, and should follow participants over time so that short-term, intermediate, and long-term outcomes can be compared.

While the visual summary of evidence (Fig. 2) displays the spread of existing literature, perhaps its more significant contribution lies in its blank spaces, illuminating areas for future study. The relatively empty space across interpersonal and community levels, particularly within physical, quality of life, and economic outcomes, signals that further research is needed to conceptualize the impacts of indirect trauma on the close networks of individuals as well as in communities with additional shared identities (e.g., lesbian, gay, bisexual, transgender, queer, or questioning (LGBTQ+) populations, communities of color). It is crucial to note that while there is a substantial body of research on the physical impacts of firearm violence in emergency and surgical settings, studies examining the lasting physical and quality of life consequences beyond immediate clinical interventions appear to be much more limited. This gap in the literature highlights an important area for future research. An additional frontier for research is the role of media, which may serve

as a peripheral but significant source of exposure. Future studies could explore the health impacts of this broader exposure and how it may contribute to the ripple effects of firearm violence, particularly in relation to mental health outcomes, collective trauma, and societal perceptions of safety.

The key strength of this review lies in its compilation of the multifaceted impacts of firearm violence exposure, drawing on both quantitative data and qualitative narratives to provide a comprehensive view of physical, psychological, quality of life, social, and economic outcomes. However, inherent limitations exist when attempting to synthesize heterogenous and complex evidence. The team collaboratively addressed ambiguities in meetings; however, we cannot entirely rule out potential oversights. Additionally, due to resource constraints, we conducted searches only in English and excluded books. These exclusions might have led us to overlook additional insights, especially theoretical perspectives that may be discussed in book chapters. Since we did not conduct a formal quality appraisal, readers should view the general trends and effects as indicative rather than definitive. While the time frame for this review was carefully chosen to capture studies from the past 25 years, it is important to note that the period ends in March 2024. Given the growing interest and research activity in the field, particularly in the last year, there may be important studies published after our review period that are not included. However, evidence in this review indicates that the ripples of firearm violence extend across physical, psychological, social and economic spheres. Early psychosocial interventions, improved social support structures, and targeted healthcare policies may better support individuals and mitigate the broader societal impacts of firearm violence.

References

Andrade, E. G., Uberoi, M., Hayes, J. M., Thornton, M., Kramer, J., & Punch, L. J. (2022). The impact of retained bullet fragments on outcomes in patients with gunshot wounds. *The American Journal of Surgery*, *223*(4), 787–791. https://doi.org/10.1016/j.amjsurg.2021.05.022

Apte, A., Bradford, K., Dente, C., & Smith, R. N. (2019). Lead toxicity from retained bullet fragments: A systematic review and meta-analysis. *Journal of Trauma and Acute Care Surgery*, *87*(3), 707–716. https://doi.org/10.1097/ta.0000000000002287

Ayers, L. 2019. The Lived Experience of American Red Cross Disaster Mental Health Responders on MCI – Mass Shooting Deployments. ProQuest Dissertations and Theses Global.

Baker, N. S., VanHook, C., Ricks, T., Vil, C. St., Lassiter, T., & Bonne, S. (2024). Protect and provide: Perceptions of manhood and masculinities among disabled violently injured black men in a hospital-based violence intervention program. *American Journal of Men's Health*, *18*(1). https://doi.org/10.1177/15579883231221390

Bancalari, P., Sommer, M., & Rajan, S. (2022a). Youth exposure to Endemic Community Gun Violence: A Systematic Review. *Adolescent Research Review*, *7*(3), 383–417. https://doi.org/10.1007/s40894-022-00178-5

Barbato, C. A. (2003). "Embracing their memories": Accounts of loss and May 4, 1970. *Journal of Loss and Trauma*, *8*(2), 73–98. https://doi.org/10.1080/15325020305867

Beardslee, J., Mulvey, E., Schubert, C., Allison, P., Infante, A., & Pardini, D. (2018). Gun- and non-Gun–related violence exposure and risk for subsequent gun carrying among male juvenile offenders. *Journal of the American Academy of Child & Adolescent Psychiatry*, *57*(4), 274–279. https://doi.org/10.1016/j.jaac.2018.01.012

Bongiorno, D. M., Badolato, G. M., Boyle, M., Vernick, J. S., Levy, J. F., & Goyal, M. K. (2021). United States trends in healthcare charges for pediatric firearm injuries. *The American Journal of Emergency Medicine*, *47*, 58–65. https://doi.org/10.1016/j.ajem.2021.03.046

Borg, B. A., Rabinak, C. A., & Marusak, H. A. (2021). Violence exposure and mental health

consequences among urban youth. *Current Psychology*, *42*(10), 8176–8185. https://doi.org/10.1007/s12144-021-02141-4

Bruns, A. 2013. Posttraumatic Growth and Spiritual Well-Being in Survivors of the Columbine High School Shooting. Regent University Doctoral Thesis.

Campbell, M., McKenzie, J. E., Sowden, A., Katikireddi, S. V., Brennan, S. E., Ellis, S., Hartmann-Boyce, J., Ryan, R., Shepperd, S., Thomas, J., Welch, V., & Thomson, H. (2020). Synthesis without meta-analysis (SWIM) in Systematic Reviews: Reporting Guideline. *BMJ*, l6890. https://doi.org/10.1136/bmj.l6890

Chaimani, A., Caldwell, D. M., Li, T., Higgins, J. P., & Salanti, G. (2019). Undertaking network meta-analyses. *Cochrane Handbook for Systematic Reviews of Interventions*, 285–320. https://doi.org/10.1002/9781119536604.ch11

Comer, B. P., & Connolly, E. J. (2023). Exposure to gun violence and handgun carrying from adolescence to adulthood. *Social Science & Medicine*, *328*, 115984. https://doi.org/10.1016/j.socscimed.2023.115984

Cook, P J, & Goss, K. A. (2020). Chapter 10: Public Opinion and Political Party Positions on Guns. In *The gun debate: What everyone needs to know,* Oxford University Press.

Czaja, M., Kraus, C., Phyo, S., Olivieri, P., Mederos, D., Mohammed, S., Berkeley, R., Gildea, T., Hardman, C., Palmer, B., Whitmill, M., Aluyen, U., Pinnow, J., Young, A., Eastin, C., Kester, N., Works, K., Pfeffer, A., Keller, A., … Langdorf, M. (2023). Nonfatal injuries sustained in mass shootings in the US, 2012-2019: Injury diagnosis matrix, incident context, and public health considerations. *Western Journal of Emergency Medicine*, *24*(3). https://doi.org/10.5811/westjem.58395

Douglas, A., & Rogers, S. (2023). Survivor's remorse. *Journal of Trauma and Acute Care Surgery*, *96*(2). https://doi.org/10.1097/ta.0000000000004175

Felix, E. D., Dowdy, E., & Green, J. G. (2018). University student voices on healing and recovery following tragedy. *Psychological Trauma: Theory, Research, Practice, and Policy, 10*(1), 76–86. https://doi.org/10.1037/tra0000172

Francis, M. (2018). A narrative inquiry into the experience of being a victim of gun violence. *Journal of Trauma Nursing*, *25*(6), 381–388. https://doi.org/10.1097/jtn.0000000000000406

Gabbe, B. J., Simpson, P. M., Cameron, P. A., Ponsford, J., Lyons, R. A., Collie, A., Fitzgerald,

M., Judson, R., Teague, W. J., Braaf, S., Nunn, A., Ameratunga, S., & Harrison, J. E. (2017). Long-term health status and trajectories of seriously injured patients: A population-based longitudinal study. *PLOS Medicine*, *14*(7). https://doi.org/10.1371/journal.pmed.1002322

Everytown Research & Policy. (2024). *Gun violence survivors in America*. https://everytownresearch.org/report/gun-violence-survivors-america/#:~:text=59%20percent%20of%20adults%20or,gun%20violence%20in%20their%20lifetimes

Foote, C. W., Doan, X. L., Vanier, C., Cruz, B., Sarani, B., & Palacio, C. H. (2022). Suicide versus homicide firearm injury patterns on trauma systems in a study of the National Trauma Data Bank (NTDB). *Scientific reports*, *12*(1), 15672. https://doi.org/10.1038/s41598-022-17280-2

Haider, A. H., Herrera-Escobar, J. P., Al Rafai, S. S., Harlow, A. F., Apoj, M., Nehra, D., Kasotakis, G., Brasel, K., Kaafarani, H. M., Velmahos, G., & Salim, A. (2018). Factors associated with long-term outcomes after injury. *Annals of Surgery*, *271*(6), 1165–1173. https://doi.org/10.1097/sla.0000000000003101

Hawkins, N. A., McIntosh, D. N., Silver, R. C., & Holman, E. A. (2007). Early responses to school violence. *Journal of Emotional Abuse*, *4*(3–4), 197–223. https://doi.org/10.1300/j135v04n03_12

Herrera-Escobar, J. P., Rivero, R., Apoj, M., Geada, A., Villanyi, M., Blake, D., Nehra, D., Velmahos, G., Kaafarani, H. M. A., Salim, A., Haider, A. H., & Kasotakis, G. (2019). Long-term social dysfunction after trauma: What is the prevalence, risk factors, and associated outcomes? *Surgery*, *166*(3), 392–397. https://doi.org/10.1016/j.surg.2019.04.004

Hertz, M. F., Prothrow-Stith, D., & Chery, C. (2005). Homicide survivors. *American Journal of Preventive Medicine*, *29*(5), 288–295. https://doi.org/10.1016/j.amepre.2005.08.027

Hink, A. B., Atkins, D. L., & Rowhani-Rahbar, A. (2021). Not all survivors are the same: Qualitative assessment of prior violence, risks, recovery and perceptions of firearms and violence among victims of Firearm Injury. *Journal of Interpersonal Violence*, *37*(15–16). https://doi.org/10.1177/08862605211005157

Hureau, D. M., Wilson, T., Rivera-Cuadrado, W., & Papachristos, A. V. (2022). The experience

of secondary traumatic stress among Community Violence Interventionists in Chicago. *Preventive Medicine*, *165*, 107186. https://doi.org/10.1016/j.ypmed.2022.107186

Johnson, S. D., North, C. S., & Smith, E. M. (2002). Psychiatric disorders among victims of a courthouse shooting spree: A three-year follow-up study. *Community Mental Health Journal*, *38*(3), 181–194. https://doi.org/10.1023/a:1015269521969

Jones, K. A. (2020). A seat at the table: Centering the voices of gun violence survivors. *Pediatrics*, *146*(4). https://doi.org/10.1542/peds.2020-015974

Joseph, B., Hanna, K., Callcut, R. A., Coleman, J. J., Sakran, J. V., & Neumayer, L. A. (2019). The hidden burden of mental health outcomes following firearm-related injuries. *Annals of Surgery*, *270*(4), 593–601. https://doi.org/10.1097/sla.0000000000003473

Kaufman, E. J., Wiebe, D. J., Xiong, R. A., Morrison, C. N., Seamon, M. J., & Delgado, M. K. (2021). Epidemiologic trends in fatal and nonfatal firearm injuries in the US, 2009-2017. *JAMA Internal Medicine*, *181*(2), 237. https://doi.org/10.1001/jamainternmed.2020.6696

Kaufman, E. J., & Delgado, M. K. (2022). The epidemiology of firearm injuries in the US. *JAMA*, *328*(12), 1177. https://doi.org/10.1001/jama.2022.16894

King, C., & Huang, X. (2022). Neighbourhood violence and housing instability: An exploratory study of low-income women. *Housing Studies*, *39*(3), 651–670. https://doi.org/10.1080/02673037.2022.2074970

Kwon, E. G., Wang, B. K., Iverson, K. R., O'Connell, K. M., Nehra, D., & Rice-Townsend, S. E. (2023). Interpersonal violence affecting the pediatric population: Patterns of injury and recidivism. *Journal of Pediatric Surgery*, *58*(1), 136–141. https://doi.org/10.1016/j.jpedsurg.2022.09.009

Lennon, T., Kemal, S., Heffernan, M. E., Bendelow, A., Sheehan, K., Davis, M. M., & Macy, M. L. (2024). Childhood exposure to firearm violence in Chicago and its impact on Mental Health. *Academic Pediatrics*, *24*(6), 982–986. https://doi.org/10.1016/j.acap.2023.12.001

Magee, L. A., Ortiz, D., Adams, Z. W., Marriott, B. R., Beverly, A. W., Beverly, B., Aalsma, M. C., Wiehe, S. E., & Ranney, M. L. (2023). Engagement with mental health services among survivors of Firearm Injury. *JAMA Network Open*, *6*(10). https://doi.org/10.1001/jamanetworkopen.2023.40246

Mancini, A. D., Littleton, H. L., & Grills, A. E. (2015). Can people benefit from acute stress? social support, psychological improvement, and resilience after the Virginia Tech campus shootings. *Clinical Psychological Science*, *4*(3), 401–417. https://doi.org/10.1177/2167702615601001

McCall, W. T. (2020). Caring for patients from a school shooting: A qualitative case series in emergency nursing. *Journal of Emergency Nursing*, *46*(5). https://doi.org/10.1016/j.jen.2020.06.005

Mitchell, K. J., Jones, L. M., Turner, H. A., Beseler, C. L., Hamby, S., & Wade, R. (2019a). Understanding the impact of seeing gun violence and hearing gunshots in public places: Findings from the Youth Firearm Risk and safety study. *Journal of Interpersonal Violence*, *36*(17–18), 8835–8851. https://doi.org/10.1177/0886260519853393

Molina, O., Yegidis, B., & Jacinto, G. (2019). The Pulse Nightclub Mass Shooting, and Factors Affecting Community Resilience Following the Terrorist Attack. *Best Practices in Mental Health*, *15*(2).

Mueller, K. L., Cooper, B. P., Moran, V., Lew, D., Ancona, R., Landman, J. M., Spruce, M., Marotta, P., Liss, D. B., Mancini, M. A., Schuerer, D., Ranney, M. E., & Foraker, R. E. (2023). Incidence of and factors associated with recurrent firearm injury among patients presenting to St. Louis Trauma Centers, 2010 to 2019. *Annals of Internal Medicine*, *176*(9), 1163–1171. https://doi.org/10.7326/m23-0069

Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic Review or scoping review? guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology*, *18*(1). https://doi.org/10.1186/s12874-018-0611-x

Nehra, D., Bulger, E. M., Maier, R. V., Moloney, K. E., Russo, J., Wang, J., Anderson, K., & Zatzick, D. F. (2021). A prospective US National Trauma Center Study of firearm injury survivors weapon carriage and posttraumatic stress disorder symptoms. *Annals of Surgery*, *274*(4). https://doi.org/10.1097/sla.0000000000005043

O'Neill, K. M., Vega, C., Saint-Hilaire, S., Jahad, L., Violano, P., Rosenthal, M. S., Maung, A. A., Becher, R. D., & Dodington, J. (2020). Survivors of gun violence and the experience of recovery. *Journal of Trauma and Acute Care Surgery*, *89*(1), 29–35. https://doi.org/10.1097/ta.0000000000002635

Orlas, C. P., Thomas, A., Herrera-Escobar, J. P., Price, M. A., Haider, A. H., & Bulger, E. M. (2021). Long-term outcomes of firearm injury survivors in the United States. *Annals of Surgery*, *274*(6), 962–970. https://doi.org/10.1097/sla.0000000000005204

Piskorik, J.M. (2020). A narrative inquiry into the influence of school shooting survival on college transition and experience. The Research Repository @ West Virginia University, https://researchrepository.wvu.edu/etd/11616

Ranney, M., Karb, R., Ehrlich, P., Bromwich, K., Cunningham, R., & Beidas, R. S. (2019). What are the long-term consequences of youth exposure to firearm injury, and how do we prevent them? A scoping review. *Journal of Behavioral Medicine*, *42*(4), 724–740. https://doi.org/10.1007/s10865-019-00035-2

Richardson, J. B., Wical, W., Kottage, N., & Bullock, C. (2020). Shook ones: Understanding the intersection of nonfatal violent firearm injury, incarceration, and traumatic stress among young black men. *American Journal of Men's Health*, *14*(6). https://doi.org/10.1177/1557988320982181

Ryan, J., & Hawdon, J. (2008). From individual to community: The "framing" of 4-16 and the display of Social Solidarity. *Traumatology*, *14*(1), 43–51. https://doi.org/10.1177/1534765607312686

Sabri, B., & Campbell, J. C. (2023). Firearm-related risks and consequences for immigrant women in abusive relationships: Barriers to reporting threats to safety and recommendations for Safety Planning. *Journal of Aggression, Maltreatment & Trauma*, *33*(4), 407–431. https://doi.org/10.1080/10926771.2023.2224257

Sarani, B., Smith, E. R., Shapiro, G., Nahmias, J., Rivas, L., McIntyre, R., Robinson, B. R. H., Chestovich, P. J., Amdur, R., Campion, E., Urban, S., Shnaydman, I., Joseph, B., Gates, J., Berne, J., & Estroff, J. M. (2021). Characteristics of survivors of civilian public mass shootings: An Eastern Association for the surgery of trauma multicenter study. *Journal of Trauma and Acute Care Surgery*, *90*(4), 652–658. https://doi.org/10.1097/ta.0000000000003069

Semenza, D. C., & Stansfield, R. (2021). Community gun violence and functional disability: An ecological analysis among men in four U.S. cities. *Health & Place*, *70*, 102625. https://doi.org/10.1016/j.healthplace.2021.102625

Semenza, D. C., Daruwala, S., Brooks Stephens, J. R., & Anestis, M. D. (2024). Gun violence

exposure and suicide among Black Adults. *JAMA Network Open*, *7*(2). https://doi.org/10.1001/jamanetworkopen.2023.54953

Shockley, A.G. (2023) Co-Victims of Gun Violence: How Black Women Navigate Spaces of Trauma. Temple University Dissertations.

Sillito, C. L., & Salari, S. (2011). Child outcomes and risk factors in U.S. homicide-suicide cases 1999–2004. *Journal of Family Violence*, *26*(4), 285–297. https://doi.org/10.1007/s10896-011-9364-6

Song, Z., Zubizarreta, J. R., Giuriato, M., Paulos, E., & Koh, K. A. (2022). Changes in health care spending, use, and clinical outcomes after nonfatal firearm injuries among survivors and family members. *Annals of Internal Medicine*, *175*(6), 795–803. https://doi.org/10.7326/m21-2812

Song, Z., Zubizarreta, J. R., Giuriato, M., Koh, K. A., & Sacks, C. A. (2023). Firearm injuries in children and adolescents: Health and economic consequences among survivors and family members. *Health Affairs*, *42*(11), 1541–1550. https://doi.org/10.1377/hlthaff.2023.00587

Sorenson, S. B., & Schut, R. A. (2016). Nonfatal gun use in intimate partner violence: A systematic review of the literature. *Trauma, Violence, & Abuse*, *19*(4), 431–442. https://doi.org/10.1177/1524838016668589

Spearman, K. J., Marineau, L., Owolabi, A., Alexander, K. A., & Campbell, J. (2023). Firearms and post-separation abuse: Providing context behind the data on firearms and intimate partner violence. *Journal of Advanced Nursing*, *80*(4), 1484–1496. https://doi.org/10.1111/jan.15933

Spitzer, S. A., Forrester, J. D., Tennakoon, L., Spain, D. A., & Weiser, T. G. (2022). A decade of hospital costs for firearm injuries in the United States by region, 2005–2015: Government Healthcare costs and firearm policies. *Trauma Surgery & Acute Care Open*, *7*(1). https://doi.org/10.1136/tsaco-2021-000854

Spinuzzi, A. (2022). Mass Shootings and Trauma: A Qualitative Study on How Survivor Perception Affects Trauma Response. The Chicago School of Professional Psychology ProQuest Dissertations & Theses, 29325083.

Tong, A., Flemming, K., McInnes, E., Oliver, S., & Craig, J. (2012). Enhancing transparency in

reporting the synthesis of qualitative research: Entreq. *BMC Medical Research Methodology*, *12*(1). https://doi.org/10.1186/1471-2288-12-181

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., … Straus, S. E. (2018). Prisma extension for scoping reviews (PRISMA-SCR): Checklist and explanation. *Annals of Internal Medicine*, *169*(7), 467–473. https://doi.org/10.7326/m18-0850

United States Government Accountability Office. Firearm Injuries: Health Care Service Needs and Costs. https://www.gao.gov/assets/gao-21-515.pdf

Vella, M. A., Warshauer, A., Tortorello, G., Fernandez-Moure, J., Giacolone, J., Chen, B., Cabulong, A., Chreiman, K., Sims, C., Schwab, C. W., Reilly, P. M., Lane-Fall, M., & Seamon, M. J. (2020). Long-term functional, psychological, emotional, and social outcomes in survivors of firearm injuries. *JAMA Surgery*, *155*(1), 51. https://doi.org/10.1001/jamasurg.2019.4533

Vicary, A. M., & Fraley, R. C. (2010). Student reactions to the shootings at Virginia Tech and Northern Illinois University: Does sharing grief and support over the internet affect recovery? *Personality and Social Psychology Bulletin*, *36*(11), 1555–1563. https://doi.org/10.1177/0146167210384880

Webb, P. B., Jimenez, J., Elder, A., Cotte, A. O., Ravichandran, A., Holbrook, E., Baer, R. D., & Wilson, J. W. (2024). Exploring lived experiences of gunshot wound survivors: A key to ethnographically informed public health interventions for curbing firearm violence. *Injury*, *55*(2), 111240. https://doi.org/10.1016/j.injury.2023.111240

Zatzick, D., Jurkovich, G. J., Rivara, F. P., Wang, J., Fan, M.-Y., Joesch, J., & Mackenzie, E. (2008). A national US study of posttraumatic stress disorder, depression, and work and functional outcomes after hospitalization for traumatic injury. *Annals of Surgery*, *248*(3), 429–437. https://doi.org/10.1097/sla.0b013e318185a6b8

Zeineddin, S., Zeineddin, A., Jain, A., Olufajo, O. A., Koolaee, S., Cornwell, E. E., & Williams, M. (2021). Disfiguring firearm injuries in children in the United States. *The American Surgeon 89*(5), 2070–2072. https://doi.org/10.1177/00031348211023432

Zhao, P. (2021). Minor feelings in the wake of the Atlanta Attack: How a mom of Asian descent

spent the first 100 hours in the aftermath. *Cultural Studies ↔ Critical Methodologies*, *21*(4), 351–354. https://doi.org/10.1177/15327086211019954

Zuo, Y., Pino, E. C., Vyliparambil, M., & Kalesan, B. (2018). Sex differences in early cardiovascular and all-cause hospitalization outcomes after surviving firearm injury. *American Journal of Men's Health*, *12*(4), 1029–1038. https://doi.org/10.1177/1557988318761989

IV. Paper 2: Life in the Aftermath: Typologies of Firearm Violence Exposure and Emergent Survivorship[3]

Deanna M. Giraldi, Nelba Márquez-Greene, Sarah R. Lowe, David K. Humphreys

Abstract

Introduction. Firearm violence research has largely centred physical injury, leaving witnesses, bereaved individuals, and those living amid chronic community violence underrepresented in research and underserved by support systems.

Theory. Drawing on a processual framework distinguishing exposure, aftermath, and survivorship, this study examines how diverse forms of exposure shape the aftermath and under what conditions survivorship identity emerges, is contested, or remains inaccessible.

Method. Ninety-one adults across the United States completed a structured screening questionnaire; 33 individuals, purposively selected to maximize variation in exposure experiences, completed in-depth online interviews analyzed using reflexive thematic analysis.

Results. Four exposure typologies were identified: physical injury, firsthand witnessing, bereavement, and chronic community violence. Across these, survivorship emerged through three orientations – embraced, contested, and rejected or inaccessible – shaped by access to collective meaning-making frameworks, the fit between the label and lived experience, and whether structural conditions or he absence of physical injury foreclosed it entirely.

Discussion. These findings suggest that survivorship is a relational, socially situated process shaped by meaning-making and recognition, rather than a status conferred by exposure. Interventions and compensation schemes may need to extend beyond the physically injured to reach the full spectrum of those affected.

[3] This chapter has been submitted for publication in *BMJ Open* and is currently under review.

Keywords: aftermath; survivorship; firearm violence; exposure; community trauma; bereavement; injury

Introduction

Firearm violence remains one of the most pressing public health and social crises in the United States. Its consequences extend far beyond the moment of injury (Semenza & Kravitz-Wirtz, 2025; Gabbe et al., 2017; Zatzick et al., 2018; Joseph et al., 2019; Giraldi et al., 2025); however, those who witness shootings, lose loved ones, or live in chronically violent environments are rarely included under the umbrella of "survivors" in research, despite experiencing harms that reshape identity, relationships, and life trajectories.

Communities most affected by firearm violence, particularly communities of colour and economically marginalized groups, have long advanced broader, more inclusive understandings of what it means to survive (Sharpe et al., 2024). Grassroots advocates, violence intervention programs, and community organizations often use the term "survivor" expansively to include individuals and families living with the social and emotional aftermath of violence (Hitchens, 2023). This contrasts with clinical and policy frameworks that often define survivors solely through physical injury.

While a *survivor* is typically defined as a person who lives through a hardship such as disease, violence, or disaster (Schrauf & de Victoria Rodríguez, 2023; Baker et al., 2024; Texler, 2025), *survivorship* refers to an ongoing process through which individuals interpret, integrate, and live with the physical, emotional, and social consequences of violence across the life course (Aziz, 2002; Frank, 2003; van der Kolk, 2014). Individuals may therefore choose to engage in survivorship processes without necessarily adopting the label of "survivor." This view is consistent with research on Black survivors of homicide victims, which shows how meaning-making,

spiritual and collective coping, and, at times, concealment of grief are shaped by sociocultural context (Sharpe & Boyas, 2011; Sharpe et al., 2024).

This study advances a processual framework distinguishing exposure, aftermath, and survivorship. *Exposure* refers to the forms of firearm violence individuals encounter; *aftermath* describes the post-exposure period in which harms unfold and are interpreted (Galiatsatos et al., 2020; Rice et al., 2024); and *survivorship* refers to a selective process of identity formation and meaning-making that may emerge within this period (Bailey et al., 2013).

Existing models distinguishing "direct," "secondary," or "community" violence (Semenza & Kravitz-Wirtz, 2025) often collapse heterogeneous experiences into broad categories. A participant-derived typology highlights how different forms of exposure generate distinct emotional, relational, and structural consequences. More precise categorization also has practical implications: interventions, compensation schemes, and support programs are typically designed for the physically injured, leaving witnesses, the bereaved, and those living amid chronic community violence underserved.

We ask: *How do individuals who have experienced firearm violence describe and make sense of the aftermath? What commonalities and differences emerge across diverse exposure typologies in terms of identity, health, and social life?*

Methods

Study Design

This qualitative study, with recruitment through survivor networks and community organizations, explored how individuals experience the aftermath of firearm violence and how survivorship may emerge within it. An online survey open to individuals throughout the U.S. collected demographic and contextual data, while virtual semi-structured interviews generated in-depth narratives of lived experience. The study employed an inductive, participant-centred approach, informed by reflexive thematic analysis and trauma-informed practices (e.g., participant control over interview pacing and content, non-intrusive questioning, and explicit options to pause or terminate interviews) (Braun & Clarke, 2019; SAMHSA, 2014). This analytic approach allowed exposure typologies to emerge inductively from participants' narratives while attending to how individuals constructed meaning around violence and survivorship.

Sampling and Recruitment

The questionnaire was distributed online and open to any U.S.-based adult (18+) with direct or indirect experience of firearm violence. Recruitment occurred through online survivor networks, general neighbourhood bulletin boards, community organizations' newsletters, and social media posts. Ninety-one participants completed the questionnaire. All were invited to interview in a first phase, and 12 accepted and completed interviews. In a second phase, we revisited the questionnaire pool and purposively invited 50 of the remaining 79 respondents, selected to maximize variation by race, age, gender, geographic region, household income, and type of firearm exposure. Of these, 23 responded (21 completed interviews; 2 cancelled or did not attend) and 27 did not respond; 29 respondents were not re-invited. In total, 33 interviews were conducted online via secure video

call between January and September 2025, lasting 50-90 minutes each (Figure 1), prioritizing informational depth rather than statistical representativeness (Malterud et al., 2016).

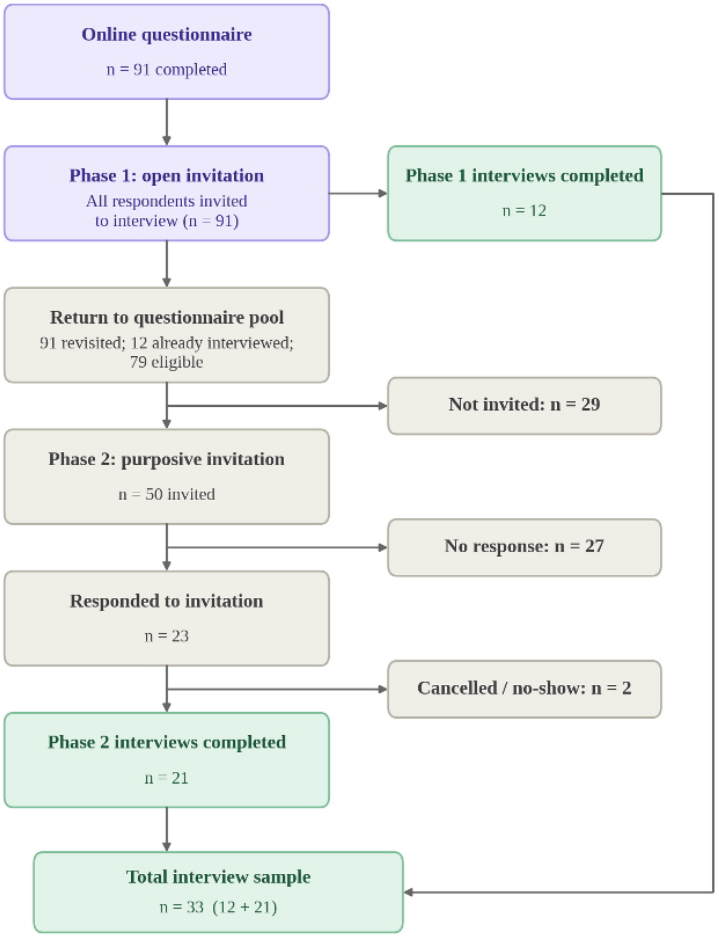


Figure 1. Recruitment and sampling flow. Ninety-one respondents completed the online questionnaire, and all were invited to interview in phase 1; 12 completed interviews. In phase 2, the questionnaire pool was revisited, and 50 of the 79 respondents not yet interviewed were purposively invited to broaden representation by race, age, gender, geographic region, household income, and exposure type. Of these, 23 responded (21 completed interviews; 2 cancelled or did not attend), 27 did not respond, and 29 were not invited. The final sample comprised 33 interviews.

