The Effects of Gun Violence Exposure on the Mental Health of Low-Income Students

In Loving Memory of Otilio "Nico" Martinez

CONTENT WARNING: Gun Violence, Murder, Death, Racism, and Gang Violence

By Georgia Steinheimer

Otilio “Nico” Martinez, a friend I knew through mutual friends, was in Richmond, California, walking home from work late one Monday night, September 19th of 2016, when he was shot 43 times at close range with four high-power assault weapons. Contrary to racist and classist ideologies that often surround shootings in communities of racial minorities or low-income residents, Nico had no gang affiliation and was not tied to any street business. Two other shootings that led to death were propagated by the North Richmond gang, “Swerve Team,” within 45 days of Nico’s death. FBI Special Assistant Bertram reported that “There are individual victims with no connection at all to [Swerve Team]. Their intent was to intimidate and scare.” There were also 14 other attempted murders by them within 8 months, as well as two carjackings, one home-invasion burglary, six armed robberies, and four home burglaries. Authorities also said that more than 200 guns were taken off of the streets as a result of the investigation (Hurd and Gartrell, 2018).

Nico was close to many people I knew. He was only 18 years old. I vividly remember first hearing about his death. It was the first week of Fall quarter in my very first year as an undergraduate student at the University of California Santa Barbara. I was standing around the island table in the kitchen of my best friend from high school, who was also an undergraduate student at UCSB. We were joking around per usual when suddenly her face turned very serious and I knew something was wrong. She said, “Nico was shot and killed in Richmond.” I was frozen. All throughout high school, I had known dozens of people from all over the Bay Area who had lost friends and family to gun violence. A girl I shared many high school classes and a few conversations with had so many commemorative shirts and Instagram posts, that it seemed like she was losing a new friend each month. I had never experienced the loss of a loved one to a

violent death. I didn't even know Nico that well, but I knew what a lasting impression he had on everyone around him: always with a huge smile on his face, with a radiant, light-hearted demeanor. He never found justice.

Neither did Omar Taylor, a 24-year-old father of a 3-year-old baby girl and native of Pittsburg, California, who was killed in a mass shooting in an Orinda Airbnb house party on Halloween of 2019. Darrion Jones, a 25-year-old native of Richmond, told the Guardian that he believed that one of the only reasons the Orinda Halloween shooting made the national news in the first place was because it happened in a small, wealthy town, with little history of gun violence. However, he said that the reaction that followed the media coverage was not the typical reaction to a mass shooting. "[If] it's an inner-city area, that kind of stuff gets looked over because people think it's common." Christine Chalmers, an Orinda resident living on the block of the shooting, said that some of her neighbors' reactions left her in disappointment with their "ungenerous" comments (Clayton, 2019).

Cheryl Sudduth, the commissioner of the county's Racial Justice Oversight Body, captured the sentiment well, stating, "If her name was Alison instead of Tiyon, if his name was Michael instead of Omar, if these children were white or if it was one of your kids, would you still be okay with this coverage? I guarantee the answer is not yes. People see a white child as a victim, but a Black child is seen as part of the circumstances. People say, 'What do you think happens when you have a party with more than a few of you?'" She describes much of the news coverage about gun violence victims of color who are from lower-income communities: "They'll tell you as if you're talking about the weather...Like it's no big deal" (Clayton, 2019). This perception rings true in most of these cases.

Another prime example of this occurred in my first year at El Cerrito High School, when a boy who I shared elementary school classes with, Kenneth Singleton, was shot and left for dead by two men trying to steal his shoes. The bullet traveled through his back to his upper stomach, leaving him in a coma. He was rushed into the ICU and endured five hours of surgery. Luckily, he survived the incident. However, the local news forum, the Albany Patch, contained a story which was followed by many comments chalking the situation up to the use or sale of drugs in the area that he and his friends were located, on the path behind the El Cerrito BART (Bay Area Rapid Transit) Station. Yet, this was not the case whatsoever (KTVU, 2016).

Race and Class Discrimination and Barriers

Biased coverage and media depict men of color as criminals, and thus, the violence is seen as justified. Young boys of color from urban communities experience these stereotypes, and in turn, do not receive the same social mourning the way that a white person is mourned in the media. Jim MacMillan, a researcher at the University of Missouri says that there is a "discrepancy in coverage." Activists say these racial and class disparities in which only some victims are viewed as "innocent" have long been around (Clayton, 2019).

