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Violence Policy Center



The Relationship Between Community Violence and Trauma

How violence affects learning,
health, and behavior

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The mission of the Violence Prevention Coalition of Greater Los Angeles is to unify and strengthen voices of member organizations and individuals committed to ending the epidemic of violence by providing education, resources and policy advocacy.

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INTRODUCTION

Research on trauma is frequently featured in mainstream news outlets, pointing to its connection to a range of behavioral and health outcomes. While trauma can have multiple interpretations, for the purposes of this report, it is the result of experiencing or witnessing chronic and sustained violence, or specific events that can have lasting effects on individuals. Researchers have identified 13 distinct types of trauma, including community violence. Community violence is an umbrella term that encompasses experiencing or witnessing firearms violence as well as exposure to drug markets. In addition to the commonly understood, more immediate impacts of gun violence on the victims and their friends and family, this report will provide an overview of the consequences of community violence on health and well-being, specifically illuminating the impact of trauma caused by the longer-term, frequently cumulative effects of living with the fear of violence.

This report is intended for members of the gun violence prevention community and policymakers and is designed to provide a foundation of key concepts and research on trauma in the context of gun violence in an easily accessible format.

What mark, beyond the physical, do bullets leave?

BACKGROUND

For years, gun violence prevention and reduction focused primarily on topics such as homicide and injury rates, the relationship between perpetrator and victim, improvements in emergency care, and calculating the cost to society. Very rarely included was the subject of how gun violence more broadly impacts the individuals and affected communities. And as community violence is not evenly distributed across neighborhoods in the United States, it is important to note that residents who experience a greater share of the types of events that comprise community violence tend to be people of color. While community violence is a blanket phrase that includes a variety of behaviors, gun violence is perhaps the most prevalent. As evidence of the centrality of firearms in community violence, a ranking of the top 10 leading causes of violence-related deaths in 2015 puts homicide involving a firearm first among 15- to 34-year-olds.¹ And a ranking of the 10 leading causes of violence-related injury deaths lists homicide involving a firearm as the number one cause of death for all ages combined for both blacks and Hispanics.² For the purposes of comparison, overall for non-Hispanic whites homicide with a firearm ranks fourth.³ Further, analysis of homicide victims in 2015 reveals that 83 percent of black homicide victims were killed with a firearm.⁴

Given that the most recent available national estimates show that more than 70 percent of injuries involving gun violence are non-fatal,⁵ it's worthwhile to consider the impact on individuals who witness or survive acts of violence. What mark, beyond the physical, do bullets leave? These questions have historically been the domain of therapists and psychologists left to manage the aftermath. However, advances in recent brain

science research have bridged these two worlds, connecting community violence with short- and long-term consequences in behavior, health, and well-being.

EMERGING BRAIN SCIENCE

Emerging brain science research has become a growing source of information contributing to our understanding of behavior and health outcomes. The 1990s are often referred to as the “Decade of the Brain” because of the enormous insights into how the brain works as well as innovative imaging technology that now allows for new ways to visualize the brain.⁶ Further, these advances have led to more sophisticated techniques for examining the interaction between the brain, the environment, and resulting behavior. In 2013, the *New York Times* pronounced that the next frontier in science is “inside your brain” while then-President Obama, in an announcement regarding his BRAIN Initiative,⁷ went so far as to compare the mapping of the brain to the “space race” of the 1960s.⁸ These advances in brain science have enabled researchers to map areas of the brain and identify neural activity as a result of a range of environmental stimuli, for the first time detecting specific regions of the brain that “light up” when activated. A growing body of research has begun documenting the measurable differences in brain development and function in individuals who have been exposed to early life adversity, meaning their environments have been characterized by sustained stress resulting from violence, neglect, abuse, and dysfunction. Science can now demonstrate that these neural differences are the direct result of traumatic experiences, the consequences of living with toxic stress.

EARLY LIFE ADVERSITY AND TOXIC STRESS

Findings from brain science research have led to the identification of early life adversity, also known as ‘adverse childhood experiences’ (ACEs), and toxic stress as strong precursors and predictors of negative outcomes later in life. ACEs are defined as stressful or traumatic experiences that include abuse, neglect, or household dysfunction. Examples of abuse include physical, emotional, or sexual abuse; neglect can include both physical and emotional neglect; while household dysfunction can involve experiences such as an incarcerated parent, witnessing domestic violence, growing up with substance abuse, mental illness, parental discord, or crime in the home.⁹ It is the prevalence of ACEs that result in high levels of chronic stress that, in the absence of protective relationships, become toxic. While ACEs pertain to experiences at the individual level, traumatic environments at the community level also contribute to toxic stress. For example, high-crime neighborhoods where gun violence, drug sales, and gang activity are prevalent are significant sources of toxic stress.

HOW TOXIC STRESS IS DIFFERENT¹⁰

Positive Stress	Brief increases in heart rate and mild elevations in stress hormone
Tolerable Stress	Serious, temporary stress response buffered by supportive relationships
Toxic Stress	Prolonged activation of stress response systems in the absence of protective relationships

The link between childhood experiences and later life health was uncovered in what is now regarded as a pioneering study published in 1998 by Dr. Vincent Felitti and Dr. Robert Anda. The two physicians discovered the connection between childhood experiences and health later in life through working with patients in their

health appraisal clinic. The research examined a total of more than 17,000 adult Kaiser Permanente patients, who were surveyed in two waves of data collection about trauma experienced during their childhood. The responses were reviewed together with participants' medical histories. The researchers found that more than half of the mostly white participants, the majority of whom had attended or graduated college, indicated they had one or more adverse childhood experiences. The authors concluded that they "...found a strong graded relationship between the breadth of exposure to abuse or household dysfunction during childhood and multiple risk factors for several of the leading causes of death in adults."¹¹ In other words, the higher the number of ACEs one experienced, the higher the risk for disease and illness.

The recognition that ACEs are causally linked to poor behavior and health consequences later in life has laid the foundation for a quickly expanding body of research into the implications of traumatic experiences on a host of biological and behavioral indicators, including explorations into mental health, chronic disease, educational outcomes, and increased likelihood of criminal behavior.

WHY ARE WE TALKING ABOUT ACES?