Data Collection

The questionnaire collected demographic information and details of firearm violence exposure, including type, location, and domains of impact (physical, psychological, social, economic). Questionnaire responses were collected confidentially through a secure online platform.

Respondents provided contact details to be invited to interview; these were stored in a separate encrypted file linked to questionnaire responses only by pseudonym.

Interviews, taking place online through Microsoft Teams, followed a semi-structured guide addressing experiences of firearm violence, definitions of survivorship, recovery and resilience processes, and access to healthcare and community support (Appendix 2A). Section D of the guide asked participants directly about survivor identity, for example: "In your demographic questionnaire, you did/did not identify as a survivor – can you explain?" and "What does being a 'survivor' mean to you in the context of firearm violence?" Participants were also asked whether another term described them more accurately.

Participants received detailed information sheets and provided written informed consent, with additional verbal consent for audio-recording; all were informed they could pause, skip questions, or withdraw at any time without penalty. Participants received a $25 virtual gift card after completing the interview. All data were pseudonymized, encrypted, and securely stored in accordance with the principles of the Declaration of Helsinki (2024). Ethical approval was granted by the University of Oxford's Central University Research Ethics Committee (R94701/RE001).

Analysis

Questionnaire data were analysed descriptively to support purposive sampling and provide contextual background for qualitative interpretation. Analysis of interview transcripts included open and focused coding, memo-writing, and thematic synthesis. Two members of the research team (DG & DH) coded transcripts independently before meeting to compare and discuss

interpretations, with disagreements resolved through discussion and documented in analytic memos.

The questionnaire asked respondents to indicate the types of firearm violence that had personally affected them, checking all that applied (shooting, homicide, suicide by gun, mass shooting, unintentional discharge, unintentional shooting by a child, wounded, threatened, witness, persistent gun violence in my neighbourhood, officer-involved shooting, unresolved shooting, or other). The four exposure typologies were developed iteratively from the interviews, in which participants elaborated on the experiences they had indicated on the questionnaire. The typologies consolidate the questionnaire categories: wounded became physically injured, witness and present at a mass shooting became firsthand witness; homicide became bereaved loved one; and persistent gun violence became chronic community violence. Participants who described being threatened had also witnessed someone else being harmed, so threat did not form a separate typology.

Rigor and Reflexivity

Peer debriefing, collaborative coding, and analytic memos were used to track category development and reflexive positioning, particularly around contested concepts such as “survivor,” “victim,” and identity labels (Lincoln & Guba, 1985; Charmaz, 2014). Reflexivity was operationalized through analytic memos documenting interpretive decisions and positionality in relation to survivorship (Berger, 2013). These practices ensured that the emergent typologies and thematic findings remained grounded in participants’ perspectives and experiences rather than imposed conceptual frameworks.

Positionality Statement

DG, who conducted all interviews, is a public health researcher who witnessed a homicide firsthand and has previously studied online firearm violence networks (Giraldi, 2026); this may have shaped rapport with participants and familiarity with survivorship language. NMG is a bereaved mother as well as a licensed marriage and family therapist and community public health professional. SL is a clinical psychologist who studies the long-term consequences of potentially traumatic events. DH is an interdisciplinary social scientist focusing on interpersonal violence. These experiences and backgrounds may have shaped our interpretations; we addressed this through analytic memos, peer debriefing, and by foregrounding participants' own language.

Results

Participant Characteristics

Ninety-one participants across 29 U.S. states and Washington DC completed the questionnaire. Respondents ranged in age from 18 to 75 years, with the largest groups aged 26-35 (34%) and 18-25 (22%). Most identified as women (66%), followed by men (32%) and non-binary or gender non-conforming individuals (2%). Respondents identified their race or ethnicity as Black or African American (43%), White (41%), multiracial (10%), Hispanic/Latinx (3%), Asian (2%), or Native/Indigenous (1%). Approximately half (44%) reported annual household incomes below $50,000.

The most reported experiences included living amid chronic community violence (46%), being present during a shooting (38%), losing a loved one to firearm violence (23%), and being present in a mass shooting (17%). Over half of respondents (58%, n=53) reported experiencing more than

one type of firearm violence. Most reported psychological effects (88%, n=80) following exposure, 71% (n=65) reported social impacts, and 37% (n=34) recorded financial consequences.

Qualitative Findings

A subsample of 33 participants completed in-depth interviews. Table 1 displays demographic differences between the full sample of survey respondents and the subsample of interview participants.

Table 1. Demographic Characteristics of Survey Respondents and Interview Participants

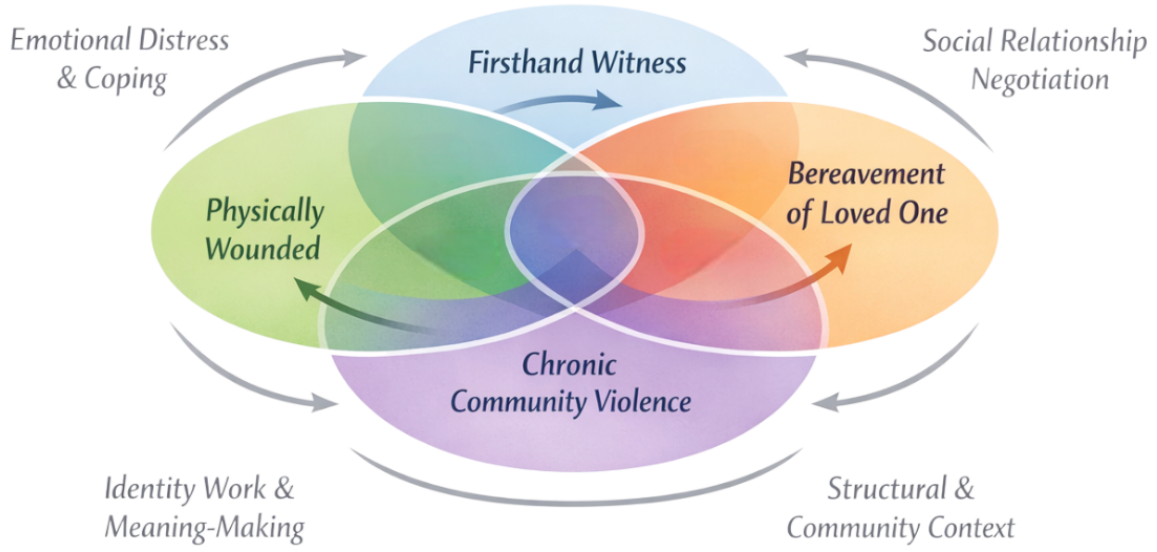
	Survey Respondents (N=91)	**Interviewed Participants (N=33)**
Impacts (non-mutually exclusive) *		
Physical	52	13
Psychological	80	33
Social	65	27
Economic	34	12
Years Since Exposure(s)		
<6 months	-	1 (3%)
6-12 months	-	2 (6%)
1-5 years	-	10 (30%)
>5 years	-	14 (42%)
Ongoing/Lifetime	-	6 (18%)
Gender Identity		
Female	59 (65%)	20 (61%)
Male	29 (32%)	12 (36%)
Non-binary	3 (3%)	1 (3%)
Age		
18-25	19 (21%)	6 (18%)
26-35	32 (35%)	11 (33%)
36-45	11 (12%)	6 (18%)
46-55	16 (18%)	6 (18%)
56-65	8 (9%)	2 (6%)
66-75	5 (5%)	2 (6%)
Race		
White	36 (40%)	9 (27%)
Black	39 (43%)	16 (49%)
Mixed/Other†	16 (18%)	8 (24%)
Region		
Northeast	26 (29%)	8 (24%)

South	30 (33%)	17 (52%)
Midwest	13 (14%)	4 (12%)
West	22 (24%)	4 (12%)

Survey sample N=91; purposive sample of interview participants N=33. Years since exposure were only collected for interview participants and not captured in the survey instrument. *Note: Impacts are not mutually exclusive; participants frequently reported multiple forms of harm across the life course. As a result, counts exceed the sample size and percentages are not calculated. †Mixed/Other includes survey respondents who selected more than one category (n=9), Hispanic/Latinx (n=3), Asian or Asian American (n=3), and Native/Indigenous (n=1). Categories were combined because of small cell sizes.

Analysis identified four exposure typologies: (1) physically injured, (2) firsthand witness, (3) bereaved family or loved one, and (4) chronic community violence (Fig. 2). Participants were included within typologies based on whether they noted that form of exposure at any point in their life course, regardless of whether it was their first or most recent experience; those present during a shooting but not physically injured were classified as firsthand witnesses, regardless of whether they were directly threatened. Seven participants had sustained a physical injury (21%), 18 had witnessed a shooting (55%), 12 had lost a loved one (36%), and 17 reported chronic community exposure (52%).

Figure 2. (Often) Co-Occurring Exposures of Firearm Violence



This conceptual schematic illustrates four analytically distinct typologies of firearm violence exposure: physical injury, firsthand witnessing, bereaved loved one, and chronic community violence. Overlapping areas represent the cumulative and intersecting nature of exposure across the life course, while arrows indicate how individuals may experience multiple exposure typologies over time. Surrounding domains highlight cross-cutting processes that may shape the aftermath or the emergence of survivorship across exposure types.

While each typology involves distinct experiences and challenges, common threads emerged across the framework. Several participants occupied multiple typologies over time; for example, 5 participants (15%) were both bereaved family members and exposed to chronic community violence. Table 2 summarizes the domains of impact described by interview participants across each typology, illustrating overlapping patterns of physical, psychological, social, and economic impact.

Table 2. Domains of Impact by Firearm Violence Exposure Typology (N = 33)

		Domains of Impact			
		Physical Impact	Psychological Impact	Social Impact	Economic Impact
Typologies	Physically Injured (n = 7)	●●●	●●●	●●	●●
	Firsthand Witness (n = 18)	●	●●●	●●	●
	Bereavement of Loved One (n = 12)	○	●●●	●●●	●●
	Chronic Community Violence (n = 17)	●	●●●	●●●	●●●

Legend: ●●● = consistently narrated; ●● = commonly narrated; ● = occasionally narrated; ○ = not narrated.[4]

Psychological impact was consistently narrated in every typology, including among participants who had not been physically injured (Table 2), and was described by all 33 interviewees (Table 1). In contrast, other domains varied by exposure. Physical impact was most consistently narrated by wounded participants, whereas economic impact was most consistently narrated by those exposed to chronic community violence. These patterns suggest that while the specific consequences of firearm violence differed by exposure, psychological harm was a shared feature of the aftermath, extending well beyond physical injury.

Physically Injured: Living with Physical and Embodied Trauma

Interview participants who had been injured (n=7, 21%) constructed the aftermath as an ongoing negotiation between the demands of their recovering bodies and the ripple effects on their emotions, relationships, and finances.

Chronic pain, visible scarring, and mobility limitations persisted long after acute medical treatment ended. Gregory[5], who was wounded in a mass shooting, described how the cold weather made trauma tangible: *"*I *still [have] some shotgun shrapnel in my head. The doctor said they would*

[4] Symbols are a descriptive device showing how prominently each domain of impact was narrated across the exposure typologies; for example, psychological impact was narrated regardless of exposure type. They do not represent statistical comparison. Categories are non-mutually exclusive; participants often reported multiple exposures and impacts.

[5] All names of participants are pseudonyms.

probably cause more damage trying to remove it but when it gets really cold outside, sometimes I can feel a little pain back here. I always have to wear like a hat or a scarf just to keep that area warm."

The consequences of injury stretched into complex healthcare and financial systems. Mark recounted the practical and emotional labour involved in securing care: *"I'm out of work now. I had to have charities pay for a lot of the medical. The remainder was picked up by the state victims compensation fund, but it's capped out...and so much paperwork."*

Participants also encountered stigmatization and institutional suspicion within medical settings. Kai recounted the sense of being treated as a curiosity rather than a patient: *"the hospital treated me like I was a criminal. Like, oh, why did you get shot? Why were you on that street? And they were all kind of fascinated with me until they realized my injuries weren't life threatening, and then they completely left me alone. For like hours."*

Rather than a clear moment of recovery, survival felt like a continuous process of negotiation. Zaria reflected on how years later, the emotional aftermath persisted: "*You know, if you do get shot and you survive, it's the aftermath...it's awful. It's so emotionally charged. And I would say that's where I still am trying to grapple like three years later; it is awful…but I don't wanna be a burden anyway."*

Firsthand Witness: Bearing Witness to Violence

Participants who witnessed firearm violence (n=18, 55%) defined the aftermath by the lingering weight of proximity, helplessness, and psychological turmoil. For some, particularly those exposed during formative developmental periods, witnessing violence became a defining framework through which identity itself was organized. Imani, who witnessed a gang shootout at age 17, recalled the event in detail: *"This time the guns were fired. I saw the bodies fall. It was an event I actually never really spoke about. One was shot in the leg… the one that was shot in the head, his head just tilted… I had a hard time sleeping at night for a long time."*

The impact extended into everyday life: heightened vigilance, hyperawareness of surroundings, and avoidance of spaces associated with danger became routine. Tamara relayed how the experience reshaped her perception of safety: *"it left me constantly on edge whenever I entered that neighbourhood in particular, or whenever I'm in crowded places… I developed a habit of, you know, scanning for exits or potential risks."*

Alongside fear, many carried profound moral distress. Witnessing others harmed often provoked guilt or questions about why they survived. Jade reflected on this painful reckoning: *"I feel guilty. I feel it's my fault. It could have been me. Why should it be him? You know, he had his whole life ahead of him .... I'm thinking of what I could have done differently."*

Even without physical injury, participants described the body as bearing the memory of violence. Andre explained how flashbacks and anxiety physically shaped his daily life: *"[I couldn't] handle the flashbacks anymore. I couldn't manage getting myself to work. Couldn't walk to my bus without*

wondering if another shot would go off. It's so unexpected. I don't know when it'll happen again." For these witnesses, survival was not about escaping harm but living with its enduring presence.

Bereaved Loved One: Living with Loss

Participants who lost family members or partners to firearm violence (n=12, 36%) articulated the aftermath as living with absence, disruption, and ongoing grief rather than moving through recovery. Loss was experienced as both deeply personal and socially mediated, reshaping family roles, economic stability, and emotional wellbeing.

Charlotte reflected on the enduring nature of grief: *"it's more of a journey than it is a destination. The sleeplessness and rumination…the grief doesn't go away; I've just learned to carry it in different ways over time."* Tanya described the sudden and overwhelming responsibilities thrust upon her, financial and legal, that compounded her emotional burden: *"I had $10,000 in life insurance for a $21,000 funeral and then I was out of work for a long time without pay because I ended up hospitalized having these severe panic attacks. We've had [legal] trials, too. I can't tell you how many times I've had to go to court. No idea how to navigate any of this, just thrown into it, seeing the faces of the people who took [my son] away*." In these narratives, the aftermath was not about "moving on" but living alongside a profound, enduring absence.

For some participants, community and institutional support mitigated financial burdens. Caleb spoke of how public attention and generosity eased some of the material pressures: *"financial burden was really taken care of by a GoFundMe and victim's compensation in the state, and by people in the community just donating their time and their services to help out after [my sister]*

was killed." Yet this did not lessen the emotional weight. For Caleb, the challenge lay in balancing personal grief with public attention and advocacy: *"it was an earth shattering and very disassociating moment for me and I kept trying to figure out in the weeks and months afterwards, why did this happen and what can I do to stop this from happening to other communities? I do the interviews because I want my sister to be remembered, and we know her best."*

For others, processes of meaning-making emerged through advocacy, memorialization, or community engagement. Barbara explained that her involvement was not a disappearance of grief, but a way of sustaining connection and asserting recognition: *"I found a group of people who were working on this issue because I couldn't believe [my son] could just walk out and get killed and life goes on and, you know, didn't even make the newspapers 'cause there's a lot of other news that day... I'm the lead of the [state] survivor network now."* Through such involvement, the identity of "survivor" was not automatic but actively performed, negotiated, and affirmed through social and political engagement.

Chronic Exposure: Enduring Community Violence

For participants living in neighbourhoods marked by persistent gun violence, the experience of chronic exposure was not a series of isolated incidents but a sustained condition shaping identity, relationships, and interactions with institutions. Participants living in these contexts (n=17, 52%) described collective experiences marked by distinct harms and coping strategies emerging from repeated exposure to gunfire, loss, and threat over time.

Imani articulated the pressures of survival as reflecting the "broader reality of being a Black woman in the United States": *"We never spoke about what happened that day…we don't have the luxury of allowing these things to impact us. Who am I gonna talk to about that? Are we comparing gun violence situations? Because we've all seen it. We've all experienced it. And we all don't dig up the past."* Derrick, a young Black man, illustrated how repeated exposure silenced individual distress: *"The next day when I was still impacted, they were upset and said I'm making a mountain out of a molehill and that I didn't get shot this time so why am I trippin anyway?"*

Ambient violence shaped how participants understood themselves and their communities. Leona described the stigma and victim-blaming she encountered after gun events: *"I think it's very stigmatized. I think that oftentimes when a person is involved in a gun event, it's almost like you kind of got what you deserve. Like what were you doing to get shot type? Blame the victim. And that's from providers, that's from community members, law enforcement. It's a terrible experience."* After a pause, she reflected on her personal desire for a life beyond loss: *"I don't want to be known as a person that got all the friends that die. It don't need to be like this."*

Despite these harms, participants also conveyed resilience cultivated through community connections. Elijah reflected on the evolving nature of support over time: *"I had support from friends, but at some point it faded because it's been a time since I was shot so now my support is my disability organization."* Tanya described the active role she took in supporting others, showing how community networks became both a source of healing and knowledge: *"part of my healing is being able to support other people"* and *"when my community speaks, we notice similar stories*

and can say 'this is how I got through it, these are the things that you're going to run into, this may happen'...You're more prepared for things."

In these contexts, the boundary between exposure and aftermath was often indistinct as violence continually reactivated earlier experiences and sustained collective vigilance.

Cross-Cutting Themes: Recognition, Identity, and the Selective Emergence of Survivorship

Despite the distinct nature of each exposure, participants reported overlapping challenges: struggles for recognition and legitimacy, tensions between private suffering and public narratives of resilience, and ongoing negotiations of identity. Zaria, physically injured, described how formal support never materialized: *"in the aftermath, nothing happened. Like I ended up getting no counseling, which I clearly knew I needed and I wanted.*" Where institutional recognition failed, peer community sometimes filled the gap. Tamara emphasized finding validation among others with shared experience: *"it gave me a sense of belonging...these people actually know what you are saying and understand it exactly the way you want it to be understood. That actually helps.*" Together, these accounts suggest that recognition, whether institutional or relational, was neither automatic nor evenly distributed.

While the aftermath was broadly shared, survivorship emerged unevenly across typologies. Among some participants, survivorship became a constitutive identity. Tess, who witnessed a school shooting during adolescence, described it as inseparable from her sense of self: "*I view me being a school shooting survivor as something that is so integral to my identity...*" Many bereaved participants similarly embraced survivorship, constructing it through advocacy and public

engagement. Among others, the relationship to survivorship was more contested. Zaria, still navigating the emotional and psychological consequences of her injury years later, resisted both victim and survivor as adequate descriptors: *"it hasn't ended...the energy just shifted from something that was physical to something that's more mental and psychological, so I don't think I'd use the term survivor for myself."* Among those living amid chronic community violence, survivorship language was inaccessible altogether; it was displaced by collective framings of violence as ambient and shared rather than as discrete events around which individual identity could coalesce. For others, the label had no foothold where physical harm had not occurred. Ryan, who had witnessed a shooting and had a gun held to his head but was not shot, did not identify as a survivor: *"He could've shot me and he didn't. The gun was at my head and the bullet didn't fly."*

These patterns suggest three analytically distinct orientations to survivorship across the data: (1) embraced, particularly where advocacy networks or bereavement communities provided frameworks for collective meaning-making; (2) contested or ambivalent, where the label felt partially relevant but implied a trajectory toward resolution that did not match lived experience; and (3) rejected or inaccessible, either where violence was a sustained structural condition that precluded individualizing narratives, or where the absence of physical injury foreclosed the label entirely. These orientations reflect differential access to recognition and narrative frameworks, and suggest that institutional recognition may shape access to survivorship identity.

Discussion

The study's central contribution is empirical and conceptual: survivorship is not automatically conferred by exposure but a selective process shaped by meaning-making recognition, and social

positioning that may be embraced, contested, or rendered inaccessible. Prior research has largely treated survivorship as implicit and has focused primarily on those who are physically injured (O'Neill et al., 2020; Orlas et al., 2021; Semenza et al., 2026). Our findings complicate the assumption that exposure confers survivorship across all four exposure typologies.

Among bereaved participants, survivorship was most frequently embraced, though it was actively constructed – built through advocacy, memorialization, and community engagement rather than through the event of loss itself. Barbara's account illustrates this: finding others working on the issue, and becoming a network lead, was how survivorship became legible and claimable. Among those living amid chronic community violence, survivorship language was largely inaccessible, displaced by collective framings of violence as ambient and shared rather than as discrete events around which individual identity could coalesce. Imani's and Derrick's accounts both reflect a social imperative not to individualize distress – a condition structurally at odds with the narrative survivorship requires. Among physically injured participants and firsthand witnesses, orientations were more varied: some embraced the label, others contested it as implying a resolution that did not match lived experience, and some, like Ryan, who had a gun held to his head but was not shot, found no foothold for it at all. This extends Baker et al. (2024) by showing that negotiation varies across exposure type and relational context, not only within a single population.

The three orientations suggest that those supporting survivors should not assume a survivor identity is available, wanted, or helpful. For people who embraced survivorship, which here usually followed contact with advocacy or bereavement networks, providers can help connect individuals with peer communities, while recognizing, as Paper 4 shows, that these networks carry

expectations of disclosure and advocacy that not everyone can or wants to meet. For participants who contested the label because it implied a resolution their lives did not match, services framed around recovery milestones or closure risk alienating them. Open-ended support that does not end at an acute-phase window would be more beneficial. For participants for whom the label was inaccessible, whether because violence was a chronic condition or because the absence of physical injury meant they did not see themselves as eligible, access to services should not depend on identifying as a survivor or on having been wounded, and support may need to work at the collective as well as the individual level. Whether embracing or rejected survivorship changes service uptake or integration into survivor networks was not tested here and could be a priority for future research.

However, across all typologies, participants described persistent psychological, social, and economic consequences extending well beyond the initial event. Hypervigilance (i.e. a persistent state of heightened alertness to threat), survivor guilt, disrupted relationships, and financial strain were common, including among those who had not been physically injured. These findings extend literature on indirect trauma exposure, including moral injury (i.e. psychological distress arising from perpetrating, witnessing, or failing to prevent violent acts) and depressive symptoms (McCann & Pearlman, 1990; Hureau et al., 2022), by emphasizing the frequent absence of formal support and the social invisibility of witnessing and community-based experiences. Recognition of harm, whether from institutions or peer networks, was neither automatic nor evenly obtained when sought.

The typologies also reflect distinct institutional and relational pathways through which the aftermath is experienced. Individuals with physical injuries were often embedded within formal healthcare and criminal legal infrastructures, including hospitals, insurance systems, and victim compensation programs. While these systems sometimes provided critical support, they also generated bureaucratic burdens and experiences of stigma or suspicion, consistent with prior findings (Patton et al., 2019). In contrast, firsthand witnesses frequently experienced significant psychological disruption without comparable institutional recognition or structured support. Bereaved participants often engaged with legal systems, media attention, and public memorialization, extending the aftermath into legal and social domains while reshaping family roles and economic responsibilities (Giraldi, 2026). For participants living amid chronic community violence, the boundary between exposure and aftermath was often blurred. Repeated incidents of violence continually reactivated prior experiences, sustaining vigilance, fear, and emotional fatigue. These accounts, consistent with Smith et al. (2020) and Hitchens (2023), suggest that recovery is an ongoing negotiation with cumulative harm rather than a linear process.

Identifying chronic community violence as a distinct exposure typology foregrounds the structural conditions shaping firearm violence. Participants described normalization of violence, community-level coping strategies, and emotional exhaustion associated with sustained exposure. These findings align with research on the role of structural factors such as racialized disinvestment, concentrated poverty, and unequal institutional response in shaping violence exposure and outcomes (Sampson, 2012; Poulson et al., 2021; Kravitz-Wirtz et al., 2022; Barboza-Salerno et al., 2025). Framing chronic community violence as exposure rather than contextual background

draws attention to how participants described ambient and cumulative violence as associated with enduring harms even in the absence of a single defining event.

Many participants experienced multiple forms of firearm violence across the life course and described the consequences as compounding across exposures. This challenges conventional distinctions between "direct" and "indirect" exposure (Bancalari et al., 2022; Semenza & Kravitz-Wirtz, 2025). While physical injury remains a distinct form of harm, participants who experienced repeated indirect exposures described lasting psychological and social consequences, which some compared to those following physical injury. This calls for frameworks that account for cumulative exposure and relational context rather than relying on binary classifications of exposure type.

Implications for Practice

The three orientations suggest different starting points for practice. These implications are drawn from participants' accounts and are not tested effects.

Orientation	What the accounts showed	What can be done
Embraced	Often built through advocacy, bereavement communities, and networks (Barbara, Tess). It opened routes to peer community and public voice.	Support these routes, but be sensitive to expectations of disclosure and advocacy that come with them. Not all who participate in networks or advocacy adopt the label.

Contested or ambivalent	"Survivor" implied a resolution that had not come (Zaria).	Do not make the label a condition of support. Frame assistance around continued needs, not a recovery narrative, and keep services open as needs persist.
Rejected or inaccessible	Either the absence of physical injury foreclosed the label (Ryan), or chronic violence made individual narratives unavailable (Imani, Derrick).	State explicitly that people who were not injured are eligible. For chronic exposure, use collective and community framings, work through trusted community settings, and avoid single-incident intake.

Whether embracing or rejecting survivorship changes the uptake of services or integration into survivor networks cannot be tested with these data. Longitudinal and quantitative work is needed to examine this and to see whether orientations shift over time.

Limitations

This study has several limitations. First, although 91 individuals completed the survey, qualitative findings are based on 33 in-depth interviews and are not statistically generalizable; subgroups were small, particularly the physically injured typology (n=7). Second, recruitment through an online

questionnaire may have excluded individuals without stable internet access or those less comfortable disclosing experiences digitally, potentially shaping who was able or willing to participate. Recruitment through survivor networks and community channels likely over-represented people already familiar with survivorship language, which may overstate how common embraced or contested orientations are. Twelve interviewees self-selected, 27 of the 50 purposively invited respondents did not respond, and all interviewees reported psychological impact, so participants may differ from non-participants. Third, participants came from 29 states and Washington DC, with interviewees concentrated in the South (52%). Fourth, time since exposure ranged from under six months to more than five years or ongoing, and retrospective accounts may be subject to recall bias. Fifth, the exposure typologies are an analytic framework rather than a rigid classification system. Categories are not mutually exclusive, and many participants occupied multiple typologies across the life course. The framework is intended as a heuristic tool to illuminate patterned differences and overlaps, not to rank severity or exhaustively define all exposure experiences. Finally, we distinguish between participants' accounts, our interpretive framework, and causal inference: this study offers the first two and cannot establish causal relationships between exposure, recognition, and survivorship orientation.

Future research could apply the exposure, aftermath, and survivorship framework to specific samples, such as communities affected by mass shootings, first responders, or rural populations, to examine how the typologies and survivorship orientations vary across contexts. Longitudinal designs could trace how orientations shift over time while quantitative measures could test associations between exposure type, recognition, and survivorship orientation. Further

participatory approaches should involve affected communities in study design, interpretation, and dissemination.

Conclusion

This study advances a participant-derived conceptualization of the aftermath of firearm violence, identifying four overlapping exposure typologies and examining how survivorship emerges selectively within them. By distinguishing exposure, aftermath, and survivorship as analytically separate processes, this framework moves beyond injury-based definitions of harm and centers the experiences of those most often rendered invisible in research and policy.

In this sample, survivorship was not conferred by exposure; it was constructed through advocacy, community, and meaning-making, and for many, it remained out of reach. For Ryan, the absence of physical injury foreclosed the label entirely. For Imani and Derrick, the social imperative to not individualize distress within communities experiencing chronic violence made survivorship narratively inaccessible. For Zaria, still grappling with psychological consequences years after her injury, neither survivor nor victim felt adequate. These accounts illustrate that the aftermath is ongoing, uneven, and shaped by conditions that existing frameworks do not capture.