On top of racial discrimination, victims, witnesses, and others affected by living in the vicinity of this violence are commonly ignored when they are from low-income communities. In 2015, 81% of the 12,979 firearm homicides in the United States occurred in urban areas, and there is even more discrepancy in racially and ethnically diverse areas of large cities. One example comes from 2014 in Philadelphia's safest police district, which is approximately 85% white, where there were no reports of murder by gun violence, yet, the district with highest rate of violence, with an approximately 90% Black population, had 189 shooting victims and 40

deaths (Mitchell & Bromfield, 2019). On average, death by homicide for Black folks in the United States is eight times higher than that of white folks (Mitchell & Bromfield, 2019). This rate is even steeper for certain age ranges (see Figure 1).

Figure 1

Disproportionate Gun Homicide Rates for Black Men

Adapted from USA: In The Line of Fire: Human Rights and the Gun Violence Crisis by Amnesty International, 2018,.

Amnesty International has shown concern about government violation of international law in urban communities, including human rights to life, freedom from discrimination, equal protection of the law, and security of the person. The UN Working Group of Experts on People of African Descent and the UN Human Rights Committee and the Committee on the Elimination

of All Forms of Racial Discrimination expressed worry for racial and ethnic minorities as well (Amnesty International, 2018).

Critical race theory helps us understand how people of color are affected by cultural perceptions of race, as victims of systemic racism. While it is apparent in American society that mass shootings involving white people are a social issue, for urban communities of color it is seen as an unrelated, individualized matter. While violence in inner-city neighborhoods is not unheard of, it is mentioned in short in media such as newscasts, and even then rarely results in a call to action. This portrayal of people of color preserves the myth that gun violence is mainly the result of stereotypes like Black-on-Black crime. Statistically, people most often commit crimes where they live, and because segregated neighborhoods live on in the United States through deliberate neoliberal policy decisions, people tend to commit crimes against people of the same race. This type of narrative of Black-on-Black crime leaves Black people and other racial minorities to fix "their" problems on their own (Mitchell & Bromfield, 2019). This is deeply connected to barriers to treatment faced by these populations.

Prejudices towards children in high crime areas lead to many difficulties in receiving timely assistance after occurrences of community violence. This includes an attitude that all efforts with these kids won't have much impact because of already having negative life circumstances, and it is also assumed that kids are accustomed to trauma and other effects of violence after continual exposure. However, research findings from *The Journal of Traumatic Stress* would suggest the opposite. Each instance's effect can be additive in harm, and appropriate resources can increase the child's resiliency (Pynoos & Nader, 1988).

The Journal of Traumatic Stress also describes other roadblocks families face in accessing resources. The Victim/Witness Assistance Program in California reimburses victims and witnesses of criminal violence for medical and psychological services. Staff members set up an office within the school after an elementary school sniper attack in order to assist applications to the program,. However, numerous families were hesitant to become involved with a government agency due to worries about immigration status and cultural biases, and these roadblocks impeded their access to services. Yet, their eligibility to register had passed after a year, when they were still worried by their kid's continued changes in behavior or academics. Therefore, it is important to promptly address these political and cultural barriers when implementing mental health programs in areas with diverse populations and high rates of violence (Pynoos & Nader, 1988).

Other barriers to treatment include a lack of local healthcare facilities due to disinvestment in communities of color. The levels of violence caused by lack of social services in the community also consequently leads to poor medical staff retention, which causes services to avoiding locating themselves in areas with the most violence, where they are needed most. This is visible in Chicago, where the West and South Sides have one tenth of the health care provider options compared to the primarily white and affluent North Side. Police interventions like curfews can close down healthcare services as well. However there are often issues even when the provider can be physically accessed, considering the cost of medical insurance. Systemic abandonment of communities leaves many households with no income, unable to afford the steep cost of coverage, and the high rates of crime drives out businesses and

employment opportunities. The introduction of segregated, low-income housing in the 1960s and 70s cut off communities of color from access to jobs and better schools, allowing for the rise of gangs and violence, turning into a perpetual cycle. Isolation from social institutions is referred to as "concentrated disadvantage." (Everytown Research For Gun Safety, 2020).