What does trauma have to do with gun violence? It turns out that ACEs are the result of traumatic experiences – examples of which include living in violent communities characterized by gun violence, living in persistent fear, as well as historic racism and oppression. Brain scans and neural mapping have revealed *how* traumatic experiences alter neural development – and altered neural development has implications for health and behavior. One way this happens is that traumatic experiences trigger the stress response in the body.

Strong and persistent activation of the body's stress response systems (i.e., increases in heart rate, blood pressure, and stress hormones such as cortisol and cytokines) can result in the permanent disruption of brain circuits during the sensitive periods in which they are maturing.¹²

Most people are familiar with what happens to the body when it's under duress: pupils dilate; the heart pumps faster; and, the body is flooded with adrenaline. Experiencing stressful situations that are relatively brief is a normal and expected part of life. However, when the body experiences prolonged, sustained exposure to stressful environments, often referred to as *toxic stress* in the literature, the result can be weakened or impaired systems that negatively affect brain development with lasting consequences. This is especially critical for young children whose brains are still developing.

Those who live in high-crime neighborhoods marked by elevated levels of community violence are at an increased risk for experiencing toxic stress – and altered neural development. Community violence is one of 13 types of trauma, discussed in greater detail below.

HOW STRESS AFFECTS THE BRAIN

When a young child's stress response systems are activated within an environment of supportive relationships with adults, these physiological effects are buffered and brought back down to baseline. The result is the development of healthy stress response systems. However, if the stress response is extreme and long-lasting, and buffering relationships are unavailable to the child, the result can be damaged, weakened systems and brain architecture, with lifelong repercussions.

Center on the Developing Child, Key Concepts of Toxic Stress

For further reading: http://developingchild.harvard.edu/key_concepts/toxic_stress_response/

TYPES OF TRAUMA

Most people recognize the circumstances that cause trauma, especially those featured prominently in the news such as head trauma resulting from football injuries or veterans suffering from war-related post-traumatic stress disorder (PTSD). However, few are aware that there are 13 discrete types of trauma, including community violence, identified by The National Child Traumatic Stress Network.¹³

Community Violence	Complex Trauma	Domestic Violence	Early Childhood Trauma	Medical Trauma
Natural Disasters	Neglect	Physical Abuse	Refugee and War Zone Trauma	School Violence
	Sexual Abuse	Terrorism	Traumatic Grief	

Community violence is defined as, "Exposure to intentional acts of interpersonal violence committed in public areas by individuals who are not intimately related to the victim."¹⁴ Examples of this type of violence include gang disputes, bullying, and shootings that take place at school or in the neighborhood. Community violence is both a *type* of trauma and a *dimension* of trauma. Community violence is a type of trauma when it's describing the kind of violence that contributes to unhealthy development, such as defined above. Community violence is a *dimension* of trauma when it's used to designate who is affected by the violence – such trauma can occur at the individual or interpersonal or community level. For example, an individual who has experienced trauma at the individual level such as physical abuse, may also reside in a violent neighborhood, where the trauma of community violence is also present.

When a kid grows up in poverty with chronic discrimination, and sometimes various forms of child maltreatment, and is also exposed to community violence, it's a pile-on effect. It's like they're growing up in a war zone. It changes their developmental pathways."¹⁵

When more than one type of trauma occurs, often over a sustained period of time, it is referred to as *complex trauma*. Individuals with complex trauma are more likely to develop PTSD, which is classified as a type of mental health disorder.

The emergent research has illuminated relationships between traumatic experiences and a wide range of negative outcomes. While individuals can be exposed to different forms of violence – such as domestic violence or violence that occurs at school, this report focuses on the impact of community violence and reviews implications across three domains, including: learning and development; mental health and behavior; and, chronic illness. The following sections explore these domains in greater detail.

IMPACT OF TRAUMA

Since the late 1980s, researchers have recognized the potential for harm as a result of exposure to persistent and sustained community violence.¹⁶ As gun violence and drug sales spiked at the end of the 1980s and continued into the early 1990s, the impact of living in these conditions was addressed. A review of this research reveals a significant connection between exposure to community violence and psychological symptoms expressed both internally, such as depression and anxiety, and externally, such as aggressive and violent behavior.¹⁷ Further, for youth and adolescents living in urban areas, estimates of exposure to some type of violence range from 50 percent to 96 percent.¹⁸ This includes experiencing or witnessing the most extreme kinds of community violence first-hand— such as shootings, stabbings, and assaults— as well as less serious but prevalent types of violence, such as robberies or drug dealing.¹⁹ As the co-author of recent research examining the effects of gun violence on adolescent mental health stated, “Exposure to violence involving highly lethal weapons is associated with higher trauma symptoms, over and above exposure to all other types of violence, making it a strong contributor to adolescent depression, anxiety and aggression.”²⁰ Researchers have also discovered that development can be negatively impacted even if individuals are not directly exposed to violent events.²¹ As a result of the pervasive and continuous violence, some researchers have come to draw parallels between violent communities and war zones, where there is “no foreseeable end to the combat.”²² According to a Philadelphia-based emergency room doctor:

It was clear...that patients...who land in the hospital with knife or gun wounds, can have more than bodily injuries. They often also suffer the psychological trauma we normally associate with war or catastrophic natural disasters.²³

Researchers describe how the pervasive fear of violence contributes to residents' sense that they are continually at risk for victimization, particularly if they've been personally victimized.²⁴ The views of the same

emergency room doctor were summarized as such: “People suffering severe psychological trauma live on a hair trigger...Some crime victims who never carried a gun start carrying after they are attacked, determined that next time they will shoot first.”²⁵

This condition, where one’s safety is perceived to be in constant jeopardy has been referred to as *collective traumatization*. Living in constant fear has clear repercussions on learning and development, discussed in greater depth in the following section.

LEARNING & DEVELOPMENT

Research findings have left little doubt that exposure to traumatic experiences impact how people develop and navigate their surroundings. Exposure is directly correlated with changes at the individual level, such as altered neural development and impaired learning as well as influencing the way people interact with their world. These changes have implications beyond the interpersonal. They can result in diminished academic achievement and reduced career aspirations while negatively influencing later performance in the workplace and the community.^{26 27}

Research...does clearly show that children exposed to violence are at greater risk of various developmental problems.²⁸

When people experience high levels of sustained stress, their bodies respond by adapting to the stressful environment. Most often, this takes place when the body’s stress response system has been activated. Without the buffers or supports to help the body return to a normal state, such as a sense of safety or a caring adult, the body remains at this heightened state – the fight, flight, or freeze response. During this state, the body is flooded with adrenaline and cortisol – two hormones that assist the body in survival mode. However, when there is no relief, no return to safety, and the body remains in fight-or-flight mode, it experiences a prolonged and harmful strain, which results in a disruption in the development of brain circuitry. This is especially true for young children whose brains are at a critical time of development.