References

Aziz, N. M. (2002). Cancer survivorship research: Challenge and opportunity. *The Journal of Nutrition, 132*(11). https://doi.org/10.1093/jn/132.11.3494s

Bailey, A., Hannays-King, C., Clarke, J., Lester, E., & Velasco, D. (2013). Black mothers' cognitive process of finding meaning and building resilience after loss of a child to gun violence. *British Journal of Social Work, 43*(2), 336–354. https://doi.org/10.1093/bjsw/bct027

Baker, N. S., VanHook, C., Ziminski, D., Costa, J., Mitchell, M., & Lovelady, N. (2024). "I am a survivor!": Violently Injured Black Men's Perceptions of Labeling After a Violent Firearm Injury. *Journal of Urban Health: Bulletin of the New York Academy of Medicine, 101*(3), 535–543. https://doi.org/10.1007/s11524-024-00874-8

Bancalari, P., Sommer, M., & Rajan, S. (2022). Youth exposure to Endemic Community Gun Violence: A Systematic Review. *Adolescent Research Review*, *7*(3), 383–417. https://doi.org/10.1007/s40894-022-00178-5

Barboza-Salerno, G., Liebhard, B., Duhaney, S., & Harrington, T. (2025). Redlining, reinvestment, and racial segregation: A Bayesian spatial analysis of mortgage lending trajectories and firearm-related violence. *Injury Epidemiology, 12*(1). https://doi.org/10.1186/s40621-025-00579-9

Berger, R. (2013). Now I see it, now I don't: researcher's position and reflexivity in qualitative research. *Qualitative Research*, *15*(2), 219-234. https://doi.org/10.1177/1468794112468475 (Original work published 2015)

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Charmaz, K. (2014). Grounded Theory in Global Perspective: Reviews by International Researchers: Reviews by International Researchers. *Qualitative Inquiry, 20*(9), 1074-1084. https://doi.org/10.1177/1077800414545235 (Original work published 2014)

Frank, A. W. (2003). Survivorship as craft and conviction: Reflections on research in progress. *Qualitative Health Research*, *13*(2), 247–255. https://doi.org/10.1177/1049732302239601

Gabbe, B. J., Simpson, P. M., Cameron, P. A., Ponsford, J., Lyons, R. A., Collie, A., Fitzgerald,

M., Judson, R., Teague, W. J., Braaf, S., Nunn, A., Ameratunga, S., & Harrison, J. E. (2017). Long-term health status and trajectories of seriously injured patients: A population-based longitudinal study. *PLOS Medicine, 14*(7). https://doi.org/10.1371/journal.pmed.1002322

Galiatsatos, P., Cudjoe, T. K. M., Bratcher, J., Heikkinen, P., Leaf, P., & Golden, S. H. (2020). Second Victims: Aftermath of Gun Violence and Faith-Based Responses. Journal of religion and health, 60(3), 1832–1838. https://doi.org/10.1007/s10943-020-01112-6

Giraldi, D. M., Swingler, S., Kirk, D. S., Jacoby, S. F., Melendez-Torres, G. J., Kaufman, E. J., & Humphreys, D. K. (2025). Understanding the broader impacts of non-fatal firearm violence trauma in the United States: A scoping review. *The Lancet Regional Health – Americas*, *46*, 101091. https://doi.org/10.1016/j.lana.2025.101091

Giraldi, D. M. (2026). "We can endure suffering but not meaninglessness": Identity, meaning-making, and community in online firearm violence survivor networks. *SSM - Qualitative Research in Health*, *9*, 100742. https://doi.org/10.1016/j.ssmqr.2026.100742

Hitchens B. K. (2023). The cumulative effect of gun homicide-related loss on neighborhood perceptions among street-identified black women and girls: A mixed-methods study. *Social Science & Medicine* (1982), 320, 115675. https://doi.org/10.1016/j.socscimed.2023.115675

Hureau, D. M., Wilson, T., Rivera-Cuadrado, W., & Papachristos, A. V. (2022). The experience of secondary traumatic stress among Community Violence Interventionists in Chicago. *Preventive Medicine, 165,* 107186. https://doi.org/10.1016/j.ypmed.2022.107186

Joseph, B., Hanna, K., Callcut, R. A., Coleman, J. J., Sakran, J. V., & Neumayer, L. A. (2019). The hidden burden of mental health outcomes following firearm-related injures. *Annals of Surgery, 270*(4), 593–601. https://doi.org/10.1097/sla.0000000000003473

Kravitz-Wirtz, N., Bruns, A., Aubel, A. J., Zhang, X., & Buggs, S. A. (2022). Inequities in Community Exposure to Deadly Gun Violence by Race/Ethnicity, Poverty, and Neighborhood Disadvantage among Youth in Large US Cities. *Journal of Urban health: Bulletin of the New York Academy of Medicine*, *99*(4), 610–625. https://doi.org/10.1007/s11524-022-00656-0

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic Inquiry. Beverly Hills, CA: Sage Publications, Inc.

Malterud, K., Siersma, V. D., & Guassora, A. D. (2015). Sample size in qualitative interview studies. *Qualitative Health Research*, *26*(13), 1753–1760. https://doi.org/10.1177/1049732315617444

McCann, I. L., & Pearlman, L. A. (1990). Vicarious traumatization: A framework for understanding the psychological effects of working with victims. *Journal of traumatic stress, 3*(1), 131-149.

Nofi, C. P., Roberts, B. K., Cornell, E., Tijerina, M., Tussing, O., Henry, M. C., & Sathya, C. (2023). Hospital-based violence intervention programs to reduce firearm injuries in children: A scoping review. *Journal of Pediatric Surgery*, *58*(11), 2212–2221. https://doi.org/10.1016/j.jpedsurg.2023.04.020

O'Neill, K. M., Vega, C., Saint-Hilaire, S., Jahad, L., Violano, P., Rosenthal, M. S., ... & Dodington, J. (2020). Survivors of gun violence and the experience of recovery. *Journal of trauma and acute care surgery, 89*(1), 29-35.

Orlas, C. P., Thomas, A., Herrera-Escobar, J. P., Price, M. A., Haider, A. H., & Bulger, E. M. (2021). Long-term outcomes of firearm injury survivors in the United States. *Annals of Surgery, 274*(6), 962–970. https://doi.org/10.1097/sla.0000000000005204

Patton, D., Sodhi, A., Affinati, S., Lee, J., & Crandall, M. (2019). Post-Discharge Needs of Victims of Gun Violence in Chicago: A Qualitative Study. *Journal of Interpersonal Violence*, *34*(1), 135–155. https://doi.org/10.1177/0886260516669545

Poulson, M., Neufeld, M. Y., Dechert, T., Allee, L., & Kenzik, K. M. (2021). Historic redlining, structural racism, and firearm violence: A structural equation modeling approach. *Lancet regional health. Americas*, *3*, 100052. https://doi.org/10.1016/j.lana.2021.100052

Rice, H. E., Owen, M., Johnson, A., Swandell, J., Nicholson, C. P., Provencher, S., Horne, E., Solomon, C., Ratliff, W., Knechtle, W., Campbell, D., Smith, R., & Graves, L. (2024). Lived experiences of people impacted by gun violence: qualitative analysis of the prescriptions for repair project. *Trauma Surgery & Acute Care Open, 9*(1), e001503. https://doi.org/10.1136/tsaco-2024-001503

SAMHSA's Trauma and Justice Strategic Initiative. (2014, July). SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach. https://www.health.ny.gov/health_care/medicaid/program/medicaid_health_homes/docs/samhsa_trauma_concept_paper.pdf

Sampson, R. J. (2012). *Great American City: Chicago and the Enduring Neighborhood Effect*. The University of Chicago Press.

Schrauf, R. W., & de Victoria Rodríguez, P. C. (2023). Disaster Solidarity and survivor ethics: A case study of Hurricane María in Puerto Rico. (1). https://doi.org/10.1111/disa.12593

Semenza, D. C., & Kravitz-Wirtz, N. (2025). Gun violence exposure and population health inequality: a conceptual framework. *Injury Prevention: Journal of the International Society for Child and Adolescent Injury Prevention, 31*(1), 1–8. https://doi.org/10.1136/ip-2023-045197

Semenza, D. C., Baker, N. S., Ziminski, D., Mastrocinque, J. M., Whye, D., & Heredia, L. (2026). Physical Health Challenges, Healthcare Needs, and Barriers to Care among Firearm Injury Survivors: A Mixed Methods Analysis. *Journal of urban Health: Bulletin of the New York Academy of Medicine*, 10.1007/s11524-025-01049-9. Advance online publication. https://doi.org/10.1007/s11524-025-01049-9

Sharpe, T., Aqil, N., & Donkin, V. (2024). Invisible Wounds: Exploring the Coping Strategies of Black Survivors of Homicide Victims in Canada. *OMEGA - Journal of Death and Dying, 0*(0). https://doi.org/10.1177/00302228241246423

Sharpe, T., & Boyas, J. (2011). We fall down: The African American experience of coping with the homicide of a loved one. *Journal of Black Studies, 42*(6), 855-873.

Smith, M. E., Sharpe, T. L., Richardson, J., Pahwa, R., Smith, D., & DeVylder, J. (2020). The impact of exposure to gun violence fatality on mental health outcomes in four urban U.S. settings. *Social science & medicine (1982)*, *246*, 112587. https://doi.org/10.1016/j.socscimed.2019.112587

Texler, C.E. (2025). Am I a Survivor? *JAMA, 333*(1):28–29. doi:10.1001/jama.2024.23388

Van der Kolk, B. A. (2014). *The body keeps the score: Brain, mind, and body in the healing of trauma.* Penguin Books.

Zatzick, D., Jurkovich, G. J., Rivara, F. P., Wang, J., Fan, M.-Y., Joesch, J., & Mackenzie, E. (2008). A national US study of posttraumatic stress disorder, depression, and work and functional outcomes after hospitalization for traumatic injury. *Annals of Surgery*, *248*(3), 429–437. https://doi.org/10.1097/sla.0b013e318185a6b8

V. Paper 3: Inequitable Aftermath: Structural Mechanisms Shaping the Experience of Firearm Violence[6]

Deanna M. Giraldi

Abstract

Background. The aftermath of firearm violence is shaped by the same structural conditions that determine exposure, yet their role in producing differential aftermath experiences remains underspecified. This study identifies the mechanisms through which these conditions generate inequitable aftermath experiences across four exposure typologies.

Methods. Secondary qualitative analysis of 33 in-depth interviews with adults who had experienced firearm violence (physical injury, witnessing, bereavement, chronic community violence) in the United States. Guided by intersectionality as a sensitizing framework, analysis used iterative coding, cross-case matrices, and temporal analysis.

Results. Seven mechanisms were identified: financial foreclosure, racialized institutional stigma, institutional recognition hierarchy, navigation burden, temporal abandonment, agency suppression, and compounding exposure. Mechanisms operated across rather than within exposure typologies, compounded one another systematically, and shaped identity from within while constraining material access. Outlier analysis specified the structural conditions under which each mechanism was suppressed. Intersectional analysis found that race and class operated both separately and in combination, producing qualitatively distinct burdens not reducible to either axis alone.

Conclusions. The inequitable aftermath of firearm violence is structurally produced, not inevitable. The mechanisms identified provide a framework for intervention that targets

[6] This chapter has been submitted for publication in *Social Science and Medicine* and is currently under review.

institutional design failures, racialized processes, and temporally bounded support systems rather than individual-level coping. Intersectional analysis further demonstrates that race and class compound one another in ways that single-axis frameworks cannot capture, with direct implications for how interventions are designed and for whom.

Keywords: gun violence, aftermath, structural mechanisms, intersectionality, survivorship, race, socioeconomic class

Introduction

The burdens of firearm violence do not end with the exposure itself, nor are they distributed evenly in its aftermath. Individuals who have been physically injured, bereaved, witnessed violence firsthand, or lived amid chronic community gunfire navigate the post-exposure period with profoundly unequal resources, institutional recognition, and social support (Vella et al., 2020; Rice et al., 2024; Semenza & Kravitz-Wirtz, 2025; Wallace-Hanlon et al., 2026; Giraldi et al., 2026). While public health research increasingly frames firearm violence as a chronic and complex social problem, comparatively little attention has been paid to what shapes the aftermath itself: whose suffering is formally acknowledged, whose access to care is enabled or foreclosed, and whose capacity for agency and identity reconstruction is constrained by the structural contexts they inhabit.

Recent research has begun to map the contours of this aftermath. Studies have documented persistent psychological consequences among physically injured individuals, including posttraumatic stress, chronic pain, and barriers to healthcare (Zatzick et al., 2008; O'Neill et al., 2020; Orlas et al., 2021), as well as enduring grief, financial disruption, and social dislocation among bereaved families (Sharpe et al., 2024; Umberson et al., 2017). Research on witnesses and those living amid chronic community violence has highlighted moral injury (psychological distress arising from perpetrating, witnessing, or failing to prevent violent acts), hypervigilance (a persistent state of heightened alertness to threat), and the normalization of ambient violence as distinct and underrecognized forms of harm (Kravitz-Wirtz et al., 2022). Across these studies, a consistent pattern emerges: institutional responses to firearm violence, through healthcare systems (Feagin & Bennefield, 2014), victim compensation programs, legal processes, and community

services, are unevenly distributed. Those who have been physically injured receive comparatively greater formal recognition than witnesses, the bereaved, or those living amid chronic community violence. What remains underexamined is how structural racism and structural disadvantage actively shape post-exposure conditions – not merely as antecedents to violence, but as ongoing forces producing differential experiences of the aftermath itself. For example, studies focused on bereaved mothers (Bailey et al., 2013; Sharpe et al., 2024) or physically wounded Black men (Baker et al., 2024) illuminate structural dynamics within specific subpopulations but remain siloed within single exposure typologies, limiting what can be said about shared versus typology-specific mechanisms.

This study responds to calls for qualitative research to unearth the mechanisms and pathways shaping experiences in the aftermath of firearm violence exposure (Semenza & Kravitz-Wirtz, 2025). Drawing on a secondary qualitative analysis of 33 in-depth interviews from the Giraldi et al. (2026) dataset, this study examines how structural conditions shape differential experiences of the aftermath across firearm-related exposure typologies (i.e. physically wounded, firsthand witness, bereaved loved ones, chronic community violence). This study employs the concept of mechanism in the tradition of critical realism (Bhaskar, 1975; Pawson & Tilley, 1997). In this tradition, mechanisms are generative processes – recurring structural processes through which conditions produce outcomes – that operate within specific contexts and are not directly observable. Their activation and effects depend on the structural circumstances in which they occur. Structural racism and structural disadvantage are treated here as structural domains within which mechanisms operate, rather than as mechanisms themselves, and their joint operation is understood through an intersectional lens (Crenshaw, 1991; Collins, 2000): race and class are

treated not as separate, additive categories but as co-constitutive forces whose simultaneity produces distinct experiences of privilege and oppression.

Structural conditions here means the socially patterned arrangements, outside any individual's control, that shape access to resources and the way people are treated. This paper focuses on two: structural racism and structural disadvantage, the two conditions most pronounced across all 33 participants' accounts in Paper 2. *Structural racism* refers to the ways laws, institutions, and practices produce racial inequities in treatment and outcomes. *Structural disadvantage* refers to the ways socioeconomic position shapes access to income, housing, health care, and institutional support. *Inequitable aftermath experiences* means systematic differences, by race, class, and exposure type, in what individuals receive and can do after violence: financial security, institutional recognition, access to care and support over time, and the capacity to rebuild agency and identity.

This framing draws on research on the structural determinants of health, which locates the sources of unequal health in the social, economic, and political arrangements that distribute resources, not in individual behavior (Solar & Irwin, 2010). Two bodies of work are especially relevant; fundamental cause theory holds that race and socioeconomic position shape health across diverse circumstances because they determine access to flexible resources such as money, power, knowledge, and social connection (Phelan & Link, 2015). Research on structural racism shows how laws, institutions, and practices produce racial inequities in health regardless of individual attitudes (Gee & Ford, 2011; Bailey et al., 2021).

The analysis therefore attends not only to where mechanisms operated but to the conditions under which they were suppressed, treating outlier cases as analytically generative rather than as noise. Guided by this intersectional orientation, the study asks: *How do structural racism and structural disadvantage shape differential experiences of the aftermath of firearm violence across exposure typologies?*

Methods

Study Design

This study employed a secondary qualitative analysis of 33 in-depth, semi-structured interviews with adults who had experienced firearm violence in the United States (Giraldi et al., 2026); the present analysis returns to that dataset with a specific focus on structural mechanisms. Secondary analysis was selected because the original dataset contained rich evidence of *how* structural racism and structural disadvantage shape the aftermath, but this had not been a primary analytic focus. The goal of this paper was to identify what structural processes, grounded in participants' accounts, produced differential aftermath experiences. Secondary qualitative analysis requires explicit justification (Heaton, 2008; Irwin, 2013); its principal risk is thin data on dimensions not directly probed. This risk was mitigated through the broad scope of the original interviews, the author's involvement in both studies, and analytic memos that treated ambiguous instances conservatively rather than recruiting them to support mechanism claims. All interviews were audio-recorded, transcribed verbatim, and imported into NVivo for systematic coding and analysis.

The author conducted all analyses. Single-coder designs are appropriate where the analyst has intimate knowledge of the dataset (Cheong et al., 2023); compensatory rigor was maintained

through analytic memos, cross-case matrices, and reflexive attention to how institutional position may have shaped what structural dynamics were visible in the data.

The primary study (Giraldi et al., 2026) recruited adults across the United States who had experienced at least one form of firearm violence exposure using purposive and snowball sampling strategies designed to maximize variation across race, socioeconomic status, gender, and time since exposure. Recruitment occurred through online survivor networks, community organizations' newsletters, and social media between January and September 2025. Eligible participants were adults (18+) residing in the United States. Interviews were conducted remotely, lasted 50–90 minutes, and followed a semi-structured guide covering exposure history, aftermath experiences, survivorship experiences, and access to healthcare and community support. The four-typology exposure framework – physical injury, firsthand witnessing, bereavement, and chronic community violence – was developed inductively from that analysis and provides the organizing structure for the present study.

Each typology encompasses meaningful variation in the character of exposure. “Firsthand witness” participants ranged from witnessing a mass shooting (Colleen, Amy) to witnessing a targeted, gang-related shooting (Derrick) to witnessing the murder of a loved one (Andre). “Bereaved” participants included mothers (Tanya, Barbara, Joanne), a grandmother (Darlene), and a sibling (Caleb), reflecting differing relational positions to the deceased. “Chronic community violence” participants included individuals with life-long residential exposure as well as professionals such as community violence intervention workers (Leona). This variation was retained analytically rather than smoothed into the typology label: cross-case analysis attended specifically to whether

mechanism-level patterns held across within-typology variation, and mechanisms that recurred despite this heterogeneity were treated as stronger evidence of a structural, rather than idiosyncratic, pattern.

The analytic approach was theory-informed and iterative. Intersectionality (Crenshaw, 1991; Collins, 2000) was employed as a sensitizing concept (Blumer, 1954; Charmaz, 2000) rather than a confirmatory framework to be tested; it oriented the analyst toward where race and class might co-produce experience, without treating demographic categories as predetermined analytic strata. Consistent with this approach, participants' structural positions were derived from how participants themselves narrated their own racialized position, rather than from research-assigned categories. In practice, this meant attending to patterns such as shared economic barriers among low-income participants across exposure typologies, and the persistence of racialized institutional stigma among higher-SES participants of color, as evidence of intersecting structural forces rather than additive demographic effects. The analysis drew directly on particpants' accounts to identify the mechanisms through which structural contexts shaped the aftermath. This included variation in institutional engagement, agency, and identity reconstruction across the four exposure typologies established in Giraldi et al. (2026).

This study constitutes a secondary analysis of data collected under ethical approval granted by the University of Oxford's Central University Research Ethics Committee (R94701/RE001). Original participant consent covered secondary analysis of anonymized data. No additional ethical review was required for the present study.

Participants

Participants included 33 adults with either direct or indirect experiences of firearm violence, spanning all four exposure typologies: physical injury, firsthand witnessing, bereavement, and chronic community violence. Many participants occupied multiple typologies across the life course, reflecting the cumulative and overlapping nature of firearm violence exposure. Demographic characteristics included race and ethnicity, socioeconomic status (assessed through household income and educational attainment), age, gender, exposure type, and time elapsed since exposure. The sample reflected substantial heterogeneity across these dimensions, including Black, white, and multiracial participants; low-, middle-, and higher-income households; and exposure ranging from recent to lifetime. Pseudonyms are used throughout to protect participant confidentiality. Table 1 displays demographic characteristics of interview participants.

Table 1. Demographic Characteristics of Interviewees

Characteristics	Interviewed Participants (N=33)
Exposure Typology*	
Physically injured	7
Firsthand witness	18
Bereaved	12
Chronic community violence	17
Years Since Exposure(s)	
<6 months	1
6-12 months	2
1-5 years	10
>5 years	14
Ongoing/Lifetime	6
Gender Identity	
Female	20
Male	12
Non-binary	1
Age	
18-25	6
26-35	11
36-45	6
46-55	6
56-65	2

66-75	2
Race	
White	9
Black	16
Mixed/Other*	8
Socioeconomic Indicators	
Annual Household Income	
<$25,000	6
$25,000 – 49,999	3
$50,000 – 74,999	10
$75,000 – 99,999	7
$100,000+	7
Educational Attainment	
High School	1
Trade School	2
Some College	6
Associate (2-year)	4
Bachelor (4-year)	13
Masters	7
Doctorate	0

Note. Exposure typologies are non-mutually exclusive; participants frequently reported multiple forms of exposure across the life course, and column totals therefore exceed N=33. Mixed/Other includes participants identifying as multiracial or as a racial/ethnic group other than Black or white. Socioeconomic status was assessed across two indicators: annual household income and educational attainment. For context, the 2025 U.S. Federal Poverty Line was $32,150 for a family of four; the U.S. median household income was approximately $83,730.

Analysis

The two structural conditions, structural racism and structural disadvantage, were specified from the Paper 2 analysis, in which they were the most pronounced across the 33 participants. In Paper 3, they were used as sensitizing concepts, tracing how each operated through participants' encounters with institutions and informal supports. The seven mechanisms were developed from this tracing and the outlier cases (Table 2) were used to identify the conditions under which each mechanism was suppressed.

Coding was conducted iteratively using a parent-child (nested) structure aligned with the study's structural mechanisms focus. Parent codes included structural conditions, institutional interactions, barriers to navigation, stigma and discrimination, temporal processes, agency, and meaning-making. Child codes captured race and ethnicity, socioeconomic status, service availability, identity reconstruction, community engagement, and coping strategies. Codes were refined throughout analysis to capture not only the presence or absence of barriers and resources, but how participants described their effects on agency, identity, and the unfolding of the aftermath over time. Analytic memos documented emergent patterns and candidate mechanisms as they appeared across cases, providing a running record of the inferential process through which mechanisms were identified and refined. The full codebook, including parent and child codes with definitions and illustrative examples, is provided in Supplementary File 1 to support transparency and replicability of the analytic process.

Cross-case matrices and matrix coding queries were used to examine patterned variation in structural barriers, institutional engagement, and aftermath experiences across race, socioeconomic status, and exposure typology. Analysis attended to both expected cases and outliers (i.e., instances where anticipated patterns of structural constraint were disrupted by protective factors, community resources, or context-specific processes) to avoid flattening the complexity of structural mechanisms into uniform accounts of disadvantage. Outliers were particularly generative for mechanism identification; they reveal the conditions under which a mechanism operates or is suppressed, rather than simply its presence or absence.

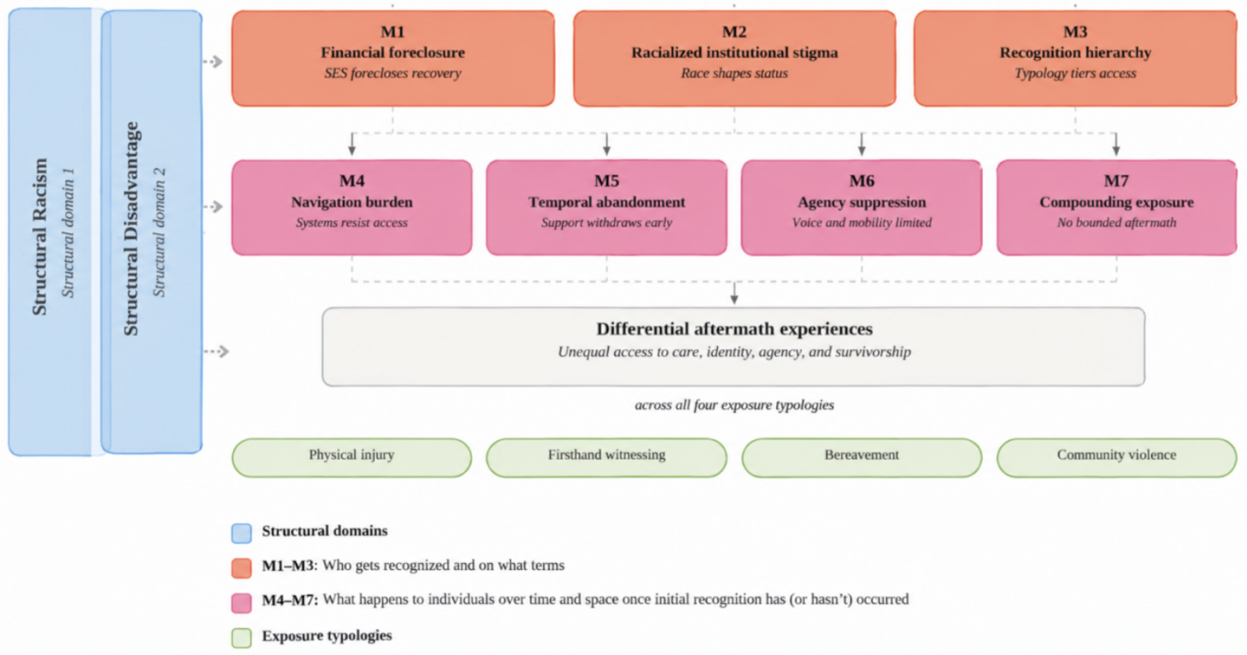
The intersectional analytic approach followed Bauer's (2014) guidance on operationalizing intersectionality in empirical research, attending specifically to interaction effects rather than parallel analyses of race and class separately. Four analytically distinct structural positions, higher-SES white or white-presenting participants, lower-SES white or white-presenting participants, lower-SES Black participants and higher-SES Black participants, emerged from this process as the clearest basis for intersectional comparison.

Temporal analysis captured acute, intermediate, and long-term dimensions of the aftermath, tracking how structural conditions shaped experiences differently across these phases. This was particularly important for participants living amid chronic community violence, for whom the boundary between exposure and aftermath was often indistinct, and for bereaved participants navigating legal systems and public attention over extended periods.

Findings

Analysis identified seven mechanisms through which two intersecting structural domains, structural racism and structural disadvantage, shaped differential experiences of the aftermath of firearm violence across exposure typologies (Fig. 1). These domains were analytically distinguishable but empirically entangled: each shaped the operation of the other, and their intersection produced burdens not reducible to either alone. Each is examined across the temporal dimensions of the aftermath (i.e., acute, intermediate, and long-term phases) and across exposure typologies, with attention to both patterned cases and outliers.

Figure 1. Mechanisms linking structural conditions to differential aftermath experiences.



Note. Mechanisms are presented sequentially and structural domains separately for analytic clarity; in practice, mechanisms operate concurrently and compound one another, and structural racism and structural disadvantage are not empirically separable. Arrows indicate the direction of structural influence. Dashed lines indicate convergence of multiple pathways. All seven mechanisms operate across exposure typologies, with typology-specific expression.

Financial Foreclosure

Financial foreclosure describes the generative process by which structural disadvantage withholds the material resources required for recovery, converting the costs of violence into compounding disadvantage rather than bounded loss. Structural disadvantage determined who faced this sequence and who did not. Across typologies, the costs generated by firearm violence – medical care, funeral expenses, lost wages, legal navigation – accumulated without institutional relief for participants with fewer resources, while wealthier participants accessed equivalent pathways to care as a matter of course.

Among the physically injured, this was most immediately visible. Mark, who sustained multiple gunshot wounds, described that *"totals came out to $330,000 of medical bills,"* against a state victim compensation fund capped at $50,000. He was in *"physical therapy for six months but sadly I got cut off because I couldn't prove income since I hadn't been working."* Physical recovery was conditioned on demonstrating the economic stability the injury had itself removed as his new disability meant closing his small business.

Bereaved participants faced the same pattern, though it was most acute in the immediate aftermath of loss. Tanya, a bereaved mother, described the gap between life insurance and funeral costs: *"I had $10,000 in life insurance for a $21,000 funeral."* She was subsequently hospitalized for panic attacks and lost income for an extended period, compounding financial difficulties. Darlene, a bereaved grandmother living on Social Security disability income, similarly described the temporal limit of community financial support: *"Those two months of rent that they helped my daughter pay was a great help during that time. But how about after?"* This question captured something central to financial foreclosure as a mechanism: it was not the initial cost alone but the absence of sustained provision that foreclosed recovery over time.

Access to mental health treatment was similarly conditioned by socioeconomic position. Across physically injured, bereaved, and witness participants with limited resources, therapy was described as either inaccessible from the outset or accessed briefly and then lost when short-term funding expired. Lionel, who had relocated after being wounded, described ongoing psychological re-traumatization without any therapeutic support: *"At the time I couldn't get therapy. Even though the whole thing kept playing in my head."*

Victim compensation programs emerged across accounts as both structurally inadequate and practically inaccessible. Caps fell far below actual medical costs and bureaucratic complexity made navigation nearly impossible without dedicated support. Tess, a school shooting survivor, narrated how her *"family has invested close to $50,000 in my mental health care and [my state] is supposed to reimburse us but my parents, who are both attorneys, could not figure out how the reimbursement system worked."*

This case identifies two distinct pathways through which financial foreclosure operates: the absence of material resources that prevents access to care in the first instance, and the structural complexity of formal systems that forecloses access even when resources exist. Tess as an outlier demonstrates that the mechanism cannot be reduced to income alone; institutional design is itself a structural determinant of its reach. By contrast, Caleb, a bereaved sibling of a school shooting victim illustrated his financial insulation: *"the economic burden was really taken care of by a GoFundMe that was started by [the state] and by people in the community just donating their time and their services to help out. The situation was uniquely hyper-public."* The contrast between these cases shows both the limits of the mechanism and what adequate structural provision could look like.

Racialized Institutional Stigma

Racialized institutional stigma describes the generative process by which racialized systems positioned participants of color, particularly Black and brown individuals, as presumptive threats rather than legitimate victims, structuring institutional encounters before any individual

assessment occurred. The mechanism shaped what care was offered and how. It operated independently of socioeconomic position and intersected with gender and exposure typology to produce compounded effects over time.

In healthcare settings, it was most explicitly articulated by physically injured participants. Kai, who identified as Black and Latinx, arrived at an emergency department following a drive-by shooting: *"The nurses and doctors were all treating me kind of like I was a criminal... 'Why were you on that street? What's your affiliation with gangs' ...They also worked really closely with the police and allowed them in my hospital room to interview me over and over."* Imani, who witnessed a gang shootout at age 17, articulated this experience at a collective level: *"We are not seen as the people who require safety. We're seen as more of the perpetrators of what makes people feel unsafe."*

The mechanism extended into legal proceedings and formal victim services. Barbara, a bereaved mother, remarked that *"the defense attorney, because my son was half Latino, alluded that my son had gang affiliation. My son was a licensed EMT, was working and was celebrating graduation from paramedic school when he was shot... it was ridiculous."* Within victim services, Zaria, who was shot at a traffic light, described a structural mismatch: *"there's between 80 and 85% people of color in this city and you had an all-white office and that makes a difference…I ended up getting no counseling and I got a small monetary stipend for that initial week but that's all… so in terms of follow-up from zero to ten, I would give -0."*

An outlier illuminated the mechanism's conditional logic rather than disrupting it. Zaria recounted receiving respectful police treatment she attributed explicitly to being assessed as defying racial expectations: *"They could just look at you and tell...I was dressed nicely, I'm educated, I wasn't considered high-risk."* Adequate treatment here was not a departure from racialized institutional logic but a conditional expression of it, suspended only when the participant was deemed an exception.