Violence Exposure

While many youth directly experience gun violence through personal injury, more are indirectly exposed through hearing gunshots or witnessing gun violence in their communities, as well as by knowing friends or family who have been shot. *The Journal of Interpersonal Violence* found that approximately 8% of a sample of 630 urban and nonurban North American children ages 2-17 reported being exposed to a shooting, which included hearing gunshots or seeing someone shot. The National Survey of Children's Exposure to Violence discovered that over 5% of a nationally-representative sample have witnessed a shooting, and teens 14 to 17 years old reported the highest rates of overall exposure at 13% (Mitchell et. al., 2019). Considering the varying locations of the sample, these numbers are markedly higher in urban areas alone. Reports show that nearly 40% of boys and 30% of girls in two urban middle schools had witnessed gun violence (Everytown Research For Gun Safety, 2020). Richmond, California. Considering even the lowest rates, it is more than likely that there are a number of people you know who have these experiences.

Moreover, an average of 43 American youth are injured by gun violence every day, and an estimated three million American children witness a shooting each year. A study of

7-year-olds discovered that 75% had heard gunshots, 18% had seen a dead body, and 61% worried some or a lot of the time that they might get murdered (Everytown Research For Gun Safety, 2020). Another study of inner-city 6 and 7-year-olds showed that 47% had witnessed a shooting, and a comparison of recorded violent crimes in the area matched the national median for other major metropolitan areas. However, the rates for less densely populated areas are significantly lower. Youth 15-19 years old in urban areas are hospitalized by gun violence eight times as much as in rural areas (Everytown Research For Gun Safety, 2020).

These figures are not only affected by socioeconomic class, but they are also disproportionate when considering race. While Black men comprise only 6% of the population, they represent more than one half of gun homicide victims, and Black youth in America are 14 times more likely than their white counterparts to die by gun homicide, while Latinx youth are three times more likely to die by firearm homicide than their white peers (Everytown Research For Gun Safety, 2020; Santilli et. al., 2017).

Lack of Research

The effects of this violence have not gone unnoticed. While there is little information on the mental health effects of gun violence in the United States, it is partially due to a lack of funding and the government's refusal to financially support firearm-related research since the 1996 Dickey Amendment that prohibited federal funds to "advocate or promote gun control" and slashed the budget for the Center for Disease Control and the National Institute of Health. Luckily private funding by entities like Kaiser Permanente and AFFIRM Research has increased more than 300% in the absence of the majority of public funding. (Ranney & Betz, 2019). However, it is also critical to recognize that academic gun violence research is most often on

white mass shootings, and lacks attention or sympathy for shootings involving victims of color or low-income, urban neighborhoods.

Congress has also taken action to hide existing data; the Tiahrt Amendments ban the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) from releasing information from their database (except to police and prosecutors). Moreover, the FBI is required to destroy records of approved gun purchasers within 24 hours. Both of these policies create significant barriers to showing impact of preventative policies around gun violence (Giffords Law Center to Prevent Gun Violence, 2018).

Mental Illness, Trauma, and Grief

Research has mainly focused on children who are direct victims and (occasionally) witnesses of violence, but children who live in communities with chronic violence or have friends involved in violent acts may have similar post traumatic stress symptoms and other symptomatic reactions. (Pynoos & Nader, 1990).

Along with post traumatic stress disorder (PTSD), children with high-exposure may struggle with depression and major depressive disorder, generalized anxiety disorder, panic disorder, death anxiety, phobias, prolonged grief disorder, trouble with keeping up a job or succeeding in school, substance abuse, interpersonal problems, aggression, and antisocial behavior. (Scarpa et. al., 2002; Brady: United Against Gun Violence, n.d.; Garbarino et. al., 2002) c

According to the 5th version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), PTSD in people above age 6 arises when a person is directly exposed to, threatened by, or witnesses death, serious injury, or sexual violence; or is indirectly exposed through a loved one's trauma, or repeated or extreme indirect exposure. This manual is the

widely accepted diagnostic tool of healthcare professionals in the United States. Youth of color in urban communities are most likely to experience PTSD from recurrent exposure, considering that they are trapped in areas that have rates of homicide similar to foreign war zones (Giffords Law Center to Prevent Gun Violence, 2016).

Common symptoms of PTSD are divided into four clusters by the DSM-5, from which a number of criteria must be present for diagnosis (Friedman, n.d.).

Intrusion symptoms (cluster B) include recurrent, involuntary, and intrusive recollections (which children may express in repetitive play); traumatic nightmares (which children may have without trauma content); dissociative reactions like flashbacks (which child may reenact in play); and intense/prolonged distress or marked physiological activity after exposure to traumatic reminders. One symptom from this cluster is needed for diagnosis (Friedman, n.d.).