Chronic activation of the body’s stress response systems has been shown to disrupt the efficiency of brain circuitry and lead to both immediate and long-term problems in learning, behavior, and both physical and mental health.²⁹

Prolonged exposure to stress has been shown in animal studies to impede the development of the part of the brain responsible for executive functions, such as making and following plans, controlling and focusing attention, inhibiting impulsivity, and decision-making.³⁰ The consequences include difficulty learning, following rules, and controlling behavior which can manifest in poor academic performance and a resultant increase in delinquency,³¹ as well as reduced attendance and graduation rates.³² For example, one study of elementary school children who had witnessed or experienced numerous violent events found on average

that they scored seven points lower on IQ assessments, and nearly 10 points lower in reading ability.³³ Diminished academic achievement among youth who witness community violence has also been shown to persist over time, underscoring the long-term impact of such damage.³⁴

Further, there is evidence that when individuals live in constant fear for their own safety or those around them, such as may result from residing in a violent community, the body responds by incorporating fearfulness into a more generalized outlook, where every situation holds the potential to bring about harm.³⁵ Tony Thompson, a social worker with Healing Hurt People, a Philadelphia-based program, describes this phenomenon as, “You look at the world differently: Every action, every movement is about creating a sense of safety.”³⁶

Remaining in a constant state of fear also traps an individual in a state of chronic emotional and physiological hyperarousal.³⁷ Research has revealed that children who have experienced high levels of trauma “develop a persistent, low-level fear, and respond to threats either with dissociation (separating certain ideas or emotions from the rest of their mental activity to avoid stress or anxiety) or with an unusually heightened state of arousal.”³⁸ The impact on behavior is that affected individuals lose the ability to differentiate between threat and safety – for example, reading an ambiguous facial expression as menacing and angry.³⁹

This has implications for how those affected develop relationships across all areas of their life. For example, there is evidence that chronic fear can compromise one’s ability to form trusting relationships, where automatic wariness and suspicion evolve as survival strategies.⁴⁰ These neural adaptations to violent surroundings are so pervasive researchers have shown that they persist even when an individual is removed from an unsafe environment, and it is no longer necessary to regard others as untrustworthy.⁴¹ Additionally, these lasting effects have been shown to inhibit the development of confidence and a secure sense of self.⁴² Finally, evidence points to the transmission of generalized fear between traumatized parents to their children, who witness their caregivers’ response to living amid community violence, resulting in generations ‘sharing’ the impact of community violence.

Researchers have further associated generalized fear with setting the foundation for the development of mental health and anxiety disorders such as post-traumatic stress disorder.⁴³ The impact of community violence on mental health is addressed in the following section.

Consequences of Community Violence on Learning and Development

- Reduced academic performance, lower education and career aspirations
- Difficulty forming trusting relationships
- Impaired development of the prefrontal cortex (the part of the brain responsible for executive functions such as making and following plans, focusing attention, controlling impulsive behaviors, and integrating information to inform decision-making)
- Inability to differentiate between threat and safety
- Inhibited development of confidence and a secure sense of self

MENTAL HEALTH & BEHAVIOR

In addition to the effects on learning and development, exposure to trauma stemming from community violence has been linked to a host of mental-health issues that negatively impact emotional wellbeing and behavior.⁴⁴ Recent research reveals that “Exposure to violence involving highly lethal weapons is associated with higher trauma symptoms, over and above exposure to all other types of violence, making it a strong contributor to adolescent depression, anxiety and aggression.”⁴⁵ Some of the most critical mental-health issues include post-traumatic stress disorder (PTSD), depression, substance abuse, sleep disturbance, and suicidal ideation. Of these, PTSD is most frequently and strongly associated with exposure to community violence.⁴⁶ PTSD is defined by the Mayo Clinic as, “a mental health condition that’s triggered by a terrifying event — either experiencing it or witnessing it. Symptoms may include flashbacks, nightmares and severe anxiety, as well as uncontrollable thoughts about the event.”⁴⁷ When violence occurs in shared spaces, as is so frequently the case with community violence, victims and witnesses who suffer from PTSD are likely to be triggered by memories every time they pass the scene of the event, leading to changes in behavior patterns.⁴⁸

Individuals who suffer from PTSD may manifest a dangerous combination of hyper-vigilance with an impaired ability to regulate their behavior, resulting in explosive behavior and overreactions to perceived threats. In this way, the cycle of violence becomes clear – acts of violence create behavior in individuals who then beget violent acts. As one journalist has noted, “Violence creates trauma, but trauma also creates violence. Hurt people hurt people. People with PTSD are hypervigilant, seeing disrespect where none exists. They self-medicate with alcohol and drugs. They are emotionally numb, indifferent to death.”⁴⁹

As the most frequently recognized mental health issue associated with community violence, PTSD is not only a diagnosis, but also a kind of emotional prison that prevents people from healing and moving forward in their lives, even impacting younger generations. The age at which youth experience violence has been shown to predict the severity of symptoms. For example, children who are exposed to violence prior to age 11 are three times more likely to develop PTSD than children over age 12.⁵⁰

Exposure to community violence appears to represent a unique form of trauma that is particularly associated with the development of PTSD symptoms, especially among children and adolescents.⁵¹

Further, research points to the transgenerational transmission of PTSD, where children whose parents suffer from PTSD are more likely to be victimized themselves – that is, experience interpersonal violence – as well as to develop PTSD when they mature.⁵²

In addition to PTSD, research has consistently identified an association between community violence and a long list of mental health symptoms such as dissociation, depression, and anxiety,⁵³ as well as what one group of researchers refers to as “pathological adaptations” which include desensitization to violence, fatalistic thoughts, hopelessness, and stunted moral maturity.⁵⁴

It is important to note that these are many of the characteristics frequently used to describe someone who's perceived to feel no remorse – a trait often cited in court cases.