Several of these accounts describe institutional actions that are independently verifiable rather than solely reliant on participant interpretation: Kai's hospital room was accessible by police for repeated interviews at hospital staff's invitations; Barabara's son's ethnicity was explicitly invoked by a defense attorney as part of a formal legal argument; and Zaria's account of an all-white victim services office serving a majority people-of-color population describes verifiable staffing composition. These examples indicate that racialized institutional stigma operated through observable practices and personnel, not only through participants' subjective interpretations of treatment. Other evidence for this mechanism, including Imani's account of collective perception and Zaria's inference that her professional presentation temporarily suspended racialized treatment, reflects participants' interpretive attributions of institutional intent, which are equally valid as evidence of lived experience. The mechanism is not reducible to either category alone; it is enacted through documentable institutional practices and reinforced through the interpretive frameworks that participants developed to make sense of them.

Institutional Recognition Hierarchy

Institutional recognition hierarchy describes the generative process by which institutionally encoded distinctions between exposure types differentially confer legitimacy, determining not only what services and resources individuals could access but also whether they had social permission to name their experience as harm. Physical injury occupied the highest position, receiving the greatest formal recognition from healthcare systems, victim compensation programs, advocacy organizations, and public discourse. Bereavement occupied a secondary position. Firsthand witnessing and chronic community violence exposure occupied the lowest, with correspondingly reduced access to formal services and the social permission to name one's experience as harm. Critically, the hierarchy was not only institutional in origin; it was reproduced in informal social interactions, within survivor communities, and in the way participants judged their own right to distress and care.

Colleen, a witness to a mass shooting in which others were killed, articulated twelve years of unprocessed trauma: *"Everybody told me since I wasn't shot, I was OK. I've heard that like so many times …I still do to this day. People are like 'I don't get why this still bothers you. You weren't hurt."* The hierarchy had been internalized by those around her and reproduced in their responses, effectively foreclosing access to support during the period when it was most needed. Tanya, a bereaved mother, expressed uncertainty about whether she counted: *"Even when they sent me the link for this study, I was like, does that apply to me? Because I wasn't shot."*

Educators occupied a position of particular institutional invisibility. Amy, a tenured professor who had been present during a school shooting, reported feeling invisible: *"One of the other painful*

things is the way that educators are completely eliminated from discussions of firearm violence. It was almost as though all those kids were just in classrooms by themselves." The hierarchy had foreclosed the possibility of acknowledgment before any individual assessment occurred.

The hierarchy was also reproduced within survivor communities when financial resources were tied to proximity to injury. Caleb described how GoFundMe proceeds, distributed according to physical proximity to the shooting, created a social hierarchy of comparative suffering: *"The financial element leads to people comparing their experiences... I didn't get as much money so I must not have been hurt that bad."* Compensation structures did not merely reflect an existing hierarchy but actively constituted one, shaping how individuals understood their own and others' entitlement to recognition. Across these accounts, the recognition hierarchy functioned as an identity mechanism as much as a distributional one, shaping not just who received resources but whether individuals could recognize themselves as survivors at all.

Navigation Burden

Navigation burden describes the generative process by which fragmented institutional design structurally presupposes a capable, resourced, and psychologically stable navigator; this transfers coordination responsibility onto individuals who are, by definition, trauma-destabilized at the moment that demand is highest. Victim compensation programs, social welfare systems, and healthcare bureaucracies are built around an idealized claimant with the knowledge, documentation, time, and emotional capacity to navigate them, and the distance between that idealized subject and the actual population seeking access is itself a structural determinant of who recovers and who does not. This presupposition is classed and raced, though not in a uniform or

additive way, and it interacts with the specific institutional apparatus that a give exposure type routes a person into.

Kai, simultaneously managing housing instability, graduate study, and physical and psychological recovery during the COVID-19 pandemic, named the structural absence of any coordinating role across systems: *"I think connection to a case manager, like a social worker, who could help me navigate the physical health part, the mental health part and then the legal aspect because I was just like, so lost about what I was supposed to do next."* Kai was assigned a case manager by the hospital but was never contacted. Kai's considerable educational capital did not buffer this institutional abandonment, suggesting that racialized assumptions about legitimacy can operate somewhat independently of the credentialing that typically protects against navigation burden.

Documentation requirements imposed by victim services and social welfare systems constituted a distinct and institutionally produced form of navigational re-traumatization. Darlene explained how her daughter was required to produce her grandson's death certificate repeatedly at social services appointments: *"She said she couldn't even go back but she needs this money. You know, you're just trying to go in, take care of this business… you don't just keep that document out. That's just packed away somewhere. It's painful."* Requiring individuals to repeatedly handle material traces of the death (e.g., death certificates, case file numbers, and crime reports) as a precondition of accessing support embedded re-traumatization in administrative procedure.

Tess, whose attorney parents could not navigate the state reimbursement system, demonstrates that navigation burden is not reducible to individual social capital but reflects genuine structural

inaccessibility in system design: *"I've never met somebody who actually got any of the money."* This contrasts with Joanne's experience of proactive institutional support as a bereaved mother, which rendered the legal process comprehensible rather than opaque: *"We had the best experience with our homicide detectives… always kept us abreast of what was going on. And we had a couple of victim advocates from the District Attorney's office who stuck with us through all of the court appearances."* Joanne's account specifies that coordinated, proactive, and sustained institutional accompaniment redistributes navigational responsibility from trauma-destabilized individuals to systems.

Tess and Joanne share both race and class position, as both are white and highly resourced, yet their outcomes diverged sharply depending on which institutional apparatus their exposure type routed them into: a state-victim compensation reimbursement fund for Tess, versus a homicide investigation with a formal victim-advocate function for Joanne's bereavement. Read alongside Kai's case, this indicates that navigation burden is shaped not only by racialized assumptions about legitimacy but by which specific institutional pathway a person's exposure type involves.

Victim compensation, social services and health systems each assume a claimant who can gather documents, track deadlines and coordinate across agencies, and none of them is responsible for the coordination between them. Structural disadvantage determines who has the time, money and expertise to absorb that labor while structural racism shapes whether the help that is nominally available is actually offered.

Temporal Abandonment

Temporal abandonment describes the generative process by which support systems are structured around the acute-phase rather than ongoing psychological need trajectories, producing systematic withdrawal of resources precisely when long-term consequences intensify. Grant cycles, organizational funding priorities, and media attention are calibrated to respond to the immediate crisis, and when that visibility dwindles, resources are reallocated. Since institutional structures treat salience as a proxy for need, withdrawal is not responsive to whether recovery has progressed but to whether the event remains publicly legible as a crisis. For bereaved individuals in particular, this produces isolation at the intermediate phase, typically the one-year mark, when grief research consistently finds intensification rather than resolution of symptoms, and when the structural conditions sustaining that grief (financial disruption, role loss, compounding exposure) have had time to accumulate.

Bereaved participants described the temporal pattern with particular clarity. Darlene stated, *"a year later, the attention, the people calling and checking on you starts to fade."* This observation was consistent across bereaved participants, who highlighted social attention withdrawing precisely during the intermediate phase when grief typically intensifies. Anniversary responses, subsequent triggering events, and the long-term disruption of family roles and economic stability all tend to emerge in this period, after support has already receded.

Formal peer support resources were subject to the same temporal logic through funding discontinuity. Camila, who had identified an online peer support group as her primary source of support, recounted its closure: *"From one day to the next, it lost funding, and it just like*

disappeared, and it was a support that I leaned on a lot." The precarity of peer support programs, often dependent on grant cycles, organizational priority, and the sustained attention of funders, mirrored the same temporal withdrawal that characterized informal social networks.

Where sustained peer connection was available, a different story emerged. Gregory, wounded in a school shooting, described a mass shooting survivor group on Facebook as a years-long source of mutual support: *"It's sad to see how much the group has grown since I've joined it, but we're in there to support each other; I think it's important."* The contrast specifies the mechanism: temporal abandonment is not an inevitable feature of the aftermath but a structural product of how support systems are designed, funded, and sustained.

This contrast also carries a racialized and classed dimension. Camila, who is Hispanic and low-income, depended on an institutionally funded peer support group that proved vulnerable to funding volatility affecting under-resourced community services more broadly; Gregory, who is white and higher-SES, accessed a platform-based survivor community that operated independently of grant cycles. Among the peer-support cases in this sample, institutionally fragile support fell to lower-income participants of color, suggesting that temporal abandonment through funding discontinuity is itself patterned by race and class, even when the immediate act of seeking peer support carries no direct financial barrier.

Agency Suppression

Agency suppression describes the generative process by which structural conditions produce differential access to the narrative infrastructure through which experience can be converted into

public voice, advocacy, and identity reconstruction. This is not the absence of will or capacity for meaning-making but the uneven distribution of the conditions that make meaning-making socially possible; publishing, legislative advocacy, and organizational leadership require not only the experience of firearm violence but the credentials, time, and institutional access. For those without socioeconomic capital, impulses toward meaning-making are structurally redirected inward or foreclosed entirely. The mechanism therefore operates in two directions simultaneously: it amplifies the voices of some into policy and public discourse while suppressing the voices of others. This shapes the public face of firearm violence survivorship in ways that reproduce rather than challenge the inequities of the aftermath itself.

Material agency suppression was most directly described by participants whose economic circumstances eliminated options that others could take for granted. Mirabel, who had experienced both intimate partner violence involving a firearm and a subsequent shooting, described having no way out: *"I didn't have the money, I didn't have anyone to talk to. I literally had no one."* She went on to explain the lasting spatial contraction that followed: *"A freedom of movement is taken away from you because now you have to be so calculative on where to go."* The most extreme form of this contraction was described by Zaria as a deliberate survival strategy, born of accumulated exposure and the absence of structural protection: *"In my mind, the more invisible I am, hopefully the less harm will happen to me."* While this adaptation may be better understood as a response to chronic exposure, clear evidence for agency suppression's intersectional character lies in the silence driven by institutions.

Institutional silencing constituted a distinct pathway through which agency was suppressed for Tanya, a higher-SES Black participant. She received (legally incorrect) advice from a victim services representative not to speak publicly about her son's case and on that basis excluded herself from advocacy events and community engagements for years: *"I thought I wasn't supposed to speak about it or do anything. So a lot of things that I wanted to go to, I just didn't."* Derrick, a lower-SES Black participant who had witnessed a gang-related shooting as a teenager, felt he could tell no one in the immediate aftermath: *"I was scared because if I talk to my mom I would get scolded, if I talk to someone in school, I was scared of going to jail."* In both cases, institutional structures – one actively misinforming, the other failing to create conditions of safety for disclosure – suppressed the help-seeking behaviors that support recovery. Despite their difference in socioeconomic position, both participants who experienced institutional silencing in this way were Black, suggesting that this pathway's racialized dimension may operate independently of, rather than being fully offset by, class capital.

The contrast between constrained and enabled agency was most analytically visible at the intersection of SES and institutional access. Higher-SES participants with professional platforms described channeling their experiences into structured meaning-making through pathways unavailable to participants without equivalent capital: publishing a prize-winning book (Amy), joining national advocacy organizations (Caleb, Tess, Barbara), leading legislative campaigns (Gregory), and amending state and federal law (Charlotte). These pathways required not only professional credentials but the material stability, institutional access, and time that an elevated socioeconomic position provided. The public face of firearm violence survivorship was shaped in

part by structural conditions that determined whose voices reached others and whose did not, constraining lower-SES individuals' agency and collective visibility simultaneously.

Agency suppression was not a matter of some survivors being more willing to speak. It reflects who the institutions around them equip, or fail to equip, to be heard. Structural disadvantage determined who had the time, credentials, and access to turn experience into advocacy (Amy, Caleb, Gregory, Charlotte). Structural racism operated through institutions that silenced Black participants whatever their class: Tanya through incorrect advice from a victim services representative, and Derrick through the absence of any safe place to disclose. The result is a public face of survivorship that skews toward the already advantaged, which reproduces the inequities of the aftermath itself.

Compounding Exposure

Compounding exposure describes the generative process by which residential segregation, concentrated poverty, and chronic disinvestment structurally bind trauma sites and living space, converting what existing frameworks treat as discrete incidents into ongoing reactivation of prior harm. When the geography of ordinary life (e.g., the route to a parent's house, the neighborhood of employment, the community of social connection) is also the site of violence, avoidance is structurally impossible without severing the relationships and resources that support recovery. Unlike the other six mechanisms, which operate in the aftermath of an identifiable exposure event, compounding exposure dissolves the boundary between exposure and aftermath entirely, rendering the sequential logic of acute-to-intermediate-to-long-term phases structurally inapplicable. Post-exposure services organized around discrete incidents and bounded recovery

windows are therefore inadequate from the outset not because they are poorly implemented but because their underlying assumptions about temporality do not hold for this population.

Leona, a community violence intervention worker, described a trajectory of cumulative loss that had no temporal boundary: *"I lost my first friend to gun violence in 2010. The more I do the work, the more people I know who are being killed."* Her professional role, far from providing protective distance, deepened exposure: the work she did to address community violence required ongoing proximity to its consequences, and each new loss among her case participants compounded her own grief.

Geographic constraint constituted a distinct pathway through which compounding exposure operated for bereaved, witness, and chronically exposed participants alike. Andre, who witnessed the murder of his cousin, narrated, *"there is no other road... there's no other way for me to see my dad except taking that particular route where my cousin was killed."* The site of trauma was embedded in the geography of ordinary family life, making avoidance impossible without severing the family contact that was itself a primary source of support.

The compounding exposure mechanism was most consequential for the adequacy of existing service frameworks. Post-exposure services are organized primarily around acute, identifiable incidents (i.e., a single shooting, a single bereavement) with corresponding assumptions about temporal phases and intervention windows. For participants whose exposure was continuous, cumulative, and without a clear originating incident, these frameworks were structurally inadequate from the outset; there was no acute phase to respond to, no single anniversary to mark,

no identifiable wound around which services could organize. Those chronically exposed, already least recognized within the institutional recognition hierarchy, were also least well served by the service structures that did exist. The mechanisms of disadvantage compounded one another.

Cross-Cutting Patterns

Several cross-cutting patterns warrant emphasis. First, mechanisms operated across exposure typologies. How each mechanism expressed itself varied by typology; whether it appeared did not. Second, mechanisms compounded one another systematically: financial foreclosure intensified navigation burden; temporal abandonment deepened agency suppression; compounding exposure undermined the temporal logic on which acute-phase service frameworks depend. Third, the outliers in this analysis were analytically as important as the patterned cases. They identified the structural conditions (e.g., proactive institutional coordination, adequate and sustained financial provision, accessible peer networks) under which mechanisms were suppressed and thereby specified what structural intervention would need to provide, rather than simply what it would need to remove. The outlier analysis operationalizes the context-mechanism-outcome logic central to critical realism: suppressor conditions specify the contexts under which each mechanism is activated or inhibited, demonstrating that the identified mechanisms are generative and context-dependent rather than universal or deterministic. Table 2 summarizes the suppressor conditions identified through outlier analysis for each mechanism.

Table 2. Conditions Suppressing Each Mechanism: Evidence from Outlier Cases

Mechanism	**Suppressor conditions**	**Evidence**
Financial foreclosure	Exceptional community fundraising; proactive outreach-based compensation	Caleb, Tess
Racialized institutional stigma	Absent when participant perceived as defying racial expectations (conditional, not genuine suppression)	Zaria
(Institutional) recognition hierarchy	High-profile exposure contexts partially counteracted by media attention and community response	Caleb
Navigation burden	Proactive, sustained institutional accompaniment by victim advocates	Joanne
Temporal abandonment	Stable long-term funding for peer support infrastructure	Gregory
Agency suppression	Professional platforms and material stability enabling public voice	Amy, Caleb, Tess, Gregory, Charlotte
Compounding exposure	No suppressor identified; structural conditions sustained	-

Note. Suppressor conditions were identified through cases where anticipated patterns of structural constraint were disrupted or absent. Suppressors specify the structural features that intervention would need to provide, not merely remove. The racialized institutional stigma suppressor is marked conditional because adequate treatment was extended only when participants were perceived as exceptions to racial expectations, reflecting the mechanism's logic rather than genuinely departing from it. No suppressor was identified for compounding exposure; the structural conditions sustaining chronic community violence (e.g., concentrated poverty, residential segregation, and disinvestment) were not offset in any case in the sample.

Discussion

The seven mechanisms identified here extend the existing literature by specifying how two structural conditions, structural racism and structural disadvantage, generate inequitable aftermath experiences across exposure typologies.

The financial foreclosure mechanism contextualizes a growing literature on the financial burden of firearm injuries. Existing research has documented the substantial economic costs of firearm-related injuries, which fall disproportionately on socioeconomically vulnerable groups (Lee et al., 2014; Miller et al., 2024), and hospital-based violence intervention research has identified victim compensation assistance, medical bill support, and wage loss reimbursement as among the most prevalent financial needs among those impacted by firearm violence (Reyes et al., 2025). The present analysis extends these findings by showing that financial disadvantage deepened rather than resolved over time, producing a trajectory in which each unmet cost foreclosed subsequent recovery options. This pattern, in which initial financial shocks ripple outward into lost care, employment, and agency, aligns with the financial toxicity framework developed in cancer survivorship research (Zafar & Abernethy, 2013; Wu et al., 2026), and the present findings suggest this framework's applicability extends beyond oncology to the aftermath of traumatic violence.

The outlier analysis further identified a second pathway: the bureaucratic complexity of formal systems forecloses access even when resources exist: Tess's attorney parents could not navigate a state reimbursement system designed to support them. This is a design failure that Moynihan and colleagues' (2014) administrative burden framework helps explain.

The racialized institutional stigma mechanism both confirms and extends prior accounts of racism in healthcare and victim services. Feagin and Bennefield's (2014) systemic racism framework, and subsequent empirical documentation of structural racism as a determinant of health outcomes (Bailey et al., 2021), establish how healthcare institutions have historically positioned Black

patients as less legitimate claimants on medical care; the present findings show this positioning operating in the specific context of firearm violence, where Black physically injured patients described being treated as criminal suspects in emergency departments before individual assessment occurred. The conditionality of Zaria's adequate police treatment, extended because she was seen as defying racial expectations, illustrates what Ray and colleagues (2022) term racialized burdens. These are administrative and institutional processes that reproduce racial inequality by invoking notions of deservingness to justify the unequal distribution of resources.

Within victim compensation systems specifically, this study's findings are consistent with and illuminate the mechanisms underlying recent quantitative evidence: Semenza and colleagues (2025) found significant racial disparities in victim compensation approvals across 18 states from 2015 to 2023. Families of Black homicide victims filed the most claims but faced the highest denial rates, most frequently on the grounds of contributory misconduct, a finding that corresponds directly to the presumptive threat logic documented in participant accounts here. These findings together suggest that victim compensation programs, ostensibly designed to buffer the financial impact of violent crime, may function as a site of racialized institutional stigma in practice, denying resources on the basis of assumptions about victim culpability that are themselves racially structured.

The institutional recognition hierarchy mechanism provides a structural account of a process that the grief literature has conceptualized primarily at the level of social interaction. Doka (1989) defines disenfranchised grief as grief that is not openly acknowledged, socially validated, or publicly mourned. This concept captures the experience of witnesses such as Colleen, who went

twelve years without processing her trauma because those around her reproduced the message that not being shot meant not being harmed. Baker et al. (2021) extended this to bereaved families after police contact, finding that non-white families experienced deeper disenfranchisement due to racialized portrayals of the deceased.

The present analysis situates disenfranchisement not only in social interaction but in the formal institutional architecture of victim compensation programs, advocacy organizations, and public discourse, demonstrating that the hierarchy is not an informal product of individual attitudes but is reproduced structurally, with consequences for service access. The finding that participants internalized the hierarchy (i.e., questioning whether they counted, self-excluding from survivor spaces, and discounting their own distress) extends the disenfranchised grief concept by showing how social invalidation becomes self-imposed. The consequences for help-seeking and identity reconstruction are direct. Caleb's account makes clear that compensation structures actively constitute rather than merely reflect such hierarchies, which has direct implications for how post-shooting fundraising and victim compensation frameworks are designed.

The navigation burden mechanism extends Moynihan and colleagues' (2014) administrative burden framework to the specific context of post-violence care, where fragmented systems impose learning, compliance, and psychological costs on individuals already destabilized by trauma. As with financial foreclosure, these navigational costs were not uniformly distributed: race, class, and exposure typology shaped both the magnitude of navigational demands and the resources available to meet them. The contrast between Tanya's accidental discovery of a victim advocacy organization and Joanne's experience of proactive district attorney-based advocacy specifies the

structural intervention that suppresses the mechanism: the burden of navigational responsibility can be redistributed from individuals to systems.

The temporal abandonment mechanism identifies a structural mismatch that the mental health and bereavement literatures have documented at the level of individual grief trajectories but have rarely situated in its structural context. Research on prolonged grief disorder and complicated bereavement consistently finds that grief is non-linear, with many bereaved individuals experiencing intensification rather than resolution of grief symptoms in the intermediate and long-term aftermath (Shear et al., 2011; Bonanno & Diminich, 2013). The present findings suggest that the withdrawal of social and institutional support at approximately the one-year anniversary, described with striking consistency across bereaved participants, coincides precisely with this intensification, producing isolation at the moment of greatest need. This temporal mismatch reflects the structural design of support systems: grant cycles, organizational funding priorities, and media attention all concentrate resources in the acute phase and withdraw as public interest moves elsewhere (Degli Esposti et al., 2025; Girma et al., 2025). Camila's account of her support group's overnight defunding and Gregory's years-long survivor community together specify the mechanism: fragility is a structural product of episodic rather than sustained investment.

The agency suppression mechanism extends Frank's (2003) account of illness narrative by specifying the structural conditions under which narrative – and the advocacy, meaning-making, and identity reconstruction it enables – becomes available or foreclosed. Frank argues that illness narratives are the means through which disrupted lives are restored to coherence; the present findings show that access to those narrative forms is itself structurally conditioned. Higher-SES

participants with professional platforms described channeling their experiences into prize-winning scholarship, legislative advocacy, and organizational leadership, requiring not only the experience of firearm violence but the professional credentials, institutional access, and material stability to transform that experience into public voice. Participants without those resources described the inverse: spatial contraction, institutional silencing, and the deliberate pursuit of invisibility as a survival strategy.

The compounding exposure mechanism requires the most significant departure from existing frameworks, which are organized primarily around acute, identifiable incidents with corresponding assumptions about onset, trajectory, and recovery. This aligns with Galtung's (1969) account of structural violence as ongoing harm embedded in social structures rather than discrete events, and with Farmer and colleagues' (2006) application of this framework to health. The structural conditions sustaining chronic community firearm violence produce ongoing harm that existing acute-incident frameworks cannot capture or address.

Leona's professional role as a community violence intervention worker deepening rather than buffering her cumulative exposure illustrates a specific structural vulnerability that has received insufficient attention: community violence intervention workers are among the most persistently exposed individuals in the aftermath landscape yet are less often positioned as individuals requiring support in their own right (Hureau, 2023). Service frameworks and research designs that treat chronic community violence as a background variable rather than a distinct exposure pathway with its own aftermath dynamics will systematically underserve those most affected.

The four structural positions below are presented not merely to illustrate mechanisms already described above, but because compounding is visible only at the level of the whole person. Examining each mechanism separately can establish variations by race or class, but only tracking several mechanisms as they operate simultaneously within the same structural position can reveal whether they compound, offset, or operate independently of one another.

Bowleg (2012) and Bauer (2014) argue that intersectionality is not additive but compounding, and the present findings confirm this across four analytically distinct structural positions represented in the sample. First, white or white-presenting participants with higher SES (including Tess, Amy, and Caleb) most frequently described conditions in which individual mechanisms were suppressed or buffered: financial foreclosure was offset by family resources or exceptional community fundraising, the recognition hierarchy was partially counteracted by care services, and racialized institutional stigma was absent from their accounts. These cases establish an upper bound of structural protection and specify the conditions under which mechanisms are suppressed.

Second, white or white-presenting participants with lower socioeconomic status (including Mark and Mirabel) experienced class-based mechanisms in full, with financial foreclosure, navigation burden, and agency suppression operating without the additional burden of racialized institutional stigma, demonstrating that class-based mechanisms do not require racial marginalization to produce significant foreclosure of recovery. Third, and most consequentially, Black participants with low or working-class SES (including Kai, Zaria, Lionel, Darlene, and Leona) described the simultaneous activation of multiple mechanisms in ways that compounded rather than merely accumulated. Darlene, for instance, navigated racialized victim compensation gatekeeping on a

fixed disability income. However, this compounding was not unconditional: Zaria's account of receiving respectful police treatment specifically because she was perceived as educated and professionally dressed illuminates how class-coded self-presentation could conditionally suspend racialized treatment for some Black participants, without displacing the underlying racialized logic that made such suspension conditional in the first place. This finding suggests that intersectional positionality can function as a source of differential exposure both to oppression and protection within the same structures, rather than as a fixed, additive disadvantage.

A fourth structural position, higher-SES Black participants, was not well represented in the sample, limiting what can be said about whether and how class advantage modifies racial mechanisms. Tanya's narrative approximates this position and offers a partial window, showing that class advantage suppressed the material pathways of financial foreclosure; her family's resources absorbed the gap between life insurance and funeral costs. What it cannot resolve is whether the mechanisms that continued to operate on her (e.g., recognition hierarchy internalization through her exposure type) were racially inflected or would have operated similarly regardless of race. Tanya's case therefore holds open a question about whether class advantage genuinely buffers the full range of structural burdens for Black individuals in the aftermath of firearm violence.

These findings show how structural racism operates after violence. Racialized institutional stigma and the institutional recognition hierarchy appear in who is believed, who is treated as a legitimate victim, and whose losses are recognized. This is consistent with accounts of structural racism as embedded in institutional practice (Gee & Ford, 2011; Bailey et al, 2021). How institutional practices activate, how intensely they operate, and how they compound one another are all

patterned by the intersection of race and class in ways that single-axis frameworks cannot adequately capture or address.

Limitations

Several limitations should be considered when interpreting the results. First, although the sample of 33 participants reflects substantial heterogeneity across race, socioeconomic status, and exposure type, it cannot capture the full range of experiences among individuals affected by firearm violence in the United States. Experiences not well represented in this sample, including those of certain racial and ethnic minorities, rural communities, or individuals with limited digital access, may involve structural dynamics that differ meaningfully from those identified here. The analytic focus on race and class as intersecting structural axes necessarily bounded what could be said about gender. While higher-SES Black participants were not well represented in the sample, Tanya's account offers a partial view of how class advantage may buffer certain mechanisms for higher-SES Black individuals, though fuller examination requires future research with more socioeconomically heterogeneous samples of people of color. Further, participants identifying as multiracial or as a racial/ethnic group other than Black or white (n=8) were incorporated into the white-presenting or Black structural positions based on how participants themselves described and narrated their own racialized position, as a person of color or as white, in the interviews, rather than on research-assigned demographic categories. This decision served the study's structural focus but means the findings should not be read as a general account of multiracial experience in the aftermath of firearm violence.

Second, as a secondary qualitative analysis, the original interviews were not designed with this study's structural mechanism focus as a primary aim. Heaton (2008) and Irwin (2013) note that secondary qualitative analysis introduces risks around thin data in domains not directly probed in the original interview guide; in the present analysis, dimensions including housing instability, immigration status, and interactions with the criminal legal system may have been incompletely captured as a result. The analysis relies on self-reported data, which may additionally reflect recall bias or selective disclosure, particularly given the sensitive and often ongoing nature of participants' experiences.

Finally, while cross-case and temporal analyses were used to identify patterned variation in structural mechanisms across exposure typologies, interpretations remain inherently context-specific. The mechanisms identified here reflect the particular social and structural circumstances of this sample and should not be read as exhaustive accounts of structural inequity in firearm violence aftermath more broadly.

Conclusion

The findings of this study converge on a central claim: the inequitable aftermath of firearm violence is a product of structure, not chance. Structural racism and structural disadvantage shape not only the magnitude of burdens but their specific character; this means that analyzing race or class alone will miss what their intersection co-produces. For the field of firearm violence research, this suggests that analytic frameworks organized around either race or class in isolation risk misidentifying where the greatest burdens lie, and misdirecting the interventions designed to address them. Future research with more socioeconomically heterogeneous samples of people of

color is needed to examine whether and how racial mechanisms are modified by class advantage. Studies that incorporate immigration status, rural residence, and digital access as axes of analysis would extend the framework to populations underrepresented in the present sample. Longitudinal designs are particularly needed for compounding exposure, where existing discrete-incident frameworks are structurally inadequate.

These findings have direct implications for practice. The outlier analysis identifies specific structural conditions that suppress each mechanism: proactive and sustained institutional accompaniment suppresses navigation burden; victim compensation programs built around outreach rather than application could suppress financial foreclosure; peer support infrastructures with stable, long-term funding suppress temporal abandonment. Each identified suppressor represents a testable model that existing programs are already approximating in partial form. The remaining mechanisms – racialized institutional stigma, recognition hierarchy, agency suppression, and compounding exposure – require more fundamental institutional and policy reform that extend beyond service design alone. Evaluative research that examines these structural features directly, rather than treating them as background conditions, would provide the evidence base needed to translate these findings into policy and practice. These are not novel interventions but structural reconfigurations of systems that already exist, and the present findings specify precisely the features of those reconfigurations that matter. The aftermath of firearm violence in the United States is not an inevitable consequence of the violence itself but a structurally produced condition, generated by the same systems of inequality that shaped vulnerability to exposure. Understanding its mechanisms is a necessary precondition for intervention.