One of the two symptoms of cluster C, persistent avoidance of stimuli associated with trauma, is also needed for diagnosis, including trauma-related thoughts or feelings and trauma-related external reminders (Friedman, n.d.).

Two of seven symptoms are needed in cluster D, negative alterations in cognition and mood that began or worsened after the traumatic event. These include dissociative amnesia, or inability to recall key features of the event; persistent and often distorted negative beliefs and expectations about oneself or the world; persistent distorted blame of self or others for causing the traumatic event or resulting consequences; persistent, negative, trauma-related emotions e.g. fear, anger, or shame; markedly diminished interest in (pre-traumatic) significant activities; feeling alienated from others; and constricted affect i.e. persistent inability to experience positive emotions. It is common for folks in violent communities to perceive a foreshortened future due

to this violence. Moreover, gun violence exposure commonly evokes feelings of guilt over survival, failure to intervene, or actions taken to protect oneself, which can be a delayed symptom. When symptoms like anger or frustration cause issues in school, traditional discipline and punishment techniques like suspension exacerbate the stress that traumatized youth face, only contributing to the issue as well as the school-to-prison pipeline (Friedman, n.d.; Pynoos & Nader, 1988).

Two of six symptoms are needed from the cluster E, alterations in arousal and reactivity associated with the traumatic event. These include irritable or aggressive behavior, self-destructive or reckless behavior, hypervigilance, exaggerated startle response, problems in concentration, and sleep disturbance. Startle reactions seem to be an especially persistent symptom after exposure to unexpected gunfire. The last of the diagnosis criteria includes persistence of symptoms for more than one month and significant symptom-related distress or functional impairment, not due to medication, substance, or illness (Friedman, n.d.).

For children age 6 and younger, there is some change in criteria, with only one symptom from cluster C or D needed for diagnosis, as D no longer includes amnesia, perception of foreshortened future, and persistent blame of self or others. Reckless behavior is removed from cluster E (Friedman, n.d.).

There is also a new dissociative subtype of PTSD specified in the DSM-5, which is more common for severe cases. The symptoms meet all of the previous PTSD criteria and also include persistent or recurrent depersonalization or derealization. The former is characterized by experiences of feeling detached from mental processes or the body, as if one were an outside observer or in a dream. The latter is associated with experiences of unreality of surroundings e.g.

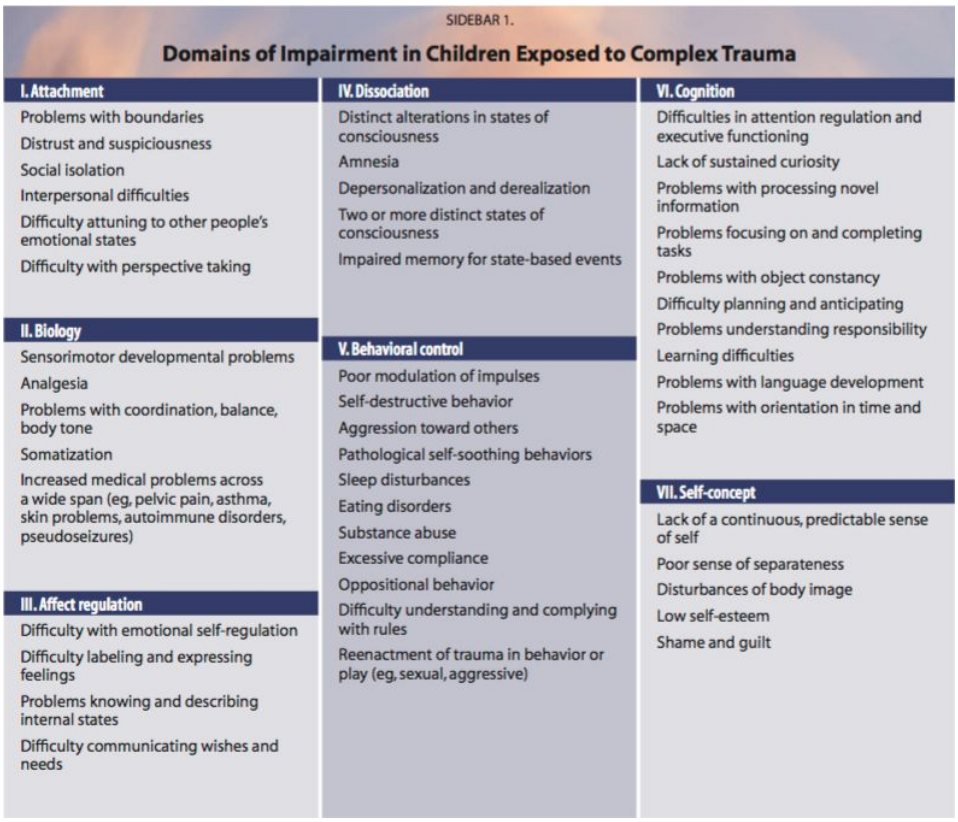
the world feels unreal, dreamlike, distant, or distorted (Substance Abuse and Mental Health Services Administration, 2016). In the DSM-5 introductory section for trauma- and stressor-related disorders, there is also a short description that many exposed individuals "...exhibit a phenotype in which, rather than anxiety- or fear-based symptoms, the most prominent clinical characteristics are anhedonic and dysphoric symptoms, externalizing angry and aggressive symptoms, or dissociative symptoms" (Phillips, 2015)