Repeated trauma can lead to anger, despair, and severe psychic numbing, resulting in major changes in personality and behavior.⁵⁵

The combination of altered neural development with the subsequent potential for development of mental health issues lays the groundwork for changes in behavior stemming from violence exposure. Research consistently reveals a connection between community violence trauma and conduct disorders such as disruptive and aggressive behavior, delinquency, violent crime, and child abuse,⁵⁶ noting that youth will often mimic the behavior and attitudes displayed around them – which can result in the normalization of the use of aggression.⁵⁷ As violent and aggressive behavior is viewed as the norm, communities engage in a perpetuation of violence as young children come to see this as the way problems are solved. Specifically among children and adolescents, exposure to violence can lead to aggressive behavior and an inability to control behavior.⁵⁸

Additional research has revealed that there is a direct relationship between exposure to violence and the intensity of the resultant symptoms – the greater the exposure, the higher the manifestation of symptoms.⁵⁹ Further, these symptoms are experienced differently between genders. Adolescent girls are more likely to suffer from depression and withdrawal, while boys more frequently display hypersensitivity to perceived threats.⁶⁰

Consequences of Community Violence on Mental Health

- Increased incidence of anger, anxiety, dissociation, and post-traumatic stress disorder
- Increased incidence of substance abuse, sleep disturbance, and suicidal ideation
- Increased incidence of withdrawal or hypersensitivity to perceived threat
- Creates opportunity for transgenerational effects on mental health
- Intrusive thoughts about traumatic event(s)
- Increased incidence of “pathological adaptations” including desensitization to violence, fatalistic thoughts, hopelessness, and stunted moral development

Consequences of Community Violence on Behavior

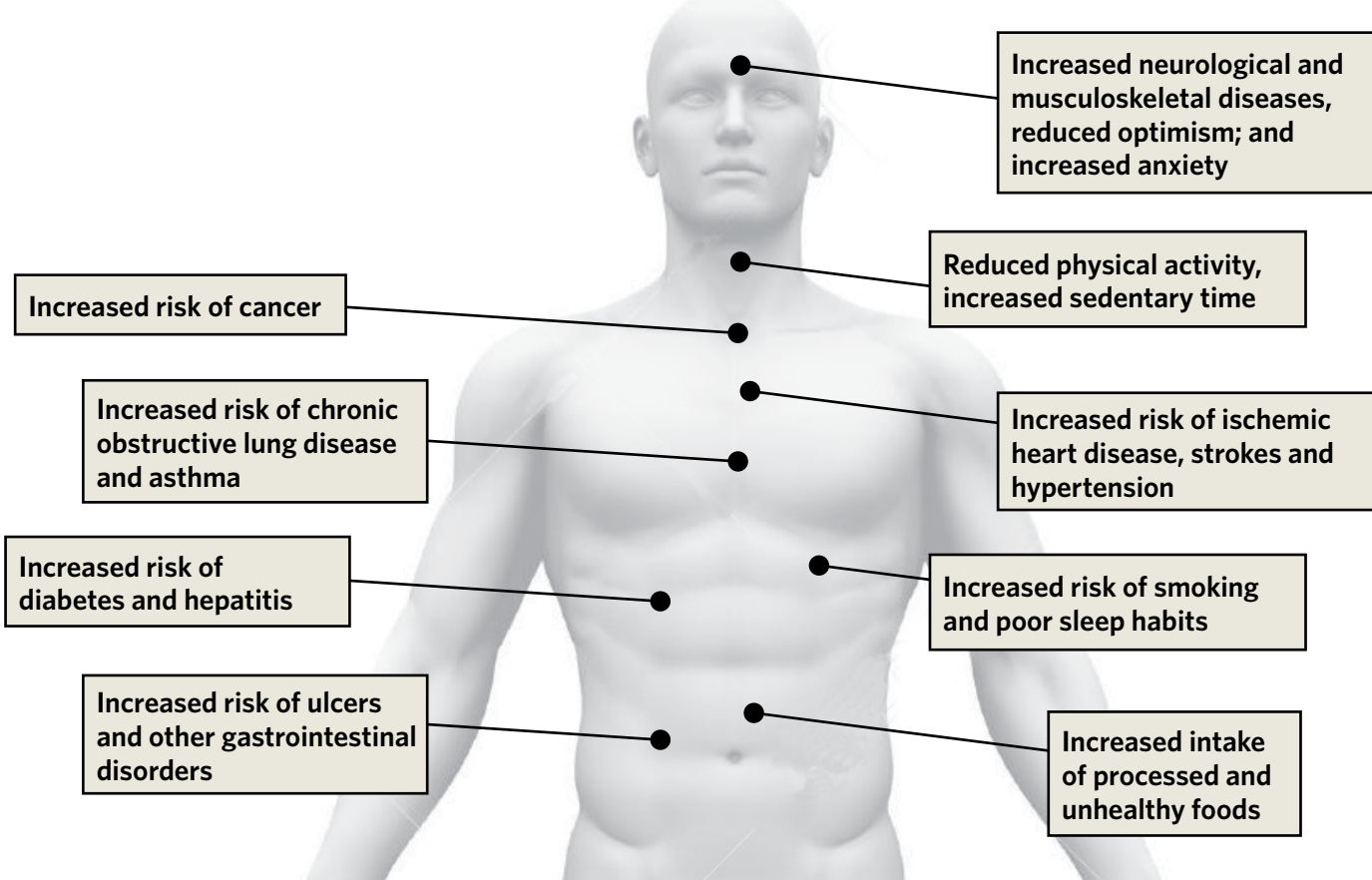
- Increased likelihood of emotional and conduct problems
- Increased incidence of externalizing problems, such as deviant and aggressive behavior
- Increased likelihood of imitating witnessed behaviors and potential normalization of the use of aggression
- Increased likelihood of teens' perpetuating the cycle of violence by engaging in violent acts themselves
- Increased likelihood of displaying behavior including aggression, delinquency, violent crime, and child abuse
- Increased likelihood of responding either by withdrawing emotionally or by lashing out with unnecessary violence

CHRONIC ILLNESS

Just as with development and mental health, living with violence has documented, negative consequences on one's physical health and has been connected to a wide range of chronic illnesses and debilitating disease.⁶¹ Overwhelming evidence suggests that community and other forms of trauma may cause illnesses or aggravate existing conditions.⁶² Individuals who are affected by community trauma are more likely to suffer from asthma, unhealthy eating habits and activity levels, heart disease and hypertension, ulcers and gastrointestinal disorders, diabetes, neurological and musculoskeletal diseases, and lung disease.⁶³

The physical cost to residents of exposure to community violence can be broad and deep – affecting nearly every aspect of life – from accessibility of healthy food options to the amount of physical exercise one receives. The following graphics, adapted from The Prevention Institute's Fact Sheet on *Violence and Chronic Illness* identifies the range of health problems that have been linked to exposure to violence.⁶⁴

SCOPE OF HEALTH ISSUES ASSOCIATED WITH EXPOSURE TO VIOLENCE



The evidence strongly suggests that the health impacts from exposure to violence can be devastating to those who are affected. There are debilitating consequences that reduce the quality of life as well as lifespan, and incur enormous costs both to the individual as well as to society.