References

Bailey, A., Hannays-King, C., Clarke, J., Lester, E., & Velasco, D. (2013). Black mothers' cognitive process of finding meaning and building resilience after loss of a child to gun violence. *British Journal of Social Work, 43*(2), 336–354. https://doi.org/10.1093/bjsw/bct027

Bailey, Z. D., Feldman, J. M., & Bassett, M. T. (2021). How Structural Racism Works - Racist Policies as a Root Cause of U.S. Racial Health Inequities. *The New England journal of medicine*, *384*(8), 768–773. https://doi.org/10.1056/NEJMms2025396

Baker, D., Norris, D., & Cherneva, V. (2021). Disenfranchised Grief and Families' Experiences of Death After Police Contact in the United States. *OMEGA - Journal of Death and Dying*, *83*(2), 239-256.

Baker, N. S., VanHook, C., Ziminski, D., Costa, J., Mitchell, M., & Lovelady, N. (2024). "I am a survivor!": Violently Injured Black Men's Perceptions of Labeling After a Violent Firearm Injury. *Journal of Urban Health: Bulletin of the New York Academy of Medicine, 101*(3), 535–543. https://doi.org/10.1007/s11524-024-00874-8

Bauer G. R. (2014). Incorporating intersectionality theory into population health research methodology: challenges and the potential to advance health equity. *Social science & medicine (1982)*, *110*, 10–17. https://doi.org/10.1016/j.socscimed.2014.03.022

Bhaskar, R. (1975). *A Realist Theory of Science [RTS]*, Leeds: Leeds Books.

Blumer, H. (1954). What is wrong with social theory? American Sociological Review, 19(1), 3. doi:10.2307/2088165

Bonanno, G. A., & Diminich, E. D. (2013). Annual Research Review: Positive adjustment to adversity--trajectories of minimal-impact resilience and emergent resilience. *Journal of child psychology and psychiatry, and allied disciplines*, *54*(4), 378–401. https://doi.org/10.1111/jcpp.12021

Bowleg, L. (2012). The problem with the phrase women and minorities: intersectionality—an important theoretical framework for Public Health. *American Journal of Public Health*, *102*(7), 1267–1273. https://doi.org/10.2105/ajph.2012.300750

Charmaz, K. (2000). Grounded theory: Objectivist and constructivist methods. *Handbook of Qualitative Research (2nd ed.)/Sage Publications*.

Cheong, H., Lyons, A., Houghton, R., & Majumdar, A. (2023). Secondary qualitative research methodology using online data within the context of Social Sciences. *International Journal of Qualitative Methods*, *22*. https://doi.org/10.1177/16094069231180160

Collins, P. H. (2000). *Black feminist thought: Knowledge, consciousness, and the politics of empowerment*. Routledge.

Crenshaw, K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. *Stanford Law Review*, *43*(6), 1241–1299. https://doi.org/10.2307/1229039

Degli Esposti, M., Hans, Z., Thulin, E., Hibbs, E. L., & Sokol, R. L. (2025). The US media should rethink coverage of firearm violence. *Nature human behaviour*, *9*(2), 234–236. https://doi.org/10.1038/s41562-024-02095-0

Doka, K. J. (1989). *Disenfranchised grief: recognizing hidden sorrow*. Lexington Books.

Farmer, P. E., Nizeye, B., Stulac, S., & Keshavjee, S. (2006). Structural violence and clinical medicine. *PLoS medicine*, *3*(10), e449. https://doi.org/10.1371/journal.pmed.0030449

Feagin, J., & Bennefield, Z. (2014). Systemic racism and U.S. health care. *Social Science & Medicine (1982)*, *103*, 7–14. https://doi.org/10.1016/j.socscimed.2013.09.006

Frank, A. W. (2003). Survivorship as craft and conviction: Reflections on research in progress. *Qualitative Health Research*, *13*(2), 247–255. https://doi.org/10.1177/1049732302239601

Galtung, J. (1969). Violence, peace, and Peace Research. *Journal of Peace Research*, *6*(3), 167–191. https://doi.org/10.1177/002234336900600301

Gee, G. C., & Ford, C. L. (2011). STRUCTURAL RACISM AND HEALTH INEQUITIES: Old Issues, New Directions. *Du Bois review : social science research on race*, *8*(1), 115–132. https://doi.org/10.1017/S1742058X11000130

Giraldi, D. M., Márquez-Greene, N., Lowe, S., & Humphreys, D. K. (2026, June 2). *Life in the Aftermath: Typologies of Firearm Violence Exposure and the Selective Emergence of Survivorship.* SocArXiv. https://doi.org/10.31235/osf.io/r5fnb_v1

Girma, M., Schleimer, J., Aveledo, A., Mustafa, A., Rencken, C., Thurston, C., Nehra, D., Torset, K., Jones, K., Johnson, L., Polansky, L., McCollum, O., Ames, O., Ross, R., Decker, S., Taylor, S., Harrison, T., Lyons, V., Lynch, Z., & Rowhani-Rahbar, A. (2025). Evaluating community violence intervention programs: A scoping review synthesizing methods and

measures. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, *62*. https://doi.org/10.1177/00469580251361742

Heaton, J. (2008). Secondary Analysis of Qualitative Data: An Overview. *Historical Social Research / Historische Sozialforschung*, *33*(3 (125)), 33–45. http://www.jstor.org/stable/20762299

Hureau, D. M. (2023). Community violence interventions and the vulnerability of "The violent." *Proceedings of the National Academy of Sciences*, *120*(51). https://doi.org/10.1073/pnas.2318197120

Irwin, S. (2013). Qualitative secondary data analysis: Ethics, epistemology and context. *Progress in Development Studies*, *13*(4), 295-306.

Kravitz-Wirtz, N., Bruns, A., Aubel, A. J., Zhang, X., & Buggs, S. A. (2022). Inequities in Community Exposure to Deadly Gun Violence by Race/Ethnicity, Poverty, and Neighborhood Disadvantage among Youth in Large US Cities. *Journal of Urban health: Bulletin of the New York Academy of Medicine*, *99*(4), 610–625. https://doi.org/10.1007/s11524-022-00656-0

Lee, J., Quraishi, S. A., Bhatnagar, S., Zafonte, R. D., & Masiakos, P. T. (2014). The economic cost of firearm-related injuries in the United States from 2006 to 2010. *Surgery*, *155*(5), 894–898. https://doi.org/10.1016/j.surg.2014.02.011

Miller, G. F., Barnett, S. B. L., Florence, C. S., McDavid Harrison, K., Dahlberg, L. L., & Mercy, J. A. (2024). Costs of Fatal and Nonfatal Firearm Injuries in the U.S., 2019 and 2020. *American journal of preventive medicine*, *66*(2), 195–204. https://doi.org/10.1016/j.amepre.2023.09.026

Moynihan, D., P. Herd, and H. Harvey. (2014). "Administrative Burden: Learning, Psychological, and Compliance Costs in Citizen-State Interactions." *Journal of Public Administration Research and Theory* 25, 1: 43–69. https://doi.org/10.1093/jopart/muu009.

O'Neill, K. M., Vega, C., Saint-Hilaire, S., Jahad, L., Violano, P., Rosenthal, M. S., ... & Dodington, J. (2020). Survivors of gun violence and the experience of recovery. *Journal of trauma and acute care surgery, 89*(1), 29-35.

Orlas, C. P., Thomas, A., Herrera-Escobar, J. P., Price, M. A., Haider, A. H., & Bulger, E. M. (2021). Long-term outcomes of firearm injury survivors in the United States. *Annals of Surgery, 274*(6), 962-970. https://doi.org/10.1097/sla.0000000000005204

Pawson, R., & Tilley, N. (1997). *Realistic evaluation.* SAGE Publications Ltd.

Phelan, J. C., & Link, B. G. (2015). Is racism a fundamental cause of inequalities in health? *Annual Review of Sociology, 41,* 311–330.

Ray, V., Herd, P., & Moynihan, D. (2022). Racialized burdens: Applying racialized organization theory to the Administrative State. *Journal of Public Administration Research and Theory*, *33*(1), 139–152. https://doi.org/10.1093/jopart/muac001

Reyes, A. M., McKenzie, C., Scott, M., Haggerty, C. R., & Valenzuela, J. Y. (2025). Financial toxicity and firearm injury: exploring financial needs of participants in a hospital-based violence intervention program. *Trauma surgery & acute care open*, *10*(1), e001570. https://doi.org/10.1136/tsaco-2024-001570

Rice, H. E., Owen, M., Johnson, A., Swandell, J., Nicholson, C. P., Provencher, S., Horne, E., Solomon, C., Ratliff, W., Knechtle, W., Campbell, D., Smith, R., & Graves, L. (2024). Lived experiences of people impacted by gun violence: qualitative analysis of the prescriptions for repair project. *Trauma surgery & acute care open*, *9*(1), e001503. https://doi.org/10.1136/tsaco-2024-001503

Semenza, D. C., Levine, J., Sharpe, T., Burke, K., & Savage, B. (2025). Racial disparities in victim compensation among homicide survivors in the United States. *Race and Justice*. https://doi.org/10.1177/21533687251388669

Semenza, D. C., & Kravitz-Wirtz, N. (2025). Gun violence exposure and population health inequality: a conceptual framework. *Injury prevention: journal of the International Society for Child and Adolescent Injury Prevention*, *31*(1), 1–8. https://doi.org/10.1136/ip-2023-045197

Sharpe, T., Aqil, N., & Donkin, V. (2024). Invisible Wounds: Exploring the Coping Strategies of Black Survivors of Homicide Victims in Canada. *OMEGA - Journal of Death and Dying, 0*(0). https://doi.org/10.1177/00302228241246423

Shear, M. K., Simon, N., Wall, M., Zisook, S., Neimeyer, R., Duan, N., Reynolds, C., Lebowitz, B., Sung, S., Ghesquiere, A., Gorscak, B., Clayton, P., Ito, M., Nakajima, S., Konishi, T., Melhem, N., Meert, K., Schiff, M., O'Connor, M. F., First, M., … Keshaviah, A. (2011). Complicated grief and related bereavement issues for DSM-5. *Depression and anxiety*, *28*(2), 103–117. https://doi.org/10.1002/da.20780

Solar, O. & Irwin, A. (2010). A Conceptual Framework for Action on the Social Determinants of Health. Social Determinants of Health Discussion Paper 2 (Policy and Practice). WHO, Geneva.

Umberson D. (2017). Black Deaths Matter: Race, Relationship Loss, and Effects on Survivors. *Journal of Health and Social Behavior*, *58*(4), 405–420. https://doi.org/10.1177/0022146517739317

Vella, M. A., Warshauer, A., Tortorello, G., Fernandez-Moure, J., Giacolone, J., Chen, B., Cabulong, A., Chreiman, K., Sims, C., Schwab, C. W., Reilly, P. M., Lane-Fall, M., & Seamon, M. J. (2020). Long-term Functional, Psychological, Emotional, and Social Outcomes in Survivors of Firearm Injuries. *JAMA surgery*, *155*(1), 51–59. https://doi.org/10.1001/jamasurg.2019.4533

Wallace-Hanlon, S., Green Stewart, K., Okafor-Sholaja, N., Peck, S., Fonagy, P., Campbell, C., & Simes, E. (2026). Forgotten grievers: A qualitative study exploring experiences of bereavement support after youth-violence-related homicide. *Death studies*, 1–13. Advance online publication. https://doi.org/10.1080/07481187.2026.2626553

Wu, I. H. C., Harris, S. R., Price, R., & Bista, S. (2026). Material and Administrative Components of Financial Toxicity and Survivorship Well-Being: A Cross-Sectional Analysis of HINTS (2012-2017). *Cancer medicine*, *15*(2), e71580. https://doi.org/10.1002/cam4.71580

Zafar, S. Y., & Abernethy, A. P. (2013). Financial toxicity, Part I: a new name for a growing problem. *Oncology (Williston Park, N.Y.)*, *27*(2), 80–149.

Zatzick, D., Jurkovich, G. J., Rivara, F. P., Wang, J., Fan, M.-Y., Joesch, J., & Mackenzie, E. (2008). A national US study of posttraumatic stress disorder, depression, and work and functional outcomes after hospitalization for traumatic injury. *Annals of Surgery*, *248*(3), 429–437. https://doi.org/10.1097/sla.0b013e318185a6b8

VI. Paper 4: "We can endure suffering but not meaninglessness": Identity, Meaning-Making, and Community in Online Firearm Violence Survivor Networks[7]

Deanna M. Giraldi, MPH

Abstract

This study examines how survivors of firearm violence engage with and make meaning through online survivor networks as part of their efforts to navigate trauma, reconstruct identity, and sustain social belonging. Using a hermeneutic phenomenological approach, I conducted an embedded subgroup analysis of 12 self-identified survivors drawn from a larger sample of 33 interviews. Survivors described online networks as sources of shared language, legitimacy, and meaning that helped them articulate their experiences. These spaces also offered emotional and practical support, often filling gaps left by formal health and social services. Beyond interpersonal support, survivors framed these networks as sociotechnical environments that shape how survivorship is recognized, negotiated, and performed. They experienced online networks as sites of civic and advocacy engagement, providing opportunities that could empower action but also introduce expectations and constraints. Survivors highlighted the complexity of negotiating visibility and disclosure within these communities, balancing personal needs for healing with pressures to perform survivorship. Overall, the findings suggest that online survivor networks function as vital yet contested infrastructures for recovery and identity reconstruction. By foregrounding the social, relational, and digitally mediated processes through which survivors craft meaning and legitimacy, this study extends qualitative understandings of digitally mediated trauma recovery and conceptualizes online peer support as an integral, though unevenly accessible, component of contemporary health and social care landscapes.

[7] This chapter was published in *SSM – Qualitative Research in Health* (https://doi.org/10.1016/j.ssmqr.2026.100742).

Keywords: Firearm violence; Survivor networks; Online peer support; Survivorship; Hermeneutic phenomenology; Identity reconstruction

Introduction

In the United States, firearm violence produces a profound burden that extends far beyond fatalities, with approximately 85,000 nonfatal injuries annually and an unquantified population carrying long-term psychological, relational, and socio-political consequences (Kaufman & Delgado, 2022; Giraldi et al., 2025). While many studies explore the impacts of firearm violence on individuals (Bailey et al., 2013; Francis, 2018; Rice et al., 2024), few studies explore how survivors engage with networks and communities to interpret, narrate, and act on their experiences (Ortiz et al., 2024; Masiakos et al., 2024). This gap is consequential because engagement with collective spaces may shape not only recovery trajectories but also how survivors come to understand their identities, mobilize support, and participate in public or civic responses to violence. Without attention to these processes, survivorship risks being conceptualized as an individual or clinical outcome rather than a socially mediated and relational experience.

Health and social science research emphasize that "survivor" is more than a clinical label; it is a negotiated identity enacted within social contexts (Sounderajah et al., 2020; Baker et al., 2024; Sharpe et al., 2024). In this study, 'survivor' refers to individuals who (1) have been physically injured by a firearm, have witnessed firearm violence firsthand, have a family member who has been injured or killed by a firearm, or live amidst chronic community firearm violence and (2) self-identify with the label. Although trauma research has examined identity, stigma, and recovery

(Papachristos et al., 2015; Buggs et al., 2023), less is known about how survivors themselves interpret and engage with the social spaces and relationships that scaffold meaning-making, relational support, and civic participation (Bowen & Murshid, 2016; Rice et al., 2024). In this study, 'meaning-making' refers to the interpretive processes through which survivors understand, organize, and narrate the consequences of firearm violence in relation to their identities, relationships, and life trajectories. This definition builds on established trauma-focused models of meaning-making (Park & Folkman, 1997), interpretive communities (Fish, 1980) and narrative identity theory (McAdams, 2001).

Online networks, in particular, can overcome geographic, social, and emotional barriers, including social stigma, trauma-related avoidance, and the burden of face-to-face disclosure**,** providing opportunities to engage with peers, share narratives, and access resources even when in-person networks are inaccessible (Prescott et al., 2020; Whiting et al., 2022**).** These networks serve as sources of shared language, legitimacy, and belonging (de Ven et al., 2023) yet also may create spaces where emotional labor is expected. Although social support, advocacy, and community-building are increasingly mediated through digital platforms, little is known about how survivors themselves interpret these networks' purpose, utility, and limitations in navigating trauma.

Responding to calls to view survivorship as a socially mediated process (Wasilewski et al., 2023; Wyles et al., 2023), this study examines how self-identified firearm violence survivors linked to online networks interpret these spaces. Using an embedded subgroup analysis, the study asks: *How do network-affiliated survivors perceive the networks' purpose, function, and meaning in relation to identity, advocacy, and recovery?*

Methods

This study draws on a larger qualitative dataset of 33 interviews to undertake an embedded subgroup analysis of 12 adults impacted by firearm violence in the United States. The original dataset was collected through semi-structured interviews and analyzed using van Manen's hermeneutic phenomenological approach (1997) to explore exposure to firearm violence, recovery processes, support networks, and the language participants used to describe the aftermath of violence.

Given the unique characteristics of online survivor networks, this analysis focused on 12 participants affiliated primarily through online platforms (e.g., Facebook groups, Bluesky posts, virtual peer-support groups) to examine distinct affordances, including asynchronous engagement, geographic flexibility, and opportunities for peer-to-peer learning and advocacy that shape identity, social support, and civic participation. This focus allowed exploration of how digital environments shape survivors' understandings of community and meaning-making.

Consistent with interpretive qualitative practice, the analysis prioritized information power over numerical saturation (Malterud et al., 2015), given the depth of each interview (50–90 minutes), the specificity of the study aim, and the specific analytic focus on network-affiliated survivors. Through iterative, ongoing analysis, no substantively new thematic domains emerged in later interviews. Thus, the 12 interviews provided sufficient information to identify meaningful interpretive patterns and develop nuanced themes.

Inclusion Criteria

Participants (n = 12) were adults (≥18 years), self-identified as survivors, and reported affiliation with a survivor network involved in peer support, advocacy, or educational initiatives. Table 1 summarizes key demographic characteristics for the subgroup and the full sample.

Table 1. Sample Characteristics of Subgroup and Original Samples

	Total Sample (N=33)	Survivor Network Subgroup (N=12)	% of Subgroup
Survivor Network Membership			
	12	12	100
Self-Identifies as "Survivor"			
	23	12	100
Gender Identity			
Female	20	6	50
Male	12	5	42
Non-binary	1	1	8
Age			
18-25	6	2	17
26-35	11	5	42
36-45	6	2	17
46-55	6	1	8
56-65	2	1	8
66-75	2	1	8
Race			
White	9	6	50
Black	16	2	17
Mixed/Other	8	4	33
Region			
Northeast	8	3	25
Southeast	13	5	42
Southwest	4	1	8
Midwest	4	1	8
West	4	2	17
Household Income			
<$15,000	3	1	8
$15,000 – 24,999	3	0	0
$25,000 – 49,999	3	1	8
$50,000 – 74,999	10	3	25
$75,000 – 99,999	7	3	25

$100,000+	7	4	33

Total sample N = 33; survivor-network subgroup N = 12. Percentages in the "% of subgroup" column indicate the proportion of the 12 participants with the listed characteristic.

Sampling and Recruitment

The 12 participants for this embedded analysis were purposively selected because they both reported affiliation with a survivor network and self-identified as survivors during their interview. This selection of participants was theoretically motivated: network affiliation was expected to illuminate how collective peer spaces influence identity reconstruction and civic engagement. Participants were recruited from across the United States, representing multiple geographic regions, and were affiliated with a range of firearm survivor advocacy groups and community-based organizations.

Recruitment occurred between January and July 2025 using a purposive online strategy. Study invitations were both posted directly in survivor-focused Facebook groups and on Bluesky as well as distributed through email newsletters and listservs of firearm survivor advocacy and community organizations.

As network-affiliated participants may be more likely to engage in advocacy, public storytelling, or digital participation than non-networked survivors (Polizzi, 2025), findings reflect the experiences of network-engaged survivors rather than the broader survivor population. This approach prioritized accessibility and allowed participation after the acute aftermath of violence, consistent with remote interviewing literature highlighting inclusivity and safety (Carlson, 2023; Oliffe et al., 2021; Gray et al., 2020).

Data Collection

Semi-structured interviews were conducted via Microsoft Teams and lasted 50–90 minutes. Interview prompts explored experiences of firearm violence; how participants understand their survivor identity; how they engage with online survivor networks; and which supports, challenges, and coping strategies developed after exposure. Interviews followed trauma-informed principles (SAMHSA, 2023), emphasizing participant autonomy, pacing, and the option to skip or pause questions. Participants received debriefing materials with mental health resources and a $25 virtual gift card. All participants provided informed consent; procedures and materials were approved by the University of Oxford Central Research Ethics Committee (R94701/RE001).

Data Analysis

Data were analyzed by the lead investigator using van Manen's hermeneutic phenomenological method (1997), which emphasizes interpretive engagement with lived experiences to uncover the essential meanings of phenomena. Analysis followed a structured, iterative procedure. All interviews were audio-recorded with participant consent and transcribed verbatim by the lead investigator. Transcripts were anonymized and stored securely on encrypted drives.

Initial coding involved identification of experiential meaning units in NVivo. Analytic memos documented evolving code definitions and thematic insights across transcripts. Analysis then involved holistic reading (to capture overall sense of the participant's experience), selective reading (to identify particularly revealing phrases or sentences), and detailed reading (line-by-line examination to uncover nuances in participants' meaning-making and narrative expression).

Experiential meaning units were identified and subjected to interpretive writing to examine how survivors articulated the significance of network participation in relation to relationships, space, and temporality. NVivo served as an organizational tool, but theme development was guided by interpretive synthesis rather than purely categorical coding.

Analytic interpretation was informed by narrative identity theory and models of trauma-focused meaning-making. Narrative identity theory posits that identity emerges through autobiographical storytelling, whereby individuals construct coherent self-narratives that integrate life experiences (McAdams, 2011). Trauma-focused models of meaning-making emphasize how individuals interpret and reorganize experiences of adversity to maintain or restore coherence, purpose, and agency (Park & Folkman, 1997). Together, these frameworks guided the interpretation of how survivors integrate firearm violence experiences into identity and potential civic engagement.

Demographic data in Table 1 are presented descriptively and were not used to stratify thematic differences. Given the phenomenological approach and the subgroup's size (n=12), within-sample stratification by race or income would be analytically inappropriate; hermeneutic phenomenology seeks essential meanings across experience rather than comparative differences between demographic subgroups.

Consistent with this hermeneutic phenomenology, analysis was shaped by the lead investigator's interpretive stance as a trauma-informed public-health researcher. Reflexive memos documented the investigator's evolving interpretations, assumptions, and emotional reactions. To enhance credibility, preliminary themes were shared with the 12 participants for optional member checking.

Participants were invited to review preliminary themes via email or brief follow-up calls. Feedback was integrated into the thematic framework.

Findings

Participant Overview

The 12 participants who self-identified as survivors and were affiliated with a survivor support network differed demographically from the broader sample (Table 1). Compared with the total sample of 33, the survivor-network subgroup included a higher proportion of White participants and individuals aged 26-45, as well as somewhat greater socioeconomic stability. These differences do not determine survivorship identity but contextualize the narratives that follow and reflect broader patterns in who may have access to, or participate in, online survivor networks.

All participants were affiliated with at least one national survivor network or survivor-focused organization, including large nonprofit advocacy groups and peer-support coalitions. Six participants (50%) participated exclusively in national-level groups, while the remaining six (50%) were also involved in local or community-based organizations, including victims' and mothers' support networks, church communities, and healing circles. Some served as volunteer organizers or storytellers, while others engaged primarily by creating posts or participating in commemorative events.

The sample was heterogeneous with respect to type of firearm violence. Three participants (25%) were directly wounded and three were bereaved family members (25%); the remaining six survivors reported overlapping experiences of chronic community violence and firsthand

witnessing. Experiences encompassed interpersonal homicides, school shootings, ongoing community violence, and situations involving direct firearm threat (e.g., domestic violence or robberies) without physical injury. No participants were survivors of suicide attempts.

Overview of Themes

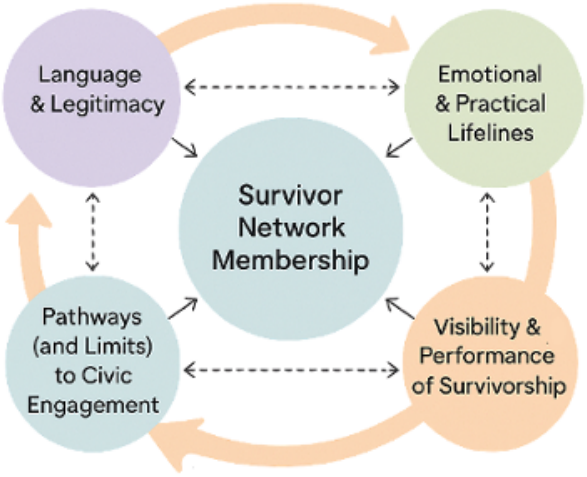
Analysis revealed four interrelated themes illustrating how survivors conceptualize the role and meaning of online survivor networks in their ongoing processes of identity reconstruction, meaning-making, and civic life (Table 2). These themes are not listed in hierarchical order. Figure 1 depicts the ways in which these themes intersect to shape both the networks themselves and survivors' experiences within them.

Table 2: Conceptual Themes

Theme	Description	Examples
Networks as sources of shared language and legitimacy	Survivors conceptualized networks as interpretive communities that provide shared language and social validation, helping them articulate and legitimize their identities as survivors.	• *"'Surviving' is the reality of the event. You know, I didn't get killed. Victim is a legal term and it's a legal term that is critical in terms of like if there is an arrest, if there is a trial, if there is a sentencing, if we can be supported by compensation. They taught me the importance of both."* (Charlotte) • *"The survivor network felt very open to witnesses and family members… I felt like I could fit into that community whereas a lot of PTSD support groups are for veterans or survivors of sexual assault only."* (Jade)
Networks as emotional and practical lifelines	Survivors described networks as vital spaces of belonging and resource exchange that reduced isolation and facilitated coping.	• *"[The network] gave me a sense of belonging. You know, having a community of people that could relate...these people know what you are saying and understand it exactly the way you want it to be understood. That actually helps."* (Tamara) • *"People posted and it really encouraged me. I've been seeing a therapist for almost a year now…They linked me to the victims' compensation fund – I have had charities pay for a lot of the medical and then the*

		remainder was picked up by the state." (Mark)
Networks as pathways (and limits) to civic engagement.	Survivors understood networks as creating both opportunities and constraints for advocacy, healing, and leadership.	• *"I became the state [survivor network] lead"* (Barbara). • *"I help lead our youth program… just trying to figure out in the weeks and months afterwards, like why did this happen and what can I do to stop this from happening to other communities?"* (Caleb) • *"I would tell [people] that things like this happen more often than they think… I would advise to educate yourself on what to do in an active shooting situation. But who is listening? I'm a single mom and just typing on the Facebook page."* (Tamara)
Networks as influencing visibility, disclosure, and performance of survivorship	Survivors conceptualized visibility within networks as a double-edged process: providing validation and influence but requiring emotional labor and boundary management.	• *"I like posting on the survivor page, but not interviews. Visibility helps the cause, but it's exhausting."* (Kai) • *"I wanted to speak about my frustrations… they wanted me to say I support responsible gun ownership… so I chose not to speak."* (Amy)

Figure 1. Conceptual Model of Survivor Network Engagement and Identity Evolution



The central node represents the survivor network, with surrounding bubbles showing key themes emerging from affiliated survivors. Solid orange arrows indicate temporal evolution, while dotted lines depict interconnections between themes.

Across themes, survivors interpreted networks as both stabilizing and demanding spaces, offering recognition, language, and purpose while sometimes producing expectations around disclosure, advocacy, or positivity that required careful negotiation.

1. Networks as Sources of Language and Legitimacy

Survivors consistently described survivor networks as the first spaces where they encountered and experimented with the term "survivor." For nearly all participants, shared language was central to how they understood themselves and their experiences. Prior to joining networks, many used alternative labels (e.g., "victim," "witness," "warrior") or avoided naming their experiences altogether. Within networks, survivors conceptualized naming as a process of reclaiming narrative authority, transforming private pain into a socially recognized identity.

"*Before I joined [the organization], I didn't even think of myself as a 'survivor,*'" said Charlotte, who lost a sibling to gun violence. *"They called me one, and at first it felt strange, but then it started to feel like permission to speak."* This quote highlights a tension between self-perception and external validation, showing that identity work is negotiated rather than automatically granted. Such moments reveal how networks shape not just participation but also the conceptualization and performance of survivorship.

For some, networks were understood as sites of moral and social legitimacy, particularly when institutions such as media, law enforcement, or healthcare systems had misrepresented them. Gregory, a mass-shooting survivor, noted, *"After the news painted me wrong (as the perpetrator), the first place that actually recognized me as a survivor was this group."* This illustrates how

survivor networks can serve as interpretive communities, providing recognition and legitimacy when formal structures fail.

Yet several also emphasized that legitimacy within these communities was negotiated rather than guaranteed. Caleb, whose sister was killed in a mass shooting, reflected that "trauma comparisons" could complicate belonging, underscoring that recognition within networks is continually negotiated rather than automatic.

According to Caleb, *"these, like, trauma comparisons came up...how much money did you get from the GoFundMe? Were you physically there that day? Did you actually get shot, or were you just in that building? And, I mean, that financial element leads to people comparing their experiences and being like, well, I didn't get as much money or I didn't even qualify for money, so I must not have been hurt that bad. And that's not necessarily true."*

This reflection illustrates how network members actively interpret and judge one another's experiences, highlighting internal hierarchies that shape social legitimacy. Caleb's account shows that networks provide language and validation, but that recognition is contingent, relational, and socially constructed, requiring survivors to navigate subtle forms of comparison and evaluation.

2. Networks as Emotional and Practical Lifelines

Survivors described networks not only as emotionally supportive spaces but as informal care infrastructures that compensated for gaps in formal services. Participants described networks as places where they could "be understood without explanation," and where mutual empathy

normalized ongoing distress. Kai, a wounded survivor of a drive-by shooting, explained, *"When I talk in the group chat, I don't have to explain why I still can't sleep or why loud noises mess me up. They just get it."* Kai's account illustrates how mutual empathy operates as a social mechanism, normalizing ongoing distress and enabling survivors to communicate vulnerabilities safely.