Yet, many health professionals and organizations believe that a type of PTSD from chronic trauma is not fully encapsulated by this DSM-5 (and thus, American Psychological Association) diagnosis criteria (Jones, 2007; Tull, 2020). The World Health Organization's (WHO) 11th revision of the International Classification of Diseases (ICD-11) recognizes complex PTSD, or C-PTSD, as a "sibling" disorder of PTSD which is experienced in response to chronic trauma over a period of months or years, most often seen as a result of childhood trauma (Hyland et. al. 2018). The term Developmental Trauma Disorder (DTD) has been suggested for those who have these symptoms after trauma in childhood, because it leaves more of a lasting impact. When adults experience chronic trauma, the psyche and sense of self is broken down; thus, when children are subjected to it, it is much more harmful because they are still developing those parts of themself ("What Is C-PTSD?," n.d.). This type of severe trauma interrupts psychologic and neurologic development, leading to a number of on-going symptoms including all of the previously mentioned symptoms of PTSD along with struggles of attachment, biology, affect regulation, dissociation, behavioral control, cognition, and self-concept. These categories of symptoms are listed below (see Figure 2), although it is important to note that they have a significant range and not all of them apply to all youth with C-PTSD. Youth in chronically

violent communities are more likely to experience C-PTSD, even if they have not been a direct victim of violence (Alexandra et al., 2005).

Figure 2

Common Symptoms of Complex Post Traumatic Stress Disorder



SIDEBAR 1.

Domains of Impairment in Children Exposed to Complex Trauma

I. Attachment
- Problems with boundaries
- Distrust and suspiciousness
- Social isolation
- Interpersonal difficulties
- Difficulty attuning to other people's emotional states
- Difficulty with perspective taking

II. Biology
- Sensorimotor developmental problems
- Analgesia
- Problems with coordination, balance, body tone
- Somatization
- Increased medical problems across a wide span (eg, pelvic pain, asthma, skin problems, autoimmune disorders, pseudoseizures)

III. Affect regulation
- Difficulty with emotional self-regulation
- Difficulty labeling and expressing feelings
- Problems knowing and describing internal states
- Difficulty communicating wishes and needs

IV. Dissociation
- Distinct alterations in states of consciousness
- Amnesia
- Depersonalization and derealization
- Two or more distinct states of consciousness
- Impaired memory for state-based events

V. Behavioral control
- Poor modulation of impulses
- Self-destructive behavior
- Aggression toward others
- Pathological self-soothing behaviors
- Sleep disturbances
- Eating disorders
- Substance abuse
- Excessive compliance
- Oppositional behavior
- Difficulty understanding and complying with rules
- Reenactment of trauma in behavior or play (eg, sexual, aggressive)

VI. Cognition
- Difficulties in attention regulation and executive functioning
- Lack of sustained curiosity
- Problems with processing novel information
- Problems focusing on and completing tasks
- Problems with object constancy
- Difficulty planning and anticipating
- Problems understanding responsibility
- Learning difficulties
- Problems with language development
- Problems with orientation in time and space

VII. Self-concept
- Lack of a continuous, predictable sense of self
- Poor sense of separateness
- Disturbances of body image
- Low self-esteem
- Shame and guilt

Adapted from "Complex Trauma In Children and Adolescents" by A. Cook, J. Spinazzola, J. Ford, C. Lanktree, M. Blaustein, M. Cloitre, R. DeRosa, R. Hubbard, R. Kagan, J. Liautaud, K. Mailah, E. Olafson, & B. van der Kolk, 2005, *Psychiatric Annals*, *35*(5), 390-398.