SUMMARY

This report offers resounding evidence that individuals living in communities where violence is prevalent are at increased risk for a broad range of negative health and behavior outcomes. In the context of gun violence prevention, research suggests that living in violent communities compromises residents' ability to break intergenerational cycles of violence. Without large-scale interventions, a neighborhood becomes effectively unable to protect itself against the perpetuation of a culture that is normed in violence. As one observer has noted, there is no post in the post-traumatic stress experienced by many.

Across the three domains – *learning and development*, *mental health and behavior*, and *chronic illness* – research consistently links violence exposure with outcomes that predispose individuals to be less likely to be healthy and raise healthy children, less likely to live in safe communities, and less likely to complete their schooling and maintain employment.

Impact on Learning and Development

- Disrupts brain development causing lower impulse control and impaired ability to concentrate, make decisions, and follow instructions

- Reduces academic performance, lowers education and career aspirations

Impact on Mental Health and Emotional Wellbeing

- Increases incidence of PTSD, substance abuse, and suicide

- Causes hypersensitivity to threats and desensitization to violence

Impact on Behavior

- Causes aggressive, violent behavior

- Increases acceptance of violence as a legitimate response, leads to perpetuation of cycle of violence

Impact on Chronic Illness

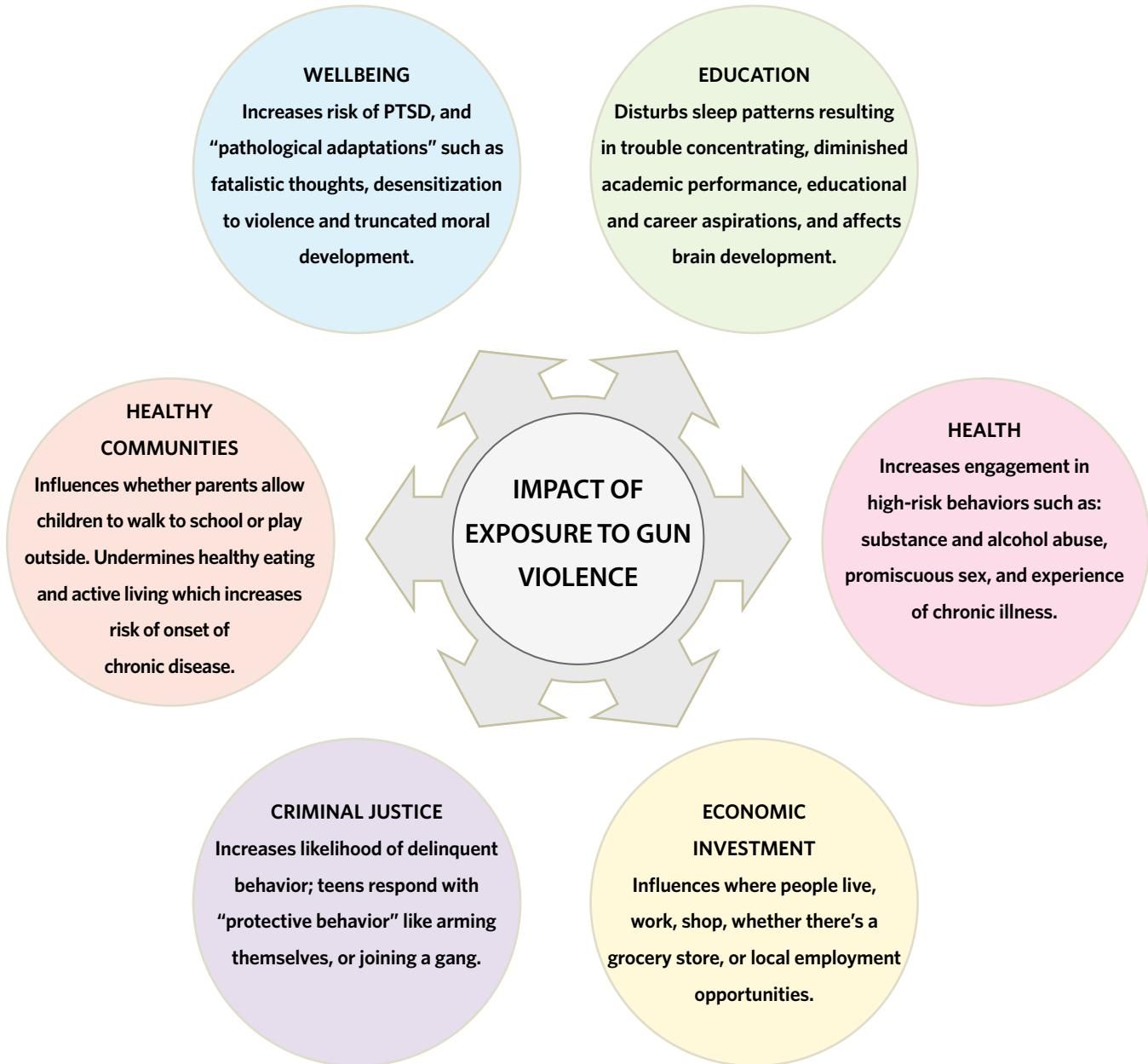
- Increases risk for heart disease, diabetes, cancer, and asthma

- Increases risk for obesity and reduced physical activity

The graphic on the next page provides a summary of the many damaging ways in which gun violence can harm individuals and the communities in which they live.

Efforts to mediate the effects of community violence in individuals include education around reducing the prevalence of toxic stress and strengthening relationships between youth and their caregivers. Interventions that occur when children are young have shown to be successful in reducing negative outcomes later in life through helping to stabilize both the child and his/her parent or caregiver. Further, there has been an increase in raising awareness around the impact of childhood trauma in the mainstream media.