Beyond this emotional connection, survivors interpreted networks as conduits for tangible opportunities, including therapy referrals, compensation funds, and commemorative spaces. Barbara, whose son was murdered, described, *"The women on my post were so gentle; they got me into counseling and encouraged me to speak at [my son's] memorial. They knew what I needed before I did."*

Barbara's experience illustrates how network members actively interpret and anticipate each other's needs, functioning as informal navigators of resources and facilitators of public memorialization. Networks functioned as lifelines that provided both emotional anchoring and pathways through otherwise opaque bureaucratic and therapeutic systems.

3. Networks as Pathways (and Limits) to Civic Engagement

While not all survivors engaged in public advocacy, many understood networks as vehicles for transforming survivorship into collective action. They described storytelling, organizing, and mentorship as ways of channeling grief into civic participation and prevention work.

Tamara, who witnessed her niece's domestic-violence-related shooting, said*, "When I share at events, I feel like I'm protecting someone else…like my story might stop it from happening to*

another girl." Her experience illustrates how some survivors transform personal trauma into a broader sense of responsibility, extending their commitment to the safety and well-being of the wider community.

At the same time, survivors critically reflected on expectations that advocacy should follow trauma, expressing ambivalence about the imperative to convert grief into action. Kim, who was threatened with a gun during a robbery, reflected, *"They want you to turn your pain into purpose…and I get that, but some days, I just want to be sad without having to make it mean something."* Kim's reflection highlights the emotional labor and performative expectations embedded within these networks, showing that participation is not purely voluntary but shaped by social and moral pressures.

Survivors thus conceptualized networks as both empowering and constraining: spaces that enable agency while also imposing normative scripts of productivity and resilience.

4. Visibility and Disclosure in Survivorship

Survivors described navigating visibility and external pressures for spoken disclosures as a central part of living survivorship within networks. Some appreciated opportunities to speak at events or appear in media campaigns, recognizing the potential to influence or support others. Barbara, who became her organization's state survivor lead after the murder of her son, confessed: *"They all know [my son], even though they've never met him. I make sure to say yes to speaking; I show photos of him, that's how I keep him alive, that's how I can keep other kids alive."* Barbara's

account illustrates how networks may create moral and relational obligations, positioning survivors as intermediaries in collective memory and advocacy efforts.

Others felt that their story would only be platformed if it aligned with the networks' larger goals: Amy noted, *"I wanted to speak about my frustrations living in a culture that allows this to happen over and over again and absolutely refuses to do anything at all to stop it, but they wanted me to say I support responsible gun ownership...that was the last thing on my heart at the time, so I chose not to speak."* Amy's reflection highlights the negotiation of voice and the selective pressures that govern which narratives are elevated, revealing that participation may be contingent on conformity to organizational norms.

Some worried about retraumatization, noting that repeatedly recounting traumatic events could reopen emotional wounds and exhaust their coping resources. Kai noted, *"I like posting on the survivor page, but not interviews. Visibility helps the cause, but it's exhausting."* Kai's experience underscores the emotional labor required to perform survivorship publicly, and how networks can simultaneously offer recognition and impose psychological strain.

Survivors framed disclosure as both affirming and depleting – essential for collective recognition yet emotionally demanding. They further described networks as spaces where authenticity and advocacy intersected, requiring survivors to balance healing with public performance.

A Thread: Temporal Evolution

Survivors emphasized that their conceptualizations of networks evolved over time. Post-firearm violence engagement often centered on stabilization and connection, while later participation involved mentorship, selective re-engagement, or intentional withdrawal for self-preservation. Charlotte reflected, *"At first, I was on every call; I needed them. Now I drop in when I see that someone new lost a sibling. It's like giving back what saved me."* Charlotte's account illustrates how survivors' participation can transition from seeking support to providing care, revealing a relational trajectory in which survivorship is enacted not only for oneself but on behalf of others.

Engagement patterns also shifted cyclically, resurfacing around anniversaries, network events, or major political developments. These temporal dynamics demonstrate that network involvement is contingent, negotiated, and intertwined with evolving identity and emotional capacity. Survivors continually reinterpret the meaning and utility of networks, balancing personal recovery with ongoing social and civic roles, highlighting the dynamic, socially embedded nature of digital peer support.

Discussion

Among digitally connected and network-affiliated groups, firearm violence survivors conceptualize online survivor networks as central spaces through which they understand themselves, navigate grief, and engage with their communities. These networks occupy a critical juncture among mental health, social capital, and civic engagement, domains long recognized as central to public health recovery frameworks (Hink et al., 2021; Magee et al., 2023). Beyond mutual aid, survivors described these networks as communities that function as interpretive

infrastructures through which identities become intelligible and actionable. For many, the term "survivor" became meaningful through these collective spaces, underscoring findings from trauma and identity research that survivorship is socially constructed and relational rather than individually defined (Sounderajah et al., 2020; Baker et al., 2024).

Survivors described networks as both emotional and practical scaffolds, spaces where they could be "seen without explanation" and access the tangible resources (e.g., counseling, financial guidance, or memorial planning) often unavailable through formal systems. These findings align with prior work on peer-led support networks (Hink et al., 2021; Magee et al., 2023; Rice et al., 2024; Starkweather et al., 2025) by showing how network participation strengthens social cohesion, buffers psychological harm, and opens civic pathways alongside traditional healthcare services.

To contextualize the characteristics of participants affiliated with digital networks, the subsample included a higher proportion of individuals from higher-income households. For example, four of 12 participants had household incomes above $100,000, compared with seven of 33 in the full sample. This suggests that network-affiliated participants may not fully represent the socioeconomic diversity of the overall sample. This complements prior scholarship on social capital and access to advocacy spaces (Garza et al., 2022).

Although this subgroup also contained a higher proportion of White and 26–45-year-old survivors, these descriptive patterns are best viewed as context rather than causal findings. Prior research underscores that disparities in digital and organizational infrastructures may leave those in rural

areas, lower-income households, or communities with limited connectivity less able to access peer-support benefits (Sanders & Scanlon, 2021). By documenting these inequities, this study contributes a nuanced understanding of how social and digital capital may intersect to shape participation and representation in survivor networks.

Despite these inequities in access and representation, survivors nonetheless framed online engagement as a transformative tool, allowing those who are geographically, socially, or emotionally isolated to connect with peers, share narratives, and participate in advocacy. These digital spaces function as extensions of, and in some cases substitutes for, in-person communities, reinforcing prior literature on the affordances of online peer support (Prescott et al., 2020**;** Whiting et al., 2022**)** while adding new insight into how survivors interpret and integrate these networks into identity and recovery processes.

A key interpretive insight is the dual nature of online survivor networks. Survivors understood these spaces as simultaneously supportive and demanding – sources of recognition and belonging that also carry expectations of disclosure, advocacy, and optimism. While this duality mirrors findings from other survivor contexts, including cancer (Lerner, 2003) and sexual assault (Campbell & Adams, 2009), this study uniquely highlights how firearm violence survivors navigate these tensions within digital networks. Building on theories of "voice" as a mode of civic agency (Couldry, 2010), survivors' narratives can be understood as political acts through which individuals make claims, assert legitimacy, and contribute to public discourse on firearm violence.

Taken together, these findings point to four main implications.

Recognition. Survivors described networks as places where witnesses, bereaved family members, and those exposed to ongoing community violence found a shared language for their experience that formal systems did not offer. Service eligibility and funding criteria that define survivors by physical injury leave large groups outside of formal support. Agencies and funders should define eligibility and outreach to include the spectrum of exposure.

Resources and referrals. Survivors described networks connecting them to counseling, compensation, and practical help that formal systems had not offered or had made hard to reach. Hospitals, victim services, and compensation programs should build referral and partnership arrangements with survivor networks, and sustained multi-year funding for peer support would protect networks from withdrawal of support over time. Networks should supplement formal services, not substitute for them.

Advocacy. Networks opened routes into advocacy and leadership, and also constrained them. Peer-led training in trauma-informed facilitation, mentorship, and practical support such as covering expenses for survivors' time can widen who is able to take these roles (Webb et al., 2024; Semenza et al., 2025).

Visibility and disclosure. Survivors described expectations of disclosure, advocacy, and optimism as part of the cost of belonging. Organizations and funders should avoid making support or funding contingent on telling one's story and should build in norms and moderation that keep participation voluntary and open to time-limited engagement.

Equity. The network-affiliated subsample was more White and higher-income than the full sample (four of the 12 had household incomes above $100,000, compared with seven of 33). The benefits of these networks are therefore least likely to reach low-income survivors of color, who often experience the most compounded effects of structural racism and structural disadvantage. Public health agencies and funders should also prioritize equitable outreach and inclusive network design to ensure that the psychosocial and civic benefits of survivor networks are not confined to those with greater digital access or social capital (West & O'Neal, 2024).

Overall, survivors in this study conceptualized networks as vital yet complex social sites where survivorship is enacted, interpreted, and continually negotiated. These findings extend prior work on digital peer support and trauma-informed recovery by emphasizing survivors' own interpretations of network utility, meaning-making, and advocacy, underscoring the importance of centering survivor perspectives in the design of interventions and policies aimed at fostering collective coping and community resilience.

Limitations

This study focuses on survivors who were affiliated with online survivor networks and had sufficient digital access to participate in online interviews. While all participants engaged with survivor communities through online platforms, this engagement was not exclusive; several survivors also participated in in-person support groups, advocacy efforts, or community-based activities. Still, these participants may differ systematically from non-networked survivors; they may be younger, more digitally literate, or more motivated to share their stories publicly. Recruitment via social media may have further introduced selection bias.

Additionally, the study's relatively small sample size and interpretive qualitative analytic approach limit the generalizability of findings. Rather than aiming for representativeness, this study sought depth of understanding regarding how survivors make meaning of networks, visibility, and survivorship. As such, findings are contextually grounded in participants' narratives and the analytical framework applied. These findings should be interpreted as reflecting how digitally connected, network-affiliated survivors conceptualize the purpose, meaning, and use of survivor networks, rather than capturing the experiences of all firearm violence survivors.

Future Directions

Future research should extend beyond online survivor networks to include survivors who rely on informal or localized forms of support. Comparative studies could explore how different survivor groups conceptualize recovery, identity, and community participation, as well as how structural factors (e.g., race, income, geography) influence who accesses and sustains engagement. Additional work examining survivors who are disconnected from advocacy spaces or who avoid online engagement can further clarify how support needs vary across contexts. Future research should also examine how survivors first learn about, access, and become connected to survivor networks, including formal and informal pathways (e.g., healthcare providers, community organizations, social media, or peer referrals), that facilitate or constrain entry into these spaces. Further investigation into how survivor networks are understood and negotiated as community health infrastructures can inform survivor-centered interventions and policy design responsive to diverse forms of survivorship.

Conclusion

While prior studies have explored survivorship in clinical or in-person settings, this study highlights how firearm violence survivors who participate in digital networks conceptualize these spaces as central to making sense of survivorship, identity, and advocacy. Survivors described online survivor networks as dynamic, relational, and continually evolving sites where language, legitimacy, and emotional scaffolding are co-created and reinterpreted over time.

Through these networks, survivors articulate what it means to live with trauma collectively, framing survivorship not as an isolated recovery process but as an ongoing negotiation of belonging, purpose, and voice. Digital platforms extend the reach of these interpretive communities, connecting survivors who might otherwise be socially, geographically, or emotionally isolated and offering opportunities for peer support, narrative sharing, and public engagement. These findings underscore that digital networks function not only as support systems but as spaces where meaning-making, identity formation, and civic participation unfold in tandem.

Taken together, these findings point to four priorities for policy and practice: recognition of all forms of exposure in eligibility and outreach, partnership between formal services and survivor networks backed by sustained funding, support for survivors' advocacy, and norms that keep disclosure voluntary, Doing this in an equity-oriented way, so that the benefits of survivor networks reach the survivors least connected to them, can make survivor-centered responses to firearm violence more responsive and more widely available.

References

Bailey, A., Hannays-King, C., Clarke, J., Lester, E., & Velasco, D. (2013). Black mothers' cognitive process of finding meaning and building resilience after loss of a child to gun violence. *British Journal of Social Work*, *43*(2), 336–354. https://doi.org/10.1093/bjsw/bct027

Baker, N. S., VanHook, C., Ziminski, D., Costa, J., Mitchell, M., & Lovelady, N. (2024). "I am a survivor!": Violently injured Black Men's perceptions of labeling after a violent firearm injury. *Journal of Urban Health, 101*(3), 535–543. https://doi.org/10.1007/s11524-024-00874-8

Bowen, E. A., & Murshid, N. S. (2016). Trauma-Informed Social Policy: A Conceptual Framework for Policy Analysis and Advocacy. *American Journal of Public Health, 106*(2), 223–229. https://doi.org/10.2105/AJPH.2015.302970

Buggs, S. A. L., Kravitz-Wirtz, N. D., & Lund, J. J. (2023). Social and Structural Determinants of Community Firearm Violence and Community Trauma. *The ANNALS of the American Academy of Political and Social Science, 704*(1), 224-241. https://doi.org/10.1177/00027162231173324 (Original work published 2022)

Campbell, R., & Adams, A. E. (2009). Why Do Rape Survivors Volunteer for Face-to-Face Interviews?: A Meta-Study of Victims' Reasons for and Concerns About Research Participation. *Journal of Interpersonal Violence*, *24*(3), 395-405. https://doi.org/10.1177/0886260508317192

Carlson, J. (2023). *Merchants of the right: Gun sellers and the crisis of American democracy.* Princeton University Press.

Couldry, N. (2010). Why voice matters: Culture and politics after neoliberalism. SAGE Publications Ltd, https://doi.org/10.4135/9781446269114

de Ven, P. van, Leferink, S., & Pemberton, A. (2023). The Key Characteristics and Role of Peer Support in the Aftermath of Victimization: A Scoping Review. *Trauma, Violence & Abuse.*, *24*(2), 899–912. https://doi.org/10.1177/15248380211043826

Fish, S. (1980). *Is there a text in this class? the authority of interpretive communities*. ECollections.

Francis M. (2018). A Narrative Inquiry into the Experience of Being a Victim of Gun Violence.

Journal of Trauma Nursing: The Official Journal of the Society of Trauma Nurses, 25(6), 381–388. https://doi.org/10.1097/JTN.0000000000000406

Garza, R. H., Williams, M. Y., Ntiri, S. O., Hampton, M. D., & Yan, A. F. (2022). Intersectionality Impacts Survivorship: Identity-Informed Recommendations to Improve the Quality of Life of African American Breast Cancer Survivors in Health Promotion Programming. *International Journal of Environmental Research and Public Health*, *19*(19), 12807. https://doi.org/10.3390/ijerph191912807

Giraldi, D. M., Swingler, S., Kirk, D. S., Jacoby, S. F., Melendez-Torres, G. J., Kaufman, E. J., & Humphreys, D. K. (2025). Understanding the broader impacts of non-fatal firearm violence trauma in the United States: A scoping review. *The Lancet Regional Health - Americas, 46,* 101091. https://doi.org/10.1016/j.lana.2025.101091

Gray, L., Wong-Wylie, G., Rempel, G., & Cook, K. (2020). Expanding qualitative research interviewing strategies: Zoom Video Communications. *The Qualitative Report.* https://doi.org/10.46743/2160-3715/2020.4212

Hink, A. B., Atkins, D. L., & Rowhani-Rahbar, A. (2021). Not All Survivors Are the Same: Qualitative Assessment of Prior Violence, Risks, Recovery and Perceptions of Firearms and Violence Among Victims of Firearm Injury. *Journal of Interpersonal Violence, 37*(15-16), NP14368–NP14396. https://doi.org/10.1177/08862605211005157

Kaufman, E. J., & Delgado, M. K. (2022). The Epidemiology of Firearm Injuries in the US: The Need for Comprehensive, Real-time, Actionable Data. *JAMA*, *328*(12), 1177–1178. https://doi.org/10.1001/jama.2022.16894

Lerner, B. (2003). "I alone am in charge of my body": breast cancer patients in revolt. In *The Breast Cancer Wars: Fear, Hope, and the Pursuit of a Cure in Twentieth-Century America*. essay, Oxford University Press.

Magee, L. A., Ortiz, D., Adams, Z. W., Marriott, B. R., Beverly, A. W., Beverly, B., Aalsma, M. C., Wiehe, S. E., & Ranney, M. L. (2023). Engagement with mental health services among survivors of firearm injury. *JAMA Network Open, 6*(10). https://doi.org/10.1001/jamanetworkopen.2023.40246

Malterud, K., Siersma, V. D., & Guassora, A. D. (2015). Sample size in qualitative interview studies. *Qualitative Health Research*, *26*(13), 1753–1760. https://doi.org/10.1177/1049732315617444

Masiakos, P. T., Chéry, C. M., Gardner, R., & Gordon, E. (2024). Transforming narratives of gun violence. *New England Journal of Medicine*, *391*(8), 673–675. https://doi.org/10.1056/nejmp2408294

McAdams, D. P. (2001). The psychology of life stories. *Review of General Psychology, 5*(2), 100–122. https://doi.org/10.1037/1089-2680.5.2.100

McAdams, D. P. (2011). Narrative identity. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of identity theory and research* (pp. 99–115). Springer Science + Business Media. https://doi.org/10.1007/978-1-4419-7988-9_5

Oliffe, J.L., Kelly, M.T., Gonzalez Montaner, G., & Ku Yo, W.F. (2021, October 20). *Zoom interviews: Benefits and concessions.* https://journals.sagepub.com/doi/10.1177/16094069211053522

Ortiz, D., Magee, L. A., Adams, Z. W., Marriott, B. R., Moore, R. J., Brooks, B. Q., Boustani, M., & Simons, C. J. (2024). Qualitative study of factors affecting engagement with a hospital-based violence intervention programme in Indianapolis, Indiana. *BMJ Public Health*, *2*(1). https://doi.org/10.1136/bmjph-2023-000417

Papachristos, A. V., Wildeman, C., & Roberto, E. (2015). Tragic, but not random: The social contagion of nonfatal gunshot injuries. *Social Science & Medicine, 125*, 139–150. https://doi.org/10.1016/j.socscimed.2014.01.056

Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology, 1*(2), 115–144. https://doi.org/10.1037/1089-2680.1.2.115

Polizzi, G. (2025). Digital Literacy and strategic (dis)engagement: Examining how functional and critical digital literacy shapes participation. Information, Communication & Society, 28(14), 2483–2502. https://doi.org/10.1080/1369118x.2025.2452282

Prescott, J., Rathbone, A. L., & Brown, G. (2020). Online peer to peer support: Qualitative analysis of UK and US open mental health Facebook groups. *Digital health*, *6*, 2055207620979209. https://doi.org/10.1177/2055207620979209

Rice, H. E., Owen, M., Johnson, A., Swandell, J., Nicholson, C. P., Provencher, S., Horne, E., Solomon, C., Ratliff, W., Knechtle, W., Campbell, D., Smith, R., & Graves, L. (2024). Lived experiences of people impacted by gun violence: qualitative analysis of the prescriptions for repair project. *Trauma Surgery & Acute Care Open, 9*(1), e001503. https://doi.org/10.1136/tsaco-2024-001503

San Roman, L., Mosher, D. K., Hook, J. N., Captari, L. E., Aten, J. D., Davis, E. B., Van Tongeren, D. R., Davis, D. E., Heinrichsen, H., & Campbell, C. D. (2019). Religious support buffers the indirect negative psychological effects of mass shooting in church-affiliated individuals. *Psychological trauma: theory, research, practice and policy*, *11*(6), 571–577. https://doi.org/10.1037/tra0000448

Sanders, C. K., & Scanlon, E. (2021). The Digital Divide Is a Human Rights Issue: Advancing Social Inclusion Through Social Work Advocacy. *Journal of human rights and social work*, *6*(2), 130–143. https://doi.org/10.1007/s41134-020-00147-9

Semenza, D. C., Richmond, T. S., Rajan, S., Betz, M. E., Branas, C., Buggs, S. A. L., Hargarten, S., Richardson, J., Rivara, F. P., Rowhani-Rahbar, A., Sharpe, T. L., Webster, D. W., & Pizarro, J. M. (2025). Firearm Violence Prevention in Peril: A Call to Defend Our Public Safety Infrastructure. *American Journal of Public Health*, *115*(11), 1805–1808. https://doi.org/10.2105/AJPH.2025.308231

Sharpe, T., Aqil, N., & Donkin, V. (2024). Invisible Wounds: Exploring the Coping Strategies of Black Survivors of Homicide Victims in Canada. *Omega*, 302228241246423. Advance online publication. https://doi.org/10.1177/00302228241246423

Sounderajah, V., Markar, S., & Darzi, A. (2020). Defining Domains of Survivorship. *Annals of Surgery, 272*(6), 935–936. https://doi.org/10.1097/SLA.0000000000003988

Starkweather, A., Goldsmith, A. C., Parker, L., Brabham, D., Gutman, C. K., & Webb, F. J. (2025). Firearm Injury Prevention and Survivor Interventions: A Scoping Review. *Journal of Psychosocial Nursing and Mental Health Services, 63*(4), 12–19. https://doi.org/10.3928/02793695-20241101-01

Substance Abuse and Mental Health Services Administration - SAMHSA. (2023). *Practical guide for implementing a trauma-informed approach.* HHS Publication. https://store.samhsa.gov/sites/default/files/pep23-06-05-005.pdf

van Manen, M. (1997). From meaning to method. *Qualitative Health Research, 7*(3), 345–369. https://doi.org/10.1177/104973239700700303

Wasilewski, M. B., Rios, J., Simpson, R., Hitzig, S. L., Gotlib Conn, L., MacKay, C., Mayo, A. L., & Robinson, L. R. (2023). Peer support for traumatic injury survivors: a scoping review. *Disability and rehabilitation*, *45*(13), 2199–2232. https://doi.org/10.1080/09638288.2022.2083702

Webb, L., Urban, K., & Capps, N. (2024). Hospital Based Violence Intervention Programs Using Peer Support Specialists: A Concise Review. *Journal of Trauma Nursing: The Official Journal of the Society of Trauma Nurses, 31*(3), 171–177. https://doi.org/10.1097/JTN.0000000000000791

West, C. M., & O'Neal, D. (2024, February). *Serving black women survivors of IPV Tag Series – Part 1: Providing survivor-centered, culturally responsive, trauma-informed, strengths-based care*. VAWnet.org. https://vawnet.org/material/serving-black-women-survivors-ipv-tag-series-part-1-providing-survivor-centered-culturally

Whiting, J. B., Davies, B. N., Eisert, B. C., Witting, A. B., & Anderson, S. R. (2022). Online Conversations About Abuse: Responses to IPV Survivors from Support Communities. Journal of Family Violence, 1–11. Advance online publication. https://doi.org/10.1007/s10896-022-00414-5

Wyles, P., O'Leary, P., & Tsantefski, M. (2023). Bearing Witness as a Process for Responding to Trauma Survivors: A Review. *Trauma, violence & abuse*, *24*(5), 3078–3093. https://doi.org/10.1177/15248380221124262

VII. Conclusion: The Structural Production of Invisible Wounds

A. Returning to the Beginning

This thesis began with a question that is, on its surface, deceptively simple: what are the invisible wounds of firearm violence, and how do those affected understand, experience, and work to repair them across varied social and structural contexts? The four studies that follow represent an attempt to answer this question empirically, conceptually, and with fidelity to the lived experiences of those most affected. Having mapped the field, gathered narratives, analyzed structural mechanisms, and examined the digital communities through which some survivors construct meaning and belonging, it is now possible to offer a synthetic answer that is more unsettling than the question itself.

The invisible wounds of firearm violence are not simply under-documented harms waiting to be discovered by more attentive researchers. They are structurally produced invisibilities: the predictable outcome of research that has measured what is easiest to count, policy that has recognized what is most legible to formal systems, and care infrastructures that have served those whose needs are most clearly named and institutionally endorsed. Those who witness without being physically injured, those who lose loved ones to interpersonal shootings that never make the news, and those who live in communities where the boundary between exposure and aftermath has never existed are not invisible by accident. They are rendered invisible by the same structural conditions that determine their exposure in the first place.

This conclusion synthesizes the findings across the four papers, drawing out the cumulative theoretical contribution of the thesis, returning to the three research puzzles, and tracing the

implications of the findings for research, policy, and practice. It closes by reflecting on the limitations of this work and the doors it opens.

B. Answering the Three Puzzles

Puzzle 1: Which harms and populations remain invisible?

The first puzzle asked how the field of firearm violence research has conceptualized harm over the past twenty-five years, and which forms of harm and populations have remained outside its frame. Paper 1 provides the most direct answer. Among 87 studies meeting inclusion criteria from a search of 3,172 articles, only four addressed indirect exposure to firearm violence; more than half failed to disaggregate exposure types altogether; and community-level outcomes accounted for just over ten percent of the literature. Nearly seven in ten studies focused on individual-level outcomes, and the dominant paradigm concentrated on short-term psychological consequences among those physically injured. The blank spaces in the evidence matrix, largely interpersonal and community-level outcomes across physical, quality-of-life, and economic domains, are not gaps awaiting future research so much as they are absences with structural causes.

Those causes were examined in the introduction and elaborated across the empirical papers. Political conditions, chronic underfunding of firearm violence research, incomplete surveillance datasets, and the dominance of clinical and emergency medicine frameworks have collectively shaped a literature that mirrors the same recognition hierarchies documented in Paper 3 (Bachynski, 2017; Morral & Smart, 2022; Crifasi et al., 2024). Research on mass shootings is disproportionate to their share of total firearm violence; research on interpersonal violence in chronically affected communities is sparse relative to its prevalence and consequence (Giraldi et

al., 2025). However, the field is rapidly expanding, and there is much innovative work emerging that centers and elevates the experiences of those most impacted by community violence. Organizations such as the Black and Brown Collective for Community Solutions to Gun Violence, led by and accountable to the communities most affected, are reorienting research priorities and signaling a methodological and political shift that academic research has been slower to make (Fontaine et al., 2026). The gaps in the evidence base identified in Paper 1 are increasingly recognized as structural rather than incidental, and the momentum toward community-led, intersectional approaches to firearm violence research represents a genuine expansion of what the field can see and say. Addressing these structural gaps requires sustained investment in the conditions that make such studies possible.

Paper 2 begins to fill some of these gaps empirically. The four participant-derived exposure typologies – physical injury, firsthand witnessing, bereavement, and chronic community violence – are not simply taxonomic additions to an existing framework. They constitute a methodological response to Paper 1's finding that dominant frameworks have collapsed heterogeneous experiences into undifferentiated categories. By deriving typologies inductively from participant narratives rather than imposing them from prior literature, Paper 2 demonstrates that firsthand witnesses, bereaved loved ones, and those living amid chronic community violence each navigate distinct patterns of harm, institutional engagement, and identity negotiation that existing frameworks have obscured. The typologies also reveal that exposure is rarely singular; more than half of interview participants occupied multiple typologies across the life course, and the cumulative and overlapping nature of firearm violence exposure challenges binary distinction between direct and indirect harm.

Together, Papers 1 and 2 establish that the first puzzle is not primarily answered by better measurement tools or more inclusive sampling frames, though both are needed. It is answered by reconceptualizing what counts as harm, who counts as affected, and why those determinations have been made the way they have. Invisible populations do not only require better research; they require the field to keep asking who has been missing from the evidence base, and why – questions this thesis has tried to take seriously and that the expanding community violence literature is increasingly equipped to address.

Puzzle 2: How do individuals make sense of experience across diverse forms of exposure?

The second puzzle asked how individuals across different forms of exposure make sense of their experiences in such varied ways, even when facing similar social and structural conditions. Paper 2 provides the central empirical answer through three analytically distinct orientations toward survivorship: embraced, contested or ambivalent, and rejected or inaccessible. These orientations do not map straightforwardly onto exposure typologies, though patterns are visible: bereaved participants and some witnesses were more likely to embrace survivorship through advocacy and collective meaning-making; physically injured participants often found the label contested, implying a trajectory toward resolution that did not match their lived experience; and those living amid chronic community violence most frequently found survivorship language inaccessible, displaced by collective framings of violence as ambient and shared rather than as discrete events around which individual identity could coalesce.

The central theoretical contribution of Paper 2 is the demonstration that these orientations are not expressions of individual difference but of structural position. Survivorship is not claimed or rejected randomly; it is enabled or foreclosed by the conditions under which a person encounters the aftermath. Institutional recognition (through healthcare systems, victim compensation programs, advocacy organizations, and public discourse) shapes whether the label is available, legible, or coherent for any given individual. Ryan, who had a gun held to his head but was not shot, did not identify as a survivor: *"He could've shot me and he didn't. The gun was at my head and the bullet didn't fly"* (Giraldi et al., 2026). The absence of physical injury was sufficient to foreclose the identity entirely. Imani, living in a community where every peer had seen or experienced gun violence, did not have the narrative space from which a discrete survivorship identity could be constructed: *"We don't have the luxury of allowing these things to impact us"* (Giraldi et al., 2026). These are not statements of individual psychology; they are articulations of how structural conditions determine which experiences can be narrated as survivorship and which cannot.

Paper 3 deepens this analysis by identifying the mechanisms through which structural conditions produce these differential orientations. The seven mechanisms – financial foreclosure, racialized institutional stigma, institutional recognition hierarchy, navigation burden, temporal abandonment, agency suppression, and compounding exposure – do not map onto the three survivorship orientations one-to-one, but they constitute the structural conditions from which those orientations emerge. Specifically, the recognition hierarchy determines which forms of exposure receive institutional endorsement, and institutional endorsement shapes the social conditions in which survivorship identity may be claimed. However, all seven mechanisms constrain or enable the

meaning-making processes through which individuals construct, contest, or reject a survivorship identity. Financial foreclosure limits the conditions under which advocacy and narrative engagement are possible. Agency suppression determines whose accounts reach public platforms and whose remain unheard. Temporal abandonment leaves individuals most isolated at precisely the moment when the long-term psychological work of identity reconstruction intensifies. The orientations documented in Paper 2 are the experiential surface of the structural mechanisms examined in Paper 3.

Taken together, these papers argue that survivorship is an analytic category that must be understood processually and relationally; it emerges within specific conditions, is sustained by specific resources, and is foreclosed by specific structural forces.

Puzzle 3: What enables rebuilding, recovery, and agency?

The third puzzle asked what mechanisms allow individuals to rebuild identity, community, and agency in the aftermath of firearm violence, especially where formal systems fail them. Papers 3 and 4 address this from complementary angles, and their findings move beyond what most resilience frameworks suggest.