An increased understanding of how trauma influences development, health, and behavior can lead to changes in the way many social services are delivered as well as policy at the local and federal levels. In the gun violence prevention community, perhaps the knowledge will help inform strategies that will not only reduce the number of weapons-related deaths, but will address some of the root causes.



POLICY RECOMMENDATIONS

Policy recommendations to aid in the reduction of trauma, and the lethal violence that helps promulgate it, include the following.

- Provide training on recognizing trauma, and developing skills to address it with staff who are most likely to encounter individuals who have experienced the impact of community violence. These include:
 - Medical settings such as emergency rooms, primary care and pediatrician settings and first responders such as emergency medical technicians;
 - Criminal and juvenile justice entities including law enforcement, probation, and the courts;
 - Individuals who work in the community as outreach workers or advocates;
 - Places of worship;
 - Social services and general assistance such as Medicare, disability, and mental and behavioral health agencies;
 - Education settings such as elementary, middle, and high schools, as well as school-based health clinics.
- Continue to raise awareness on the detrimental impact of firearms in communities, beyond concerns related to lethality, including:
 - Increases in mental, physical, and behavioral health issues;
 - Depressed economic viability for business and employment options;
 - Reduced educational achievement and ability to find and keep a job;
 - Increased likelihood of criminal justice involvement.
- Increase investment in community-based organizations to enable high-quality, targeted services to individuals who are in need. This may include resources for additional training, hiring of staff, management information systems to facilitate data collection, and/or expansion of existing programming.
- Support replication and expansion of effective community-based violence reduction and/or intervention initiatives that work to prevent violence within communities while at the same time connecting residents to job readiness and employment opportunities as well as mental health services.

- Implement more robust and timely data gathering and analysis related to gun death and injury and the associated trauma, including expansion of the National Violent Death Reporting System (NVDRS) and the National Incident Based Reporting System (NIBRS). Efforts should also be made to release such government data in a more timely fashion.
- Identify the types of firearms and ammunition magazines most closely associated with gun death and injury in the most impacted communities and the methods most commonly employed to introduce firearms into those communities.
- Explore anti-trafficking measures that could help interrupt the flow of illegal firearms to impacted communities.
- Develop public education campaigns and outreach materials to educate communities at risk regarding the risks of firearms in the home.

GLOSSARY OF TERMS

Adverse Childhood Experience (ACEs) and early life adversity

Defined as stressful or traumatic experiences that include abuse, neglect and household dysfunction.

Collective traumatization

A traumatic psychological event experienced by a group of individuals that may include a whole society. When a large group or whole community has observed traumatic events, they may arouse collective sentiment that can cause a shift in behavior and culture.

Community violence

Exposure to intentional acts of interpersonal violence committed in public areas by individuals who are not intimately related to the victim.

Complex Trauma

Describes both children's exposure to multiple traumatic events, often of an invasive, interpersonal nature, and the wide-ranging, long-term impact of this exposure. These events are severe and pervasive, such as abuse or profound neglect. They usually begin early in life and can disrupt many aspects of the child's development and the very formation of a self. Since they often occur in the context of the child's relationship with a caregiver, they interfere with the child's ability to form a secure attachment bond. Many aspects of a child's healthy physical and mental development rely on this primary source of safety and stability.

Positive stress

Brief increases in heart rate and mild elevation in stress hormones.

Tolerable stress

Serious, temporary stress response buffered by supportive relationships

Toxic Stress

Prolonged activation of stress response systems in the absence of protective relationships.

ENDNOTES

1. Centers for Disease Control and Prevention, WISQARS database, "10 Leading Causes of Violence-Related Injury Deaths, United States, 2015, All Races, Both Sexes," accessed March 20, 2017 (<http://www.cdc.gov/injury/wisqars/index.html>).
2. Centers for Disease Control and Prevention, WISQARS database, "10 Leading Causes of Violence-Related Injury Deaths, United States, 2015, Black, Non-Hispanic, Both Sexes" and "10 Leading Causes of Violence-Related Injury Deaths, United States, 2015, Hispanic, Both Sexes," accessed March 20, 2017 (<http://www.cdc.gov/injury/wisqars/index.html>).
3. Centers for Disease Control and Prevention, WISQARS database, "10 Leading Causes of Violence-Related Injury Deaths, United States, 2015, White, Non-Hispanic, Both Sexes," accessed March 20, 2017 (<http://www.cdc.gov/injury/wisqars/index.html>).
4. Centers for Disease Control and Prevention, WISQARS database, calculations by Violence Policy Center. In 2015 there were 9,038 black homicide victims, 7,515 of which were killed with a firearm. Accessed February 14, 2017 (<http://www.cdc.gov/injury/wisqars/index.html>).
5. Centers for Disease Control and Prevention, WISQARS database, calculations by Violence Policy Center. In 2014 there were 33,599 fatal gun deaths and 81,304 non-fatal firearm injuries. Accessed May 31, 2016 (<http://www.cdc.gov/injury/wisqars/index.html>).
6. National Institute of Mental Health Strategic Plan (<http://www.nimh.nih.gov/about/strategic-planning-reports/index.shtml>).
7. "The Next Frontier Is Inside Your Brain," *Editorial Observer, The New York Times*, February 23, 2013. "President Obama is making new investments in the "BRAIN" Initiative — a bold new research effort to revolutionize our understanding of the human mind and uncover new ways to treat, prevent, and cure brain disorders like Alzheimer's, schizophrenia, autism, epilepsy, and traumatic brain injury," September 30, 2014 (<https://www.whitehouse.gov/share/brain-initiative>).
8. "Fact Sheet: BRAIN Initiative," White House press release, April 2, 2013 (<https://www.whitehouse.gov/the-press-office/2013/04/02/fact-sheet-brain-initiative>).
9. Substance Abuse and Mental Health Services Administration (SAMHSA), "Adverse Childhood Experiences," accessed May 31, 2016 (<http://www.samhsa.gov/capt/practicing-effective-prevention/prevention-behavioral-health/adverse-childhood-experiences>).
10. Adapted from *Excessive Stress Disrupts the Architecture of the Developing Brain: Working Paper 3, Updated Edition*, National Scientific Council on the Developing Child, 2005/2014 (<http://www.developingchild.harvard.edu>, http://46y5eh11fhgw3ve3ytpwxt9r.wpengine.netdna-cdn.com/wp-content/uploads/2005/05/Stress_Disrupts_Architecture_Developing_Brain-1.pdf).
11. Felitti, V.J., Anda, R.F., et al., "Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study," *American Journal*

of *Preventive Medicine*, 1998 May; 14(4), 245-258. "We found a strong graded relationship between the breadth of exposure to abuse or household dysfunction during childhood and multiple risk factors for several of the leading causes of death in adults" (<http://www.ncbi.nlm.nih.gov/pubmed/9635069>).

12. National Scientific Council on the Developing Child, *The Timing and Quality of Early Experiences Combine to Shape Brain Architecture: Working Paper #5*, 2007 (<http://www.developingchild.net>).
13. The National Child Traumatic Stress Network, "Types of Traumatic Stress" (<http://www.nctsn.org/trauma-types>).
14. The National Child Traumatic Stress Network, "Community Violence" (<http://www.nctsn.org/trauma-types/community-violence>).
15. "Battling America's Other PTSD Crisis," *Yahoo News*, March 6, 2015 (<http://news.yahoo.com/battling-america-s-other-ptsd-crisis-194336514.html>).
16. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M. Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
17. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M. Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
18. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M. Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
19. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M. Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
20. "Gun Violence Takes Toll on Kids' Mental Health, Study Finds," *HealthDay News* June 8, 2015 (<https://consumer.healthday.com/mental-health-information-25/child-psychology-news-125/kids-exposure-to-weapons-may-be-tied-to-mental-health-woes-700118.html>) in reference to Mitchell, Kimberly J., Hamby, Sherry L., Turner, Heather A., Shattuck, Anne, and Lisa M. Jones, "Weapon Involvement in the Victimization of Children," *Pediatrics*, Volume 136, number 1, July 2015 (<http://pediatrics.aappublications.org/content/early/2015/06/03/peds.2014-3966.full.pdf+html>).
21. *Violence & Youth, Report of the American Psychological Association Commission on Violence and Youth* (1993) p. 42 (<http://www.apa.org/pubs/info/reports/violence-youth.aspx>).

22. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M. Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
23. "Battling America's Other PTSD Crisis," *Yahoo News*, March 6, 2015 (<http://news.yahoo.com/battling-america-s-other-ptsd-crisis-194336514.html>).
24. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M. Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
25. "Battling America's Other PTSD Crisis," *Yahoo News*, March 6, 2015 (<http://news.yahoo.com/battling-america-s-other-ptsd-crisis-194336514.html>).
26. Saltzman, W.R., Pynoos, R.S., Layne, C.M., et al, "Trauma- and grief-focused intervention for adolescents exposed to community violence: Results of a school-based screening and group treatment protocol," *Group Dynamics: Theory, Research, and Practice* (2001) 5(4), 291-303 and Layne, C.M., Pynoos, R.S., and Cardenas, J., "Wounded adolescence: School-based group psychotherapy for adolescents who sustained or witnessed violent injury," *School Violence: Assessment, Management, Prevention*, M. Shafii, M. and Shafii, S., eds., American Psychiatric Press, Washington, DC, 2001, 163-186.
27. Fox, N.A. and Shonkoff, J.P., "How persistent fear and anxiety can affect young children's learning, behaviour and health," *Early Childhood Matters*, June 2011 (http://earlychildhoodmagazine.org/wp-content/uploads/2012/01/ECM116_How-persistent-fear-and-anxiety-can-affect-young-c_2.pdf).
28. "Community violence and young children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>).
29. Fox, N.A. and Shonkoff, J.P., "How persistent fear and anxiety can affect young children's learning, behaviour and health," *Early Childhood Matters*, June 2011 (http://earlychildhoodmagazine.org/wp-content/uploads/2012/01/ECM116_How-persistent-fear-and-anxiety-can-affect-young-c_2.pdf).
30. Fox, N.A. and Shonkoff, J.P., "How persistent fear and anxiety can affect young children's learning, behaviour and health," *Early Childhood Matters*, June 2011 (http://earlychildhoodmagazine.org/wp-content/uploads/2012/01/ECM116_How-persistent-fear-and-anxiety-can-affect-young-c_2.pdf) and Reider, C., and Cicchetti, D., "Organizational perspective on cognitive control functioning and cognitive-affective balance in maltreated children," *Developmental Psychology* (1989), 25, 382-393.
31. Garbarino, James, Bradshaw, Catherine P., and Vorrasi, Joseph A., "Mitigating the Effects of Gun Violence on Children and Youth," *The Future of Children, Children, Youth, and Gun Violence*, Vol 12 (2), Summer/Fall 2002.
32. "Violence and Learning," Prevention Institute fact sheet (<http://www.preventioninstitute.org/component/jlibrary/article/id-301/127.html>).

33. "Violence and Learning," Prevention Institute fact sheet (<http://www.preventioninstitute.org/component/jlibrary/article/id-301/127.html>).
34. "Violence and Learning," Prevention Institute fact sheet (<http://www.preventioninstitute.org/component/jlibrary/article/id-301/127.html>).
35. Fox, N.A. and Shonkoff, J.P., "How persistent fear and anxiety can affect young children's learning, behaviour and health," *Early Childhood Matters*, June 2011 (http://earlychildhoodmagazine.org/wp-content/uploads/2012/01/ECM116_How-persistent-fear-and-anxiety-can-affect-young-c_2.pdf).
36. "Battling America's Other PTSD Crisis," *Yahoo News*, March 6, 2015 (<http://news.yahoo.com/battling-america-s-other-ptsd-crisis-194336514.html>).
37. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M., Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
38. Garbarino, James, Bradshaw, Catherine P., and Vorrasi, Joseph A., "Mitigating the Effects of Gun Violence on Children and Youth," *The Future of Children, Children, Youth, and Gun Violence*, Vol 12 (2), Summer/Fall 2002, p. 76.
39. Fox, N.A. and Shonkoff, J.P. , "How persistent fear and anxiety can affect young children's learning, behaviour and health," *Early Childhood Matters*, June 2011 (http://earlychildhoodmagazine.org/wp-content/uploads/2012/01/ECM116_How-persistent-fear-and-anxiety-can-affect-young-c_2.pdf) and Perry, B.D., Pollard, R.A., Blakley, T.L., et al., "Childhood Trauma, the Neurobiology of Adaptation, and Use-dependent Development of the Brain: How States become Traits," *Infant Mental Health Journal*, Vol. 16, No. 4, Winter 1995 16(4), 271-291 (https://childtrauma.org/wp-content/uploads/2013/09/State_Trait_95.pdf).
40. "Community violence and young children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>).
41. "Community violence and young children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>).
42. "Community violence and young children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>).
43. Fox, N.A. and Shonkoff, J.P., "How persistent fear and anxiety can affect young children's learning, behaviour and health," *Early Childhood Matters* (2011), 116, 8-14 (<http://www.bernardvanleer.org/Hidden-violence-Protectingyoung-children-at-home>).