Paper 3's outlier analysis identified cases where the seven mechanisms were suppressed rather than activated, specifying the structural conditions that enable navigation of the aftermath: proactive and sustained institutional support redistributes navigational burden from trauma-destabilized individuals to systems; victim compensation programs designed around outreach rather than application-based eligibility reduce financial foreclosure; peer support infrastructures with stable,

long-term funding counteract temporal abandonment. These are not novel interventions; they are structural reconfigurations of systems that already exist in partial form, and the outlier cases demonstrate that they can work. Joanne's experience of proactive district attorney advocacy made the legal process comprehensible rather than opaque. Gregory's years-long mass shooting survivor group on Facebook provided sustained peer connection when formal services withdrew. What enables rebuilding, in most cases, is not individual resilience but the structural presence of adequate, sustained, and coordinated support (Boulware & Bibbs, 2026). Its absence, rather than personal failure, is what forecloses recovery for most.

Paper 4 extends this analysis into digital space. Online survivor networks emerge as vital but unequal spaces for recovery and identity reconstruction. For the twelve network-affiliated survivors in the embedded subgroup analysis, these spaces provided shared language through which the term "survivor" became meaningful, often for the first time. They functioned as informal care infrastructures, compensating for gaps in formal services through therapy referrals, compensation fund navigation, and emotional peer support. Networks often created pathways to civic engagement, enabling some survivors to channel grief into advocacy, legislative testimony, and public storytelling. Most clearly, they offered temporal continuity, sustained community across months and years, that formal services rarely provided.

Yet Paper 4 also reveals that online networks reproduce, and in some cases intensify, the structural hierarchies identified in Paper 3. The subgroup is markedly whiter and wealthier than the full sample: 50% White compared to 27% in the broader interview cohort; 33% with household incomes above $100,000, compared to 21% in the full sample (Giraldi, 2026). Internal hierarchies

within networks, documented through what Caleb described as "trauma comparisons" structured by physical proximity and financial compensation, mirror the institutional recognition hierarchy that shapes access to formal services. Organizational pressures to perform survivorship in particular ways (i.e., to convert grief into advocacy, to frame anger as support for "responsible gun ownership") constrain whose voices are elevated and whose are edited out. The most important finding in Paper 4 is not what online networks provide, but who they provide it to: network-affiliated survivors with sufficient digital capital, socioeconomic stability, and proximity to the recognized end of the exposure spectrum (i.e., physically injured and/or bereaved). The populations most burdened by the aftermath of firearm violence – those living amid chronic community violence, those with limited digital access, those whose exposure falls outside the institutional recognition hierarchy – often remain as underserved by online networks as they are by the formal systems those networks partially supplement.

C. The Central Argument: Survivorship as Structurally Produced

Across all four papers, this thesis has advanced and substantiated the following argument: survivorship is not an outcome of exposure, but a selectively emergent, relational process shaped by exposure type, institutional recognition, structural position, and access to collective spaces in which identity can be narrated and legitimized. The aftermath is not a neutral recovery period; it is actively produced by the same inequitable systems that structure exposure itself. This argument has several components that warrant explicit statement.

First, exposure does not determine survivorship. Physical injury does not automatically produce a survivorship identity, as the contested and rejected orientations among injured participants

demonstrate. Nor does the absence of physical injury preclude survivorship, as bereaved and witness participants who embraced the label through advocacy and collective meaning-making show. What determines whether survivorship emerges is not the nature of the exposure but the structural and relational conditions of the aftermath.

Second, the aftermath is not the same for everyone. The seven mechanisms identified in Paper 3 generate qualitatively different aftermath experiences depending on the combination of race, class, and exposure typology. The intersectional analysis is particularly significant here: race and class do not operate additively but compound one another, producing distinct burdens for low-income participants of color that neither axis captures alone (Bowleg, 2012; Bauer, 2014). A single-axis analysis of either race or class would systematically mis-specify the mechanisms generating the greatest burden and misdirect the interventions designed to address them.

Third, the structural conditions that produce unequal exposure produce unequal aftermath. Low-income, predominantly Black and brown communities in chronically underinvested urban areas are simultaneously those least well served by the care and recognition systems that might support recovery. Financial foreclosure, racialized institutional stigma, and compounding exposure operate most intensively in these communities where firearm violence is most prevalent.

Fourth, the spaces through which survivorship is constructed (e.g., clinical systems, victim compensation programs, advocacy organizations, online networks) are not neutral scaffolds available to all individuals equally. They carry their own eligibility criteria, recognition hierarchies, and participation expectations, and they differentially enable or foreclose access to

survivorship identity depending on who is engaging with them and from what structural position. Online networks that promise to overcome geographic and social isolation do so unevenly, serving those with sufficient capital while remaining inaccessible to those whose social and material circumstances most constrain their participation.

Finally, and possibly my thesis's most uncomfortable implication, research itself is not exempt from these critiques. Paper 1's systematic map of twenty-five years of literature demonstrates that the field has concentrated on the most legible and measurable harms, replicating in its own evidence base the same hierarchies of recognition that shape the service landscape. The methodological choices of this thesis (e.g., digital recruitment, online interviews, survivor-network outreach) have also produced a structurally situated rather than comprehensive account.

D. Theoretical Contributions

This thesis makes several contributions to the theoretical frameworks through which firearm violence, trauma, and survivorship are understood.

The most fundamental is the distinction between exposure, aftermath, and survivorship as analytically separate but interrelated processes. Where prior work has tended to treat survivorship either as a status conferred by exposure or as a clinical outcome measurable in symptom reduction, this thesis conceptualizes survivorship as a process that emerges selectively within the aftermath. If the aftermath is produced by the same inequitable systems that structure exposure, then intervention cannot stop at the event. Programs addressing acute injury and immediate crisis response remain essential, but they address a narrow temporal slice of a much longer, structurally

shaped process. The exposure/aftermath/survivorship framework thus reorients both conceptual vocabulary and intervention needs simultaneously by not only specifying what survivorship is, but why its uneven distribution is a structural problem rather than an individual one.

The seven-mechanism framework developed in Paper 3 specified how structural conditions generate inequitable aftermath experiences across the full spectrum of firearm violence exposure. The same mechanisms operate whether someone was physically injured, bereaved, witnessed violence, or lives amid chronic community violence, pointing to a common structural logic rather than a collection of separate problems. The framework draws on concepts developed in adjacent fields – administrative burden (Moynihan et al., 2014), financial toxicity (Zafar & Abernethy, 2013), disenfranchised grief (Doka, 1989) – but its primary contribution is the specification of the precise institutional and structural features that produce differential recovery, and by extension, the precise features that would need to change. The outlier cases are as important as the patterned ones: they demonstrate that each mechanism can be suppressed, that the conditions for doing so are knowable, and that the inequitable aftermath of firearm violence is not inevitable.

Finally, Paper 4 contributes to the emerging literature on digitally mediated trauma recovery by conceptualizing online survivor networks not as supplementary resources but as sociotechnical environments that actively shape how survivorship is recognized, negotiated, and performed. The dual nature of these spaces – simultaneously supportive and coercive, empowering and emotionally demanding, inclusive and hierarchically structured – is constitutive of how they operate. Understanding online networks as infrastructures carrying their own structural conditions, rather than as neutral platforms for peer connection, has direct implications for how such networks

are designed, funded, and regulated, and for how their current demographic skew should be understood as a structural finding rather than a sampling limitation.

Beyond its theoretical contributions, this thesis makes a methodological contribution in two respects. First, the inductive typology derivation approach in Paper 2, generating exposure categories from participant narratives rather than imposing them from prior literature, demonstrates a method for producing frameworks that are empirically grounded in the experiences of those most affected rather than in the administrative or clinical categories through which exposure has historically been defined. This approach is transferable to other fields where dominant taxonomies have been built from institutional rather than experiential logics. Second, the outlier analytic strategy employed in Paper 3 offers a model for qualitative mechanism identification that attends equally to cases that confirm a pattern and to cases that disrupt it. By treating outliers as analytically generative rather than as noise, asking not only where mechanisms operated but under what conditions they were suppressed, the analysis produced both a mechanism framework and a specification of the conditions under which each mechanism could be addressed. This approach extends the logic of realistic evaluation (Pawson & Tilley, 1997) into qualitative secondary analysis, demonstrating its applicability beyond the program evaluation contexts in which it was originally developed.

E. Implications for Research, Policy, and Practice

The findings of this thesis carry implications across three domains. They are offered as a set of grounded principles derived from what participants described as the conditions under which recovery was possible.

For research, the most urgent priority is methodological expansion beyond the populations and outcomes that are easiest to access and measure. Future work should develop tools that can measure survivorship as a dynamic, ongoing process rather than a fixed outcome, enabling more precise analysis of how it unfolds across different forms of exposure. Longitudinal designs capable of tracking the aftermath across acute, intermediate, and long-term phases are needed, particularly for those living amid chronic community violence, for whom the sequential logic of most trauma research frameworks is structurally inapplicable. Research that incorporates immigration status, rural residence, and digital access as axes of structural analysis would extend the attention to intersectionality to populations underrepresented in the current sample. Similarly, research that explicitly builds on the outlier analytic approach used in Paper 3 would provide the evidence base needed to move from mechanism identification to program design.

For policy, the central implication is that victim-centered frameworks must be redesigned around the full spectrum of exposure rather than around physical injury as the organizing criterion. Victim compensation programs that deny claims based on contributory misconduct assessments function, as both the quantitative literature and this qualitative evidence suggest, as sites of racialized institutional stigma and require structural reform (Semenza et al., 2025).

Compensation caps that fall far below actual medical costs, income verification requirements that penalize the losses they were meant to address, and bureaucratic complexity sufficient to defeat attorney parents must be treated as design failures with distributional consequences, not as administrative inconveniences. Proactive institutional accompaniment should be the standard

rather than the exception, providing support to alleviate the burden of navigating fragmented post-exposure systems.

The temporal dimension of policy is equally important. The withdrawal of social and institutional support at approximately one-year post-exposure, documented with striking consistency across bereaved participants, coincides with the intensification of complex grief responses rather than their resolution (Shear et al., 2011; Bonanno & Diminich, 2013; Giraldi et al., 2026). Funding cycles, organizational priorities, and political attention that concentrate resources in the acute phase and withdraw them as media attention moves elsewhere systematically produce temporal abandonment. Sustained investment in peer support infrastructure, with stable long-term funding rather than episodic grant cycles, is a structural response this evidence directly supports.

For practice, the most direct implication is that hospital-based violence intervention programs, victim services, and community-based organizations must expand their definitions of who they serve. Firsthand witnesses, who constitute the largest exposure typology in the interview sample and the most institutionally invisible in the service landscape, require dedicated pathways to recognition and care that do not require physical injury as a precondition of support. Those living amid chronic community violence require service models that do not assume a discrete originating incident, do not build intervention logic around acute-phase windows, and do not treat resilience as an individual achievement abstracted from structural conditions. Community violence intervention workers, among the most persistently exposed individuals in the aftermath landscape, also require recognition and support as individuals experiencing cumulative harm, not only as professionals delivering services.

Online survivor networks occupy an important but insufficient role in the current care landscape. They provide what formal services often do not: sustained peer connection, shared language, informal resource navigation, and a community of recognition available beyond the acute phase. However, they cannot substitute for structural investment in formal care, and their current demographic composition means that the populations most frequently impacted are least reached by the informal infrastructure that could partially compensate for formal inadequacy. Public health agencies and funders committed to equitable access must attend to who online networks do not serve as carefully as they attend to the benefits they provide.

The findings also carry implications for survivor organizations and networks themselves. The demographic skew documented in Paper 4 is not incidental; it reflects governance structures, platform design choices, and participation expectations that have made some networks more accessible to some survivors than others. Organizations committed to equity should examine their own eligibility language, their internal hierarchies of recognition, and the extent to which their public-facing narratives, particularly the expectation that grief be converted into advocacy, constrain whose participation is possible and whose voice is amplified. The structural critique this thesis directs at formal institutions applies, with equal force, to the informal ones.

The mechanisms identified in Paper 3 do not operate only through hospitals and clinics. They operate through compensation boards, employers, courts, schools, housing and social services, and the funding and media systems that decide whose losses are visible. Table 3 sets out what the

findings suggest for the organizations that participants encountered, and the mechanism each action addresses.

Organization	What the findings suggest	Mechanism addressed
State victim compensation programs	End denials based on contributory misconduct; raise caps to match actual costs; replace income-verification rules; make outreach proactive	Financial foreclosure; racialized institutional stigma
Police and courts	Embed victim advocates in prosecutors' offices as standard; review victim interviewing practice (e.g., repeatd police interviews of hospitalized patients); review how victims' perceived affiliations are invoked in proceedings	Navigation burden; racialized institutional stigma
Employers	Provide income continuity and leave for people injured or bereaced, including after the first weeks	Financial foreclosure; temporal abandonment

Schools and universities	Include educators, students, and witnesses in post-incident support, and sustain it beyond the acute semester	Recognition hierarchy; temporal abandonment
Social service agencies	Accept shared verification across agencies so documents (e.g., death certificate) are not repeatedly demanded; offer coordinated case management	Navigation burden
Funders & philanthropy	Fund peer support and community initiatives on multi-year cycles	Temporal abandonment
Media	Report on aftermath and on chronic community violence, not only on acute events	Recognition hierarchy; temporal abandonment
Survivor networks	Partner with hospitals and victim services; widen eligibility language to include spectrum of exposures; provide compensation for speaking/advocacy engagements; reach low-	Recognition hierarchy; navigation burden

	income communities, including offline	

While none of these actions alone would remove the structural conditions that produce the inequitable aftermath. Each interrupts a mechanism at the point where an organization meets a survivor, which is where mechanism suppression is possible.

F. Limitations and the Boundaries of Thesis Claims

While each paper discloses its individual limitations separately, this section explicitly names how these compound to shape this thesis.

The structural limitations of this thesis are in many ways shaped by funding constraints that precluded in-person fieldwork across multiple states, by the insider/outsider dynamics of recruiting within established survivor communities where trust is hard-won and gatekeeping is protective, and by deliberate choices made in the face of those constraints. Online interviews were selected precisely to reach participants across diverse U.S. states and regions rather than concentrating the sample in a single geographic area; that decision enabled breadth but privileged those with stable digital access and sufficient time, energy, and financial stability to elect engaging in reflective narration of traumatic experiences. Recruitment began in survivor networks (Chapter II, Section C), which shaped the initial sample composition before recruitment was deliberately expanded. Political conditions compounded these dynamics: recruitment pathways in more conservative, pro-Second Amendment cities and states were frequently blocked or removed by platform moderators or responded to with hostility.

The most marginalized participants in this thesis – those living amid chronic community violence, those with the deepest institutional distrust, those whose geographic and political contexts rendered them inaccessible through the channels available – are underrepresented for reasons that mirror the structural argument at the thesis's core. They are, even so, more legible than those who never entered any recruitment pipeline at all. This is a limitation that researchers, funders, and institutions should actively work to address by evaluating the language used to recruit and describe participants, the compensation available to those who participate, and the transparency woven into research processes and limitations from the outset.

The secondary qualitative analysis that generated Paper 3's mechanism framework is also methodologically constrained: the original interviews were not designed with a focus on structural mechanisms as their primary aim, and some structurally relevant dimensions (e.g., immigration status, housing instability, interactions with the criminal legal system) may not have been fully probed. The sample, while heterogeneous across race, socioeconomic status, exposure type, and geography, cannot capture the full range of experiences among the tens of millions of Americans affected by firearm violence in varying form.

The exclusion of suicide from the scoping review reflects a deliberate scope decision rather than an incidental omission. The mechanisms of exposure, harm, and aftermath in firearm suicide differ sufficiently from those in interpersonal and community violence to warrant separate analysis; collapsing these experiences would obscure rather than illuminate the dynamics this thesis examines. Those bereaved by firearm suicide, or those who have survived suicide attempts, may

navigate aftermath dynamics that differ meaningfully from the typologies examined here, and this remains an important direction for future work.

My positionality, set out in Chapter 2 Section F, shaped both who was reachable and how participants narrated their experiences. It brought access to closed survivor networks and, in some interviews, a change in the register of conversation. These limitations do not undermine the findings of this thesis, but they delimit their scope. What has been produced here is a structurally situated and empirically grounded account of how firearm violence produces harm across a wider range of exposure than dominant frameworks typically capture. It is not a comprehensive representation of all experiences and not a definitive account of the full population of those affected.

G. Reflection: On Invisibility and Accountability

One participant, asked whether she considered herself a survivor, paused before answering: "I don't want to be known as a person that got all the friends that die. It don't need to be like this." Leona was not refusing the label; she was refusing the condition that made the label necessary. She was naming, with precision, the difference between a life shaped by chronic violence and a life oriented around its aftermath. That distinction between violence as a rupture and violence as the condition of daily life is at the heart of what this thesis has tried to do.

Existing frameworks for understanding the aftermath of firearm violence have been built primarily around the experience of rupture: a discrete event, a before and after, a wound around which services can organize and an identity around which meaning can coalesce. This thesis has argued

that this framework is not wrong but incomplete; it is adequate for some, structurally inapplicable for others, and in its incompleteness, complicit in the invisibility it fails to address.

The invisible wounds named in this thesis are real, consequential, and systematically produced. The witness who spent twelve years being told she was fine because she was not shot. The bereaved mother who asked whether this study applied to her because she was not the one who had been injured. The community violence intervention worker whose professional proximity to death compounded rather than buffered her own accumulated grief. The injured man who navigated $330,000 in medical bills with a compensation fund capped at $50,000. These are not tragedies at the margin of the firearm violence crisis; they are expressions of its structural core.

Addressing the invisible wounds of firearm violence requires more than better screening tools, more inclusive eligibility criteria, or more culturally responsive clinical services, though all of these are needed. It requires accountability for the structural conditions that produce differential exposure, differential aftermath, and differential access to the spaces in which recovery becomes possible. It requires research that does not replicate the recognition hierarchies it studies. It requires policy that does not build compensation systems whose design fails the people they are meant to serve. It requires practice that does not conflate individual resilience with structural adequacy.

Survivorship, this thesis has argued, is not what happens when someone survives firearm violence. It is what becomes possible when the conditions for recovery, recognition, and meaning-making are present. For too many, those conditions are absent, not inevitably, but structurally. Understanding why is a necessary first step. Building the conditions under which survivorship

becomes genuinely available, across the full range of exposure and the full range of structural barriers, is the work that comes next.

References

Bachynski K. E. (2017). Ethical Implications of Missing Gun Violence Data. *American Journal of Public Health*, *107*(5), e5. https://doi.org/10.2105/AJPH.2017.303736

Bauer G. R. (2014). Incorporating intersectionality theory into population health research methodology: challenges and the potential to advance health equity. *Social Science & Medicine (1982)*, *110*, 10–17. https://doi.org/10.1016/j.socscimed.2014.03.022

Bonanno, G. A., & Diminich, E. D. (2013). Annual Research Review: Positive adjustment to adversity--trajectories of minimal-impact resilience and emergent resilience. *Journal of child psychology and psychiatry, and allied disciplines*, *54*(4), 378–401. https://doi.org/10.1111/jcpp.12021

Boulware, A., & Bibbs, D. (2026). Resilience in Adverse Contexts: Youth and Clinician Perspectives on Navigating Community Violence. *Children (Basel, Switzerland)*, *13*(1), 122. https://doi.org/10.3390/children13010122

Bowleg, L. (2012). The problem with the phrase women and minorities: intersectionality—an important theoretical framework for Public Health. *American Journal of Public Health*, *102*(7), 1267–1273. https://doi.org/10.2105/ajph.2012.300750

Crifasi, C. K., Ward, J. A., Fitch, K. V., & Ranapurwala, S. I. (2024). The State of Firearm Policy Research in the United States. *American Journal of Epidemiology*. Advance online publication. https://doi.org/10.1093/aje/kwae298

Doka, K. J. (1989). *Disenfranchised grief: recognizing hidden sorrow*. Lexington Books.

Fontaine, J., Costa, J., Dwivedi, A., Hudson, T., Fortin, P., Adrianzén McGrath, S., Richardson, J., & VanHook, C. (2026). *Practices for Conducting Community-Engaged Research with those at Highest-Risk for Gun Violence. Black & Brown Collective for Community Solutions to Gun Violence.* https://thebbcollective.org/wp-content/uploads/2026/05/BBCollective_CERFFramework2026_Final.pdf

Giraldi, D. M., Swingler, S., Kirk, D. S., Jacoby, S. F., Melendez-Torres, G. J., Kaufman, E. J., & Humphreys, D. K. (2025). Understanding the broader impacts of non-fatal firearm violence trauma in the United States: a scoping review. *Lancet Regional Health – Americas*, *46*, 101091. https://doi.org/10.1016/j.lana.2025.101091

Giraldi, D. M. (2026). “We can endure suffering but not meaninglessness”: Identity, meaning-

making, and community in online firearm violence survivor networks. *SSM - Qualitative Research in Health*, *9*, 100742. https://doi.org/10.1016/j.ssmqr.2026.100742

Giraldi, D. M., Márquez-Greene, N., Lowe, S., & Humphreys, D. K. (2026, June 2). *Life in the Aftermath: Typologies of Firearm Violence Exposure and the Selective Emergence of Survivorship.* SocArXiv. https://doi.org/10.31235/osf.io/r5fnb_v1

Morral, A. R., & Smart, R. (2022). A New Era for Firearm Violence Prevention Research. *JAMA*, *328*(12), 1197–1198. https://doi.org/10.1001/jama.2022.16743

Moynihan, D., P. Herd, and H. Harvey. "Administrative Burden: Learning, Psychological, and Compliance Costs in Citizen-State Interactions." *Journal of Public Administration Research and Theory* 25, no. 1 (February 27, 2014): 43–69. https://doi.org/10.1093/jopart/muu009.

Pawson, R., & Tilley, N. (1997). *Realistic evaluation.* SAGE Publications Ltd.

Semenza, D. C., Levine, J., Sharpe, T., Burke, K., & Savage, B. (2025). Racial disparities in victim compensation among homicide survivors in the United States. *Race and Justice*. https://doi.org/10.1177/21533687251388669

Shear, M. K., Simon, N., Wall, M., Zisook, S., Neimeyer, R., Duan, N., Reynolds, C., Lebowitz, B., Sung, S., Ghesquiere, A., Gorscak, B., Clayton, P., Ito, M., Nakajima, S., Konishi, T., Melhem, N., Meert, K., Schiff, M., O'Connor, M. F., First, M., … Keshaviah, A. (2011). Complicated grief and related bereavement issues for DSM-5. *Depression and anxiety*, *28*(2), 103–117. https://doi.org/10.1002/da.20780

Zafar, S. Y., & Abernethy, A. P. (2013). Financial toxicity, Part I: a new name for a growing problem. *Oncology (Williston Park, N.Y.)*, *27*(2), 80–149.

VIII. Appendices

Appendix 1A. Scoping Review Search Strings

ProQuest

1. noft(shooting* OR gun violence* OR firearm) AND noft(survivor* OR witness*) After April 1999
2. noft(shooting* OR gun violence* OR firearm) AND noft(trauma* OR consequence*) AND noft(survivor* OR witness*) After April 1999
3. noft(shooting* OR gun violence* OR firearm) AND noft(survivor* OR witness*) AND noft(burden OR cost OR harm) After April 1999

Web of Science

1. shooting* or gun violence* or firearm (Topic) and trauma or consequence or harm or witness or injury or survivor (Topic)
2. shooting* or gun violence* or firearm (Topic) and trauma or consequence or harm or witness or injury or survivor (Topic) and United States or USA or America (Topic)

PubMed & SCOPUS

1. ((shooting*) AND ((trauma*) OR (consequence*)) AND ((survivor*) OR (witness*)))
2. (((gun violence) AND (trauma*)) AND ((survivor*) OR (witness*)))
   (“gun violence"[MeSH Terms] OR ("gun"[All Fields] AND "violence"[All Fields]) OR "gun violence"[All Fields]) AND "trauma"[All Fields] AND ("survivor*"[All Fields] OR "witness*"[All Fields])*
3. (((gun) OR (firearm*)) AND ((trauma*) OR (injury) OR (consequence) OR (burden) OR (cost) OR (harm)) AND ((survivor*) OR (witness*) OR (non-fatal)))
   ("firearms"[MeSH Terms] OR "firearms"[All Fields] OR "gun"[All Fields] OR "firearm"[All Fields]) AND ("trauma*"[All Fields] OR ("injure"[All Fields] OR "injured"[All Fields] OR "injuries"[MeSH Subheading] OR "injuries"[All Fields] OR "wounds and injuries"[MeSH Terms] OR ("wounds"[All Fields] AND "injuries"[All Fields]) OR "wounds and injuries"[All Fields] OR "injurious"[All Fields] OR "injury s" [All Fields] OR "injured"[All Fields] OR "injuries"[All Fields] OR "injury"[All Fields]) OR ("consequence"[All Fields] OR "consequences"[All Fields] OR "consequent"[All Fields] OR "consequently"[All Fields] OR "consequents"[All Fields]) OR ("burden"[All Fields] OR "burdened"[All Fields] OR "burdening"[All Fields] OR "burdens"[All Fields]) OR ("economics"[MeSH Subheading] OR "economics"[All Fields] OR "cost" [All Fields] OR "costs and cost analysis"[MeSH Terms] OR ("costs"[All Fields] AND "cost"[All Fields] AND "analysis"[All Fields]) OR "costs and cost analysis"[All Fields]) OR "harm"[All Fields]) AND ("survivor*"[All Fields] OR "witness*"[All Fields] OR "non-fatal"[All Fields])*
4. ((gun) AND ((trauma*) OR (consequence*)) AND ((survivor*) OR (witness*) OR (non-fatal))) *("firearms"[MeSH Terms] OR "firearms"[All Fields] OR "gun"[All Fields]) AND ("trauma*"[All Fields] OR "consequence*"[All Fields]) AND ("survivor*"[All Fields] OR "witness*"[All Fields] OR "non-fatal"[All Fields])*

Appendix 1B. List of Included Article Sources

1	Andrade EG, Uberoi M, Hayes JM, Thornton M, Kramer J, Punch LJ. The impact of retained bullet fragments on outcomes in patients with gunshot wounds. *The American Journal of Surgery* 2022;223:787–91. doi:10.1016/j.amjsurg.2021.05.022.
2	Apte A, Bradford K, Dente C, Smith RN. Lead toxicity from retained bullet fragments: A systematic review and meta-analysis. *Journal of Trauma and Acute Care Surgery* 2019;**87**:707–16. doi:10.1097/ta.0000000000002287.
3	Ayers L. The Lived Experience of American Red Cross Disaster Mental Health Responders on MCI – Mass Shooting Deployments. ProQuest Dissertations and Theses Global 2019.
4	Baker NS, VanHook C, Ricks T, Vil CSt, Lassiter T, Bonne S. Protect and provide: Perceptions of manhood and masculinities among disabled violently injured black men in a hospital-based violence intervention program. *American Journal of Men's Health* 2024;**18**. doi:10.1177/15579883231221390.
5	Barbato CA. "Embracing their memories": Accounts of loss and May 4, 1970. *Journal of Loss and Trauma* 2003;**8**:73–98. doi:10.1080/15325020305867.
6	Beardslee J, Mulvey E, Schubert C, Allison P, Infante A, Pardini D. Gun- and Non-Gun–related violence exposure and risk for subsequent gun carrying among male juvenile offenders. *Journal of the American Academy of Child & Adolescent Psychiatry* 2018;**57**:274–9. doi:10.1016/j.jaac.2018.01.012.
7	Bongiorno DM, Badolato GM, Boyle M, Vernick JS, Levy JF, Goyal MK. United States trends in healthcare charges for pediatric firearm injuries. *The American Journal of Emergency Medicine* 2021;**47**:58–65. doi:10.1016/j.ajem.2021.03.046.
8	Borg BA, Rabinak CA, Marusak HA. Violence exposure and mental health consequences among urban youth. *Current Psychology* 2021;**42**:8176–85. doi:10.1007/s12144-021-02141-4.
9	Boschert EN, Stubblefield CE, Reid KJ, Schwend RM. Twenty-two years of pediatric musculoskeletal firearm injuries: Adverse outcomes for the very young. *Journal of Pediatric Orthopaedics* 2020;**41**. doi:10.1097/bpo.0000000000001682.
10	Bruns A. Posttraumatic Growth and Spiritual Well-Being in Survivors of the Columbine High School Shooting. Regent University Doctoral Thesis. 2013.
11	Comer BP, Connolly EJ. Exposure to gun violence and handgun carrying from adolescence to adulthood. *Social Science & Medicine* 2023;**328**:115984. doi:10.1016/j.socscimed.2023.115984.
12	Czaja M, Kraus C, Phyo S, Olivieri P, Mederos D, Mohammed S, et al. Nonfatal injuries sustained in mass shootings in the US, 2012-2019: Injury diagnosis matrix, incident context, and public health considerations. *Western Journal of Emergency Medicine* 2023;**24**. doi:10.5811/westjem.58395.
13	Deng H, Yue JK, Winkler EA, Dhall SS, Manley GT, Tarapore PE. Pediatric firearm-related traumatic brain injury in United States Trauma Centers. *Journal of Neurosurgery: Pediatrics* 2019;**24**:498–508. doi:10.3171/2019.5.peds19119.
14	Douglas A, Rogers S. Survivor's remorse. Journal of Trauma and Acute Care Surgery 2023. doi:10.1097/ta.0000000000004175.
15	Felix ED, Dowdy E, Green JG. University student voices on healing and recovery following tragedy. *Psychological Trauma: Theory, Research, Practice, and Policy* 2018;**10**:76–86. doi:10.1037/tra0000172.
16	Fergus TA, Rabenhorst MM, Orcutt HK, Valentiner DP. Reactions to trauma research among women recently exposed to a campus shooting. Journal of Traumatic Stress 2011;**24**:596–600. doi:10.1002/jts.20682.
17	Greenspan AI, Kellermann AL. Physical and psychological outcomes 8 months after serious gunshot injury. *The Journal of Trauma: Injury, Infection, and Critical Care* 2002;**53**:709–16.

	doi:10.1097/00005373-200210000-00015.
18	Grills-Taquechel AE, Littleton HL, Axsom D. Social Support, world assumptions, and exposure as predictors of anxiety and quality of life following a mass trauma. *Journal of Anxiety Disorders* 2011;**25**:498–506. doi:10.1016/j.janxdis.2010.12.003.
19	Hawkins NA, McIntosh DN, Silver RC, Holman EA. Early responses to school violence. *Journal of Emotional Abuse* 2007;**4**:197–223. doi:10.1300/j135v04n03_12.
20	Herrera-Escobar JP, Rivero R, Apoj M, Geada A, Villanyi M, Blake D, et al. Long-term social dysfunction after trauma: What is the prevalence, risk factors, and associated outcomes? *Surgery* 2019;**166**:392–7. doi:10.1016/j.surg.2019.04.004.
21	Hink AB, Atkins DL, Rowhani-Rahbar A. Not all survivors are the same: Qualitative assessment of prior violence, risks, recovery and perceptions of firearms and violence among victims of Firearm Injury. *Journal of Interpersonal Violence* 2021;**37**. doi:10.1177/08862605211005157.
22	Holloway K, Cahill G, Tieu T, Njoroge W. Reviewing the literature on the impact of gun violence on early childhood development. *Current Psychiatry Reports* 2023;**25**:273–81. doi:10.1007/s11920-023-01428-6.
23	Hootman JM, Annest JL, Mercy JA, Ryan GW, Hargarten SW. National estimates of non-fatal firearm related injuries other than gunshot wounds. *Injury Prevention* 2000;**6**:268–74. doi:10.1136/ip.6.4.268.
24	Hureau DM, Wilson T, Rivera-Cuadrado W, Papachristos AV. The experience of secondary traumatic stress among Community Violence Interventionists in Chicago. *Preventive Medicine* 2022;**165**:107186. doi:10.1016/j.ypmed.2022.107186.
25	Johnson SD, North CS, Smith EM. Psychiatric Disorders Among Victims of a Courthouse Shooting Spree: A Three-Year Follow-Up Study. *Community Mental Health Journal* 2002;**38**:181–94. doi:10.1023/a:1015269521969.
26	Jones KA. A seat at the table: Centering the voices of gun violence survivors. *Pediatrics* 2020;**146**. doi:10.1542/peds.2020-015974.
27	Joseph B, Hanna K, Callcut RA, Coleman JJ, Sakran JV, Neumayer LA. The hidden burden of mental health outcomes following firearm-related injuries. *Annals of Surgery* 2019;**270**:593–601. doi:10.1097/sla.0000000000003473.
28	King C, Huang X. Neighbourhood violence and housing instability: An exploratory study of low-income women. *Housing Studies* 2022;**39**:651–70. doi:10.1080/02673037.2022.2074970.
29	Kwon EG, Wang BK, Iverson KR, O'Connell KM, Nehra D, Rice-Townsend SE. Interpersonal violence affecting the pediatric population: Patterns of injury and recidivism. *Journal of Pediatric Surgery* 2023;**58**:136–41. doi:10.1016/j.jpedsurg.2022.09.009.
30	Lal A, John KJ, Mishra AK, Sherif AA. Burden of firearm-related injuries as associated secondary diagnosis in the United States from National Inpatient Sample Dataset. *Internal and Emergency Medicine* 2023;**18**:457–65. doi:10.1007/s11739-022-03190-8.
31	Leibbrand C, Rivara F, Rowhani-Rahbar A. Gun violence exposure and experiences of depression among mothers. *Prevention Science* 2021;**22**:523–33. doi:10.1007/s11121-020-01202-7.
32	Lennon T, Kemal S, Heffernan ME, Bendelow A, Sheehan K, Davis MM, et al. Childhood exposure to firearm violence in Chicago and its impact on Mental Health. *Academic Pediatrics* 2024;**24**:982–6. doi:10.1016/j.acap.2023.12.001.
33	Liu SR, Kia-Keating M. A novel examination of exposure patterns and posttraumatic stress after a university mass murder. *Psychological Trauma: Theory, Research, Practice, and Policy* 2019;**11**:176–83. doi:10.1037/tra0000354.
34	Lumbard DC, Nygaard RM, Richardson CJ, Liao LF, Stewart RM, Eastridge BJ, et al. Burden of unintentional pediatric firearm injury: An examination of the nationwide readmission database. *Journal of Trauma and Acute Care Surgery* 2023;**95**:419–25. doi:10.1097/ta.0000000000003930.