44. Cecil, Charlotte A.M., Viding, Essi, Barker, Edward D., Guiney, Jo, and McCrory, Eamon J., "Double disadvantage: The influence of childhood maltreatment and community violence exposure on adolescent mental health," *Journal of Child Psychology and Psychiatry*, 55:7 (2014) (<http://onlinelibrary.wiley.com/doi/10.1111/jcpp.12213/pdf>).
45. "Gun Violence Takes Toll on Kids' Mental Health, Study Finds," *HealthDay News* June 8, 2015 (<https://consumer.healthday.com/mental-health-information-25/child-psychology-news-125/kids-exposure-to-weapons-may-be-tied-to-mental-health-woes-700118.html>) quote from Kimberly J. Mitchell in reference to Mitchell, Kimberly J., Hamby, Sherry L., Turner, Heather A., Shattuck, Anne, and Lisa M. Jones, "Weapon Involvement in the Victimization of Children," *Pediatrics*, Volume 136, number 1, July 2015 (<http://pediatrics.aappublications.org/content/early/2015/06/03/peds.2014-3966.full.pdf+html>).
46. "Community violence and young children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>) and Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M., Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf) and Foster, Holly and Brooks-Gunn, Jeanne, "Effects of Physical Family and Community Violence on Child Development," *Encyclopedia on Early Childhood Development*, October 2011 (<http://www.child-encyclopedia.com/activite-physique/according-experts/effects-physical-family-and-community-violence-child-development>) and Garbarino, James, Bradshaw, Catherine P., and Vorrasi, Joseph A., "Mitigating the Effects of Gun Violence on Children and Youth," *The Future of Children, Children, Youth, and Gun Violence*, Vol 12 (2) Summer/Fall 2002.
47. The Mayo Clinic. Diseases and Conditions: Post-traumatic stress disorder (<http://www.mayoclinic.org/diseases-conditions/post-traumatic-stress-disorder/basics/definition/con-20022540>).
48. Garbarino, James, Bradshaw, Catherine P., and Vorrasi, Joseph A., "Mitigating the Effects of Gun Violence on Children and Youth," *The Future of Children, Children, Youth, and Gun Violence*, Vol 12 (2) Summer/Fall 2002 and Bell, C.C., and Jenkins, E.J., "Traumatic Stress and Children," *Journal of Health Care for the Poor and Underserved*, 1991 2(1), 175-188.
49. "Battling America's Other PTSD Crisis," *Yahoo News*, March 6, 2015 (<http://news.yahoo.com/battling-america-s-other-ptsd-crisis-194336514.html>).
50. Garbarino, James, Bradshaw, Catherine P., and Vorrasi, Joseph A., "Mitigating the Effects of Gun Violence on Children and Youth," *The Future of Children, Children, Youth, and Gun Violence*, Vol 12 (2), Summer/Fall 2002, p. 77.
51. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M., Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).

52. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M., Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
53. Augustyn, Marilyn, Frank, Deborah A., Posner, Michael, and Zuckerman, Barry, "Children Who Witness Violence, and Parent Report of Children's Behavior," *Arch Pediatr Adolesc Med.*, August 2002, 156(8), 800-803 (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2366171/>) and Singer, Mark, and Trina, Menden Anglin, Song, Li yu, and Lunghofer, Lisa, "Adolescent's Exposure to Violence and Associated Symptoms of Psychological Trauma," *JAMA*. 1995, 273(6), 477-482.
54. Garbarino, James, Bradshaw, Catherine P., and Vorrasi, Joseph A., "Mitigating the Effects of Gun Violence on Children and Youth," *The Future of Children, Children, Youth, and Gun Violence*, Vol 12 (2), Summer/Fall 2002, p. 76.
55. Garbarino, James, Bradshaw, Catherine P., and Vorrasi, Joseph A., "Mitigating the Effects of Gun Violence on Children and Youth," *The Future of Children, Children, Youth, and Gun Violence*, Vol 12 (2), Summer/Fall 2002.
56. "Community violence and young children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>).
57. Fowler, Patrick J., Tompsett, Carolyn J., Braciszewski, Jordan M., Jacques-Tiura, Angela J., and Baltes, Boris B., "Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents," *Development and Psychopathology*, 21 (2009), 227-259 (http://psych.colorado.edu/~willcutt/pdfs/fowler_2009.pdf).
58. Augustyn, Marilyn, MD, Frank, Deborah A., MD, Posner, Michael, MS, and Zuckerman, Barry MD, "Children who witness violence and Parent report of children's behavior," *Arch Pediatr Adolesc Med.* 2002 Aug; 156(8), 800-803 (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2366171/>) and Cooley-Quille, M.R., Turner, S.M., Beidel, D.C., "Emotional impact of children's exposure to community violence: a preliminary study," *J Am Acad Child Adolesc Psychiatry*, 1995 Oct; 34(10),1362-8.
59. "Community Violence and Young Children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>).
60. "Community Violence and Young Children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>).
61. "Community Violence and Young Children: making space for hope," *Early Childhood Matters*, November 2012, Bernard van Leer Foundation (<http://bernardvanleer.org/Community-violence-and-young-children-making-space-for-hope>).

- 62. *Fact Sheet: Violence and Chronic Illness*, The Prevention Institute
(<http://www.preventioninstitute.org/component/jlibrary/article/id-301/127.html>).
- 63. *Fact Sheet: Violence and Chronic Illness*, The Prevention Institute
(<http://www.preventioninstitute.org/component/jlibrary/article/id-301/127.html>).
- 64. *Fact Sheet: Violence and Chronic Illness*, The Prevention Institute
(<http://www.preventioninstitute.org/component/jlibrary/article/id-301/127.html>).



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