35	Magee LA, Aalsma MC, Fortenberry JD, Gharbi S, Wiehe SE. Mental health outcomes from direct and indirect exposure to firearm violence: A cohort study of nonfatal shooting survivors and family members. *Journal of Criminal Justice* 2022;**83**:101961. doi:10.1016/j.jcrimjus.2022.101961.
36	Magee LA, Ortiz D, Adams ZW, Marriott BR, Beverly AW, Beverly B, et al. Engagement with mental health services among survivors of Firearm Injury. *JAMA Network Open* 2023;**6**. doi:10.1001/jamanetworkopen.2023.40246.
37	Mancini AD, Littleton HL, Grills AE. Can people benefit from acute stress? social support, psychological improvement, and resilience after the Virginia Tech campus shootings. *Clinical Psychological Scienc*e 2015;**4**:401–17. doi:10.1177/2167702615601001.
38	McCall WT. Caring for patients from a school shooting: A qualitative case series in emergency nursing. *Journal of Emergency Nursing* 2020;**46**. doi:10.1016/j.jen.2020.06.005.
39	McGee ZT, Logan K, Samuel J, Nunn T. A multivariate analysis of gun violence among urban youth: The impact of direct victimization, indirect victimization, and victimization among peers. *Cogent Social Sciences* 2017;**3**:1328772. doi:10.1080/23311886.2017.1328772.
40	McLaughlin K, Kar JA. Aftermath of the parkland shooting: A case report of post-traumatic stress disorder in an adolescent survivor. *Cureus 2019*. doi:10.7759/cureus.6146.
41	Mitchell KJ, Jones LM, Turner HA, Beseler CL, Hamby S, Wade R. Understanding the impact of seeing gun violence and hearing gunshots in public places: Findings from the Youth Firearm Risk and safety study. Journal of Interpersonal Violence 2019;**36**:8835–51. doi:10.1177/0886260519853393.
42	Molina O, Jacinto G, & Yegidis B. The Pulse Nightclub Mass Shooting, and Factors Affecting Community Resilience Following the Terrorist Attack. *Best Practices in Mental Health* 2019;**15**:2.
43	Molnar BE, Miller MJ, Azrael D, Buka SL. Neighborhood predictors of concealed firearm carrying among children and adolescents. Archives of Pediatrics & Adolescent Medicine 2004;**158**:657. doi:10.1001/archpedi.158.7.657.
44	Mooney EJ. The Effects of Witnessing a School Shooting on a Teacher's Career. Dissertation 2013. *https://doi.org/10.17760/d20003339*
45	Mueller KL, Cooper BP, Moran V, Lew D, Ancona R, Landman JM, et al. Incidence of and factors associated with recurrent firearm injury among patients presenting to St. Louis Trauma Centers, 2010 to 2019. *Annals of Internal Medicine* 2023;**176**:1163–71. doi:10.7326/m23-0069.
46	Nehra D, Bulger EM, Maier RV, Moloney KE, Russo J, Wang J, et al. A prospective US National Trauma Center Study of firearm injury survivors weapon carriage and posttraumatic stress disorder symptoms. *Annals of Surgery* 2021;**274**. doi:10.1097/sla.0000000000005043.
47	North CS. Three-year follow-up of survivors of a mass shooting episode. *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 2002;**79**:383–91. doi:10.1093/jurban/79.3.383.
48	O'Neill KM, Vega C, Saint-Hilaire S, Jahad L, Violano P, Rosenthal MS, et al. Survivors of gun violence and the experience of recovery. *Journal of Trauma and Acute Care Surgery* 2020;**89**:29–35. doi:10.1097/ta.0000000000002635.
49	O'Neill KM, Jean RA, Dodington J, Davis K, Becher RD. Evaluation of firearm-related Reinjury in Connecticut: An opportunity for gun violence prevention. *Journal of Surgical Research* 2022;**274**:23–30. doi:10.1016/j.jss.2021.12.009.
50	Oddo ER, Maldonado L, Hink AB, Simpson AN, Andrews AL. Increase in mental health diagnoses among youth with nonfatal firearm injuries. *Academic Pediatrics* 2021;**21**:1203–8. doi:10.1016/j.acap.2021.06.003.
51	Orlas CP, Thomas A, Herrera-Escobar JP, Price MA, Haider AH, Bulger EM. Long-term outcomes of firearm injury survivors in the United States. *Annals of Surgery* 2021;**274**:962–70. doi:10.1097/sla.0000000000005204.

52	Phillips R, Shahi N, Bensard D, Meier M, Shirek G, Goldsmith A, et al. Guns, scalpels, and sutures: The cost of gunshot wounds in children and adolescents. *Journal of Trauma and Acute Care Surgery* 2020;**89**:558–64. doi:10.1097/ta.0000000000002766.
53	Piskorik JM. A narrative inquiry into the influence of school shooting survival on college transition and experience. The Research Repository @ West Virginia University. 2020. https:// researchrepository.wvu.edu/etd/11616
54	Pulcini CD, Goyal MK, Hall M, De Souza HG, Chaudhary S, Alpern ER, et al. Mental health utilization and expenditures for children pre–post firearm injury. *American Journal of Preventive Medicine* 2021;**61**:133–5. doi:10.1016/j.amepre.2021.01.024.
55	Richardson JB, Wical W, Kottage N, Bullock C. Shook ones: Understanding the intersection of nonfatal violent firearm injury, incarceration, and traumatic stress among young black men. *American Journal of Men's Health* 2020;**14**. doi:10.1177/1557988320982181.
56	Richmond TS, Lemaire J. Years of life lost because of gunshot injury to the brain and spinal cord. American Journal of Physical Medicine & Rehabilitation 2008;**87**:609–18. doi:10.1097/ phm.0b013e31817fb496.
57	Rivara FP, Hink AB, Kuhls D, Banks S, Agoubi LL, Kirkendoll S, et al. Firearm injuries in Missouri. *PLOS ONE* 2023;**18**. doi:10.1371/journal.pone.0294737.
58	Rosas S, Gwam CU, Araiza ET, Roche MW, Emory CL, Carroll EA, et al. Economic impact of orthopaedic care for non-fatal gunshot wounds: Analysis of a public health crisis. *Annals of Translational Medicine* 2021;**9**:210–210. doi:10.21037/atm-20-1064.
59	Rowhani-Rahbar A, Zatzick D, Wang J, Mills BM, Simonetti JA, Fan MD, et al. Firearm-related hospitalization and risk for subsequent violent injury, death, or crime perpetration. *Annals of Internal Medicine* 2015;**162**:492–500. doi:10.7326/m14-2362.
60	Ryan J, Hawdon J. From individual to community: The "framing" of 4-16 and the display of Social Solidarity. *Traumatology* 2008;**14**:43–51. doi:10.1177/1534765607312686.
61	Sabri B, Campbell JC. Firearm-related risks and consequences for immigrant women in abusive relationships: Barriers to reporting threats to safety and recommendations for Safety Planning. *Journal of Aggression, Maltreatment & Trauma* 2023;**33**:407–31. doi:10.1080/10926771.2023.2224257.
62	Sarani B, Smith ER, Shapiro G, Nahmias J, Rivas L, McIntyre R, et al. Characteristics of survivors of civilian public mass shootings: An Eastern Association for the surgery of trauma multicenter study. *Journal of Trauma and Acute Care Surgery* 2021;**90**:652–8. doi:10.1097/ta.0000000000003069.
63	Semenza DC, Stansfield R. Non-fatal gun violence and Community Health Behaviors: A neighborhood analysis in Philadelphia. Journal of Behavioral Medicine 2021;**44**:833–41. doi:10.1007/s10865-021-00232-y.
64	Semenza DC, Stansfield R. Community gun violence and functional disability: An ecological analysis among men in four U.S. cities. *Health & Place* 2021;**70**:102625. doi:10.1016/ j.healthplace.2021.102625.
65	Semenza DC, Daruwala S, Brooks Stephens JR, Anestis MD. Gun violence exposure and suicide among Black Adults. *JAMA Network Open* 2024;**7**. doi:10.1001/jamanetworkopen.2023.54953.
66	Shockley AG. Co-Victims of Gun Violence: How Black Women Navigate Spaces of Trauma. *Temple University Dissertations* 2023.
67	Sillito CL, Salari S. Child outcomes and risk factors in U.S. homicide-suicide cases 1999–2004. *Journal of Family Violence* 2011;**26**:285–97. doi:10.1007/s10896-011-9364-6.
68	Smith RN, Seamon MJ, Kumar V, Robinson A, Shults J, Reilly PM, et al. Lasting impression of violence: Retained bullets and depressive symptoms. *Injury* 2018;**49**:135–40. doi:10.1016/ j.injury.2017.08.057.

69	Smith CP, Cheatham ML, Safcsak K, Emrani H, Ibrahim JA, Gregg M, et al. Injury characteristics of the pulse nightclub shooting: Lessons for Mass Casualty Incident Preparation. *Journal of Trauma and Acute Care Surgery* 2019;**88**:372–8. doi:10.1097/ta.0000000000002574.
70	Smith RN, Nedergaard RM, Meyer CH, DeSousa N, Ghosh M, Blount Q, et al. Psychological impacts of retained bullets from the perspective of survivors. *The American SurgeonTM* 2023;**89**:3732–8. doi:10.1177/00031348231171121.
71	Smith R. Virginia Secondary-School Counselors' Descriptions of Student Reactions to National Mass Shootings. Dissertation 2020.
72	Song Z, Zubizarreta JR, Giuriato M, Paulos E, Koh KA. Changes in health care spending, use, and clinical outcomes after nonfatal firearm injuries among survivors and family members. *Annals of Internal Medicine* 2022;**175**:795–803. doi:10.7326/m21-2812.
73	Song Z, Zubizarreta JR, Giuriato M, Koh KA, Sacks CA. Firearm injuries in children and adolescents: Health and economic consequences among survivors and family members. *Health Affairs* 2023;**42**:1541–50. doi:10.1377/hlthaff.2023.00587.
74	Spearman KJ, Marineau L, Owolabi A, Alexander KA, Campbell J. Firearms and post-separation abuse: Providing context behind the data on firearms and intimate partner violence. *Journal of Advanced Nursing* 2023;**80**:1484–96. doi:10.1111/jan.15933.
75	Spinuzzi A. Mass Shootings and Trauma: A Qualitative Study on How Survivor Perception Affects Trauma Response. The Chicago School of Professional Psychology ProQuest Dissertations & Theses 2022. 29325083.
76	Spitzer SA, Forrester JD, Tennakoon L, Spain DA, Weiser TG. A decade of hospital costs for firearm injuries in the United States by region, 2005–2015: Government Healthcare costs and firearm policies. *Trauma Surgery & Acute Care Open* 2022;**7**. doi:10.1136/tsaco-2021-000854.
77	Turner HA, Mitchell KJ, Jones LM, Hamby S, Wade R, Beseler CL. Gun violence exposure and posttraumatic symptoms among children and Youth. *Journal of Traumatic Stress* 2019;**32**:881–9. doi:10.1002/jts.22466.
78	Vella MA, Warshauer A, Tortorello G, Fernandez-Moure J, Giacolone J, Chen B, et al. Long-term functional, psychological, emotional, and social outcomes in survivors of firearm injuries. *JAMA Surgery* 2020;**155**:51. doi:10.1001/jamasurg.2019.4533.
79	Vicary AM, Fraley RC. Student reactions to the shootings at Virginia Tech and Northern Illinois University: Does sharing grief and support over the internet affect recovery? *Personality and Social Psychology Bulletin* 2010;**36**:1555–63. doi:10.1177/0146167210384880.
80	Vinall DJ. Massacre Survivor Syndrome: Trauma Sequelae and Life Adjustment in Survivors of Mass Shootings Treated with EMDR. Dissertation 2020.
81	Wallace JG, Chernet R, Formica MK, Adeonigbagbe O, Flores RL, Marchesani R, et al. Gun violence and the voices of youth on Community Safety in the time of covid-19 in East Harlem, NY: A youth participatory action research cross-sectional study. *Injury Epidemiology* 2023;**10**. doi:10.1186/s40621-023-00440-x.
82	Webb PB, Jimenez J, Elder A, Cotte AO, Ravichandran A, Holbrook E, et al. Exploring lived experiences of gunshot wound survivors: A key to ethnographically informed public health interventions for curbing firearm violence. *Injury* 2024;**55**:111240. doi:10.1016/j.injury.2023.111240.
83	Weigend Vargas E, Hemenway D. Emotional and physical symptoms after gun victimization in the United States, 2009–2019. *Preventive Medicine* 2021;**143**:106374. doi:10.1016/j.ypmed.2020.106374.
84	Wintemute GJ, Aubel AJ, Pallin R, Schleimer JP, Kravitz-Wirtz N. Experiences of violence in daily life among adults in California: A population-representative survey. *Injury Epidemiology* 2022;**9**. doi:10.1186/s40621-021-00367-1.

85	Zeineddin S, Zeineddin A, Jain A, Olufajo OA, Koolaee S, Cornwell EE, et al. Disfiguring firearm injuries in children in the United States. *The American SurgeonTM* 2021;**89**:2070–2. doi:10.1177/00031348211023432.
86	Zhao P. Minor feelings in the wake of the Atlanta Attack: How a mom of Asian descent spent the first 100 hours in the aftermath. *Cultural Studies ↔ Critical Methodologies* 2021;**21**:351–4. doi:10.1177/15327086211019954.
87	Zuo Y, Pino EC, Vyliparambil M, Kalesan B. Sex differences in early cardiovascular and all-cause hospitalization outcomes after surviving firearm injury. *American Journal of Men's Health* 2018;**12**:1029–38. doi:10.1177/1557988318761989.

Appendix 2A. Interview Topic Guide

Project Title: The Ripple Effects of Firearm Violence
Principal Investigator: Deanna Marie Giraldi, MPH
Core Faculty Review: Dr. David K. Humphreys

Section A

1. Welcome & introduction (2-3 mins)

"Hi! Thanks so much for making time to talk today. My name is Deanna and I am a researcher at the University of Oxford. I'm conducting a study exploring the impacts of firearm exposure on individuals, their families, and wider communities in the United States. I really appreciate your willingness to share your experiences of firearm violence with me today."

2. Purpose of the interview

a. Explanation

"The purpose of this interview is to better understand the experiences of those who have either directly or indirectly experienced firearm violence in the US. I'm interested in physical, mental, and social changes that might have taken place in the aftermath. Your perspective is really valuable, and your insights could help improve the services and support offered to people in similar situations."

b. The Participants' Role

"There are no right or wrong answers…what's most important is your perspective and experience. This conversation is entirely voluntary. You're free to skip any question or stop the interview at any time for any reason, without any consequences. If at any point you feel uncomfortable or would like to take a break, just let me know. Additionally, there will be a list of immediate access and long-term resources emailed to you at the end of the interview."

3. Clarify logistics and confidentiality (3-4 mins)

"*The interview will last up to 60 mins. You're welcome to take a break at any time or let me know if you'd like to stop for any reason."*

a. Confirm recording

"With your permission, I'd like to record this session to make sure I capture everything accurately. The recording will be kept confidential and only used for analysis. Is that okay?"

b. Reassure about confidentiality

"I also want to assure you that everything you share today will be kept strictly confidential. Your name or any identifying details won't be linked to your responses in any reports or publications that come from this study. If I share any direct quotes from this interview, they will be completely anonymized."

4. Address any questions

Before we begin, do you have any questions?

Section B – You and your experiences

1) Tell me about yourself.
   a) Where are you from? What state do you call home?
   b) How would you describe yourself?
   c) What are your hobbies/interests?
   d) To what identities do you feel most attached?

2) I'd like to invite you to share your experience(s) with firearm violence.
   a) When/what was/were your experience(s) with firearm violence?
      i) When and where did this occur? How old were you at the time?
      ii) Were you alone?
      iii) What thoughts or feelings are coming up for you as you are sharing your story?
   b) When you first experienced the incident of gun violence, what kind of response(s) did you have?
      i) This can include financial responses, emotional responses, physical responses, and spiritual responses.
   c) What were your greatest needs at that time? What did you need the most help with?
      i) Follow up: [Depending on time since event] What about X months/years later? Did your needs change over time?
   d) Did you speak about your experience with anyone at the time?
      i) What about since then?
   e) What was most helpful to you in the aftermath of the violence? The most hurtful?
   f) Do you feel that this experience changed - strengthened or weakened - any of your identities?

3) Have you experienced any additional instances of firearm violence – either directly or indirectly?
   a) Were these different types of firearm violence?
   b) Were the impacts in the aftermath different?
   c) What was your greatest need during this experience?
   d) Most helpful / most harmful?

4) What has your journey of healing or coping looked like since your experience?

5) Have you felt supported by others in processing your experience? Who or what has been most helpful?

Section C – The impact of your experience on others

6) Mapping the ripples

If you had to estimate a number of people who were impacted by the incident of gun violence that you experienced, what would that number be? This may include immediate family members or other people who do not have a familial relationship.

7) How did your experience impact those around you?

a) Did anyone directly take care of you?

b) Who were you living with?

c) Did you tell your colleagues/classmates/family about the experience?

i) Did this lead to mental, physical, social, emotional, or spiritual changes in their lives? If so, what?

ii) Did your relationships with family and friends change after the experience? If so, how?

Section D – Identity in the aftermath

8) In your demographic questionnaire, you did/did not identify as a survivor - can you explain?

a) Do you think the identity of "survivor" is important to your experience? Why/why not?

b) Is there a term or way of describing yourself that feels more accurate?

9) What does being a "survivor" mean to you in the context of firearm violence?

10) Have you participated in any communities or organizations focused on firearm violence or survivorship?

a) If so, what role have they played in your life?

11) In your opinion, how can survivors/people who have experienced firearm violence be better supported?

12) If you could tell people in the United States something about experiencing/surviving firearm violence, what would it be?

a) Is there anything you wish people better understood about survivors of firearm violence?

Section E. Final thoughts

13) Are there any other aspects of your experience that you'd like to share?

14) Do you feel as if there is anything I have missed, or that you would like to add?

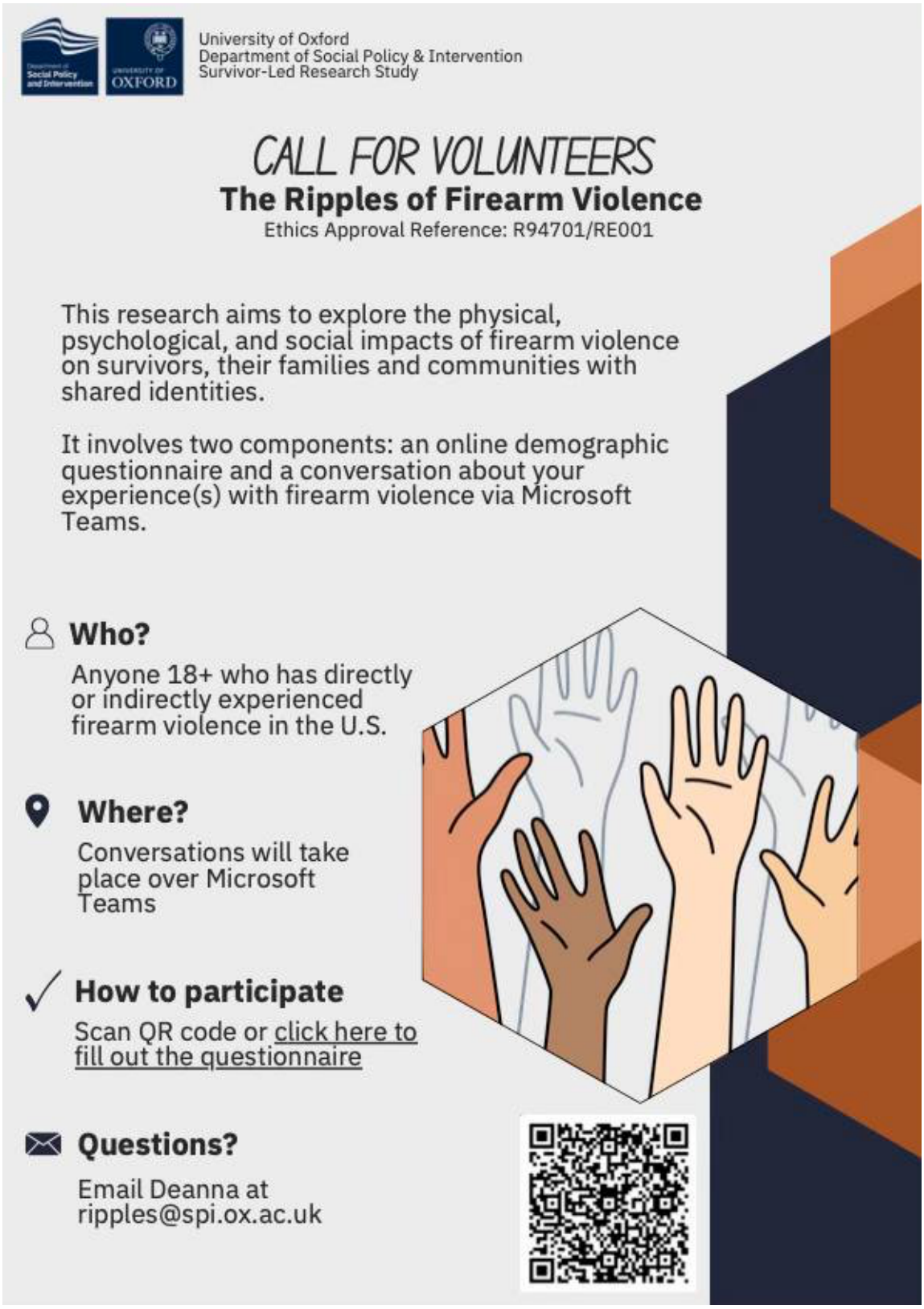
Section F. Next steps

"I will send an email with a number of resources for your well-being - there are trained professionals available 24/7 if you would like to debrief or speak further about anything that came up for you during our talk. Do you have any questions for me?"

Section G. Thank you

"Thank you so much for your time! I'll follow-up with you via email shortly!"

Appendix 2B. Recruitment Flyer



Appendix 2C. Recruitment Matrix

Typology	Approximate % (of U.S. adults)	Notes / Rationale	Count	Target
Physically wounded / injured by gunfire	~ 4-5%	The KFF data shows ~4% injured by a gun. (Health Education Partners)	7	2
Firsthand witness of a shooting	~ 17-20%	From "witnessed someone being shot" (~17%) plus some who were "present at shootings/mass shootings" (7%) (Health Education Partners)	18	7
Relational (secondary trauma via loss/injury of loved ones)	~ 19-20%	The "family member killed by a gun" is ~19%; and "family member injured" is ~16% per KFF. Overlap in reporting to be expected. (Health Education Partners)	12	7
Chronic exposure survivor (ongoing exposure to gun violence in community / repeated exposure, environment)	~ 25-35%	This is less well quantified. The "total who've had any of these experiences or someone in family has" is ~54%, so subtracting wounded, witness, relational leaves a chunk for chronic exposure. Also the Rutgers figure of 64% having some in-person exposure suggests many with more diffuse exposure. So "chronic exposure" might cover around a quarter to a third of adults.	17	19
Totals			*Many participants reported more than one exposure.	35
Race		Notes / Rationale		
Black	~ 40%	This overrepresents Black relative to U.S. population (≈13–14%) but reflects their much higher risk of being directly or relationally impacted by gun violence.	16	14
White	~ 45%	White people make up the majority of population and vast majority of suicides, leaving behind bereaved family members.	9	16
Mixed / Other	~ 15%	This includes multiracial, Asian, Native American, Hispanic.	8	5
Totals			33	35
Gender		Notes / Rationale		
Male	≈ 50%	To reflect their higher share in lethal & nonfatal violence exposure and ensure enough male participants for comparisons.	12	17
Female	≈ 45%	To capture the substantial number of women impacted (especially through bereavement or through IPV/gun threat).	20	16

Non-binary / Other gender-diverse	≈ 5%	To include representation of nonbinary people (even though data is limited), without overestimating beyond likely prevalence in gun violence surveys.	1	2
Totals			33	35
Income band		The U.S. Census reports real median household income ~$83,730 in 2024. The income distribution is skewed: ~30% of households fall below $50,000, while 55% earn more than $75,000. Oversample low income relative to their population share		
Under $25k	~ 20%	Approximately 13.5% of households earn below this amount. Oversampling to reflect the share of very low earners and the heavier burden of violence in low-income communities.	6	7
$25k–49k	~ 25%	Around 16.7% of households earn this; still low to moderate income so oversampling to reflect heavier GV burden.	3	~9
$50k–75k	~ 25%	Approximately 17.5% of households; less overrepresented in violence exposure, so moderate sampling.	10	~9
$75k+	~ 30%	Around 55% of households earn more than $75,000; however, only around 10% earn over $150,000 so under sampling.	14	~10
Totals			33	35
Age group				
18–25	20%	Approximately 10% of the U.S. population. Higher direct and witness exposure rates.	6	7
26–35	25%	Peak risk age range for nonfatal injury and homicide. CDC data show firearm homicide rates are highest among ages 20–34.	11	9
36–45	25%	Still elevated exposure; mix of direct, witness, and relational experiences.	6	8
46–55	15%	Strong representation of relational and community exposure.	6	5
56–65	10%	Relational and chronic exposure (loss of family).	2	4
66–75	5%	Lower direct exposure, but some relational trauma.	2	2
Totals			33	35

Region		Rationale: National firearm data (CDC, 2023–2024)		
South	40%	Highest firearm homicide and exposure rates.	17	14
Midwest	20%	Moderate firearm homicide and community exposure.	4	7
West	25%	High firearm suicide and community exposure rates in some areas.	4	9
Northeast	15%	Lowest rates but needed for national balance	8	5
Totals			33	35
Education Level				
High school	~25%	Heavier exposure concentration; lower educational attainment strongly correlates with higher gun violence risk.	1	8
Some college	~25%	Heavier concentration; many lower-middle income participants in affected communities.	6	7
Associate	10%	Moderate exposure; transitional education group.	4	4
Bachelor	20%	Often represents upward mobility and relational exposure rather than direct.	13	8
Masters	10%	Smaller share, mostly relational or chronic exposure.	7	4
Professional	5%	Limited but should be represented.	2	2
Doctorate	5%	Rare; included for representational completeness.	0	2
Totals			33	35