These youth also may be less likely to receive a diagnosis; besides the lack of accessibility to health providers, the DSM-5, the manual mental health professionals in the US use for diagnosis, lacks cultural variety in trauma responses. The manual includes only one small subsection, although it has no effect on the diagnostic criteria of PTSD, even though distress is experienced differently in different cultures. Therefore, it should be noted that the symptoms mentioned are not the only ones experienced. Symptomatology, like the research on gun violence, centers whiteness, and this must be recognized and addressed (Phillips, 2015).

The National Center for PTSD says that while it's normal to feel on edge, have upsetting memories, experience loneliness, or have trouble sleeping after this type of event, symptoms that last more than a month are a sign of PTSD and you should seek help from a licensed health professional (PTSD: National Center for PTSD, n.d.; Friedman, n.d.). Untreated PTSD can lead to a number of serious symptoms and mental illnesses, including serious depression, severe anxiety, and anger management issues (Brady: United Against Gun Violence, n.d.).

Common symptoms of major depressive disorder include sadness, a loss of interest in hobbies, changes in sleep and weight, trouble concentrating, and irritability (Brady: United Against Gun Violence, n.d.). Generalized anxiety disorder is characterized by excessive anxiety and worry, edginess or restlessness, easily fatigued, impaired concentration, irritability, increased muscle aches or soreness, and difficulty sleeping (Glasofer, 2020). Worry about the safety of a family member or friend during community violence can cause separation anxiety, and traumatized children have been known to keep tabs on their loved one’s whereabouts, not want them to go out alone, and openly panic if they are out of sight. Some children even awaken at night to check to see if their family member is still alive and safe (Pynoos & Nader, 1988).

Disorders of mental illness typically overlap among trauma survivors, and this concept is known as “comorbidity.” Those experiencing comorbidity are at a greater risk of developing a chronic disorder and often struggle with more impairment than those diagnosed with a single disorder (Brady: United Against Gun Violence, n.d.).

In the first year of bereavement, folks grieving the life of a loved one often attempt to disbelieve reality and search for the lost person, attempt reunions in dreams, and experience anger, emotional pain, sadness, depression, separation anxiety, and restlessness. It has been demonstrated that school-aged children are confused, frightened, and disturbed by their normal grief reactions. Adults more commonly seek reassurance and share their grief experiences with others, while many children never speak to anyone about their grief reactions, and thus, suffer through them without adequate support. Sudden, unexpected death has a higher risk of pathological or persistent forms of grief, as it interferes with addressing the reality of the loss (Pynoos & Nader, 1988).

Even if a mental illness disorder does not develop, survivors and witnesses may still experience symptoms of PTSD, anxiety, and depression following the traumatic event. However, if these symptoms last for more than a month, a mental health disorder may be present.

Consequences of Mental Health Symptoms and Illness

Struggles with mental health from gun violence can affect youth in many areas of their lives. CWLA’s National Blueprint revealed that chronic trauma can cause inhibited brain development in youth, and likely a result of that, study participants “noted numerous skill deficits among the youth they serve who live in neighborhoods that have high rates of poverty and crime” (Collins, n.d.). A 2017 study even found that witnessing community violence at a

young age alters brain structure and function (Saxbe et. al., 2018; Brady: United Against Gun Violence, n.d). Science shows that chronic stress causes epigenetic changes, which alter the way our genes function and cause lasting effects on our health and behavior. Moreover, epigenetic changes to genes are likely passed on to the next generation in the family. Studies show that a mother's bodily responses to stress are passed on to the fetus during pregnancy, "affecting a child's brain development and their own ability to respond to stress after they are born" (Collins, n.d.). This could be potentially affecting all pregnant folks living in high-violence urban areas.

Exposure to community violence has been negatively associated with school achievement in a number of ways (Thompson, 2005). Children who witnessed injury or experienced direct life threat to gun violence reported acute trouble concentrating in school, as both lack of sleep and intrusive imagery can interfere with performance and concentration. (Pastore, 1996) This type of trauma can also cause problems with memory, following directions, and engaging in organizational and decision-making tasks (Amnesty International, 2018). Kids exposed to violence have lower grades and more absences, and high school students have lower test scores and lower rates of high school graduation, which further perpetuates the cycle of poverty. A study even estimated that Black children in the most violent neighborhoods in Chicago spend at least a week every month working at lower concentration levels due to local homicides. Youth with higher rates of exposure are less likely to have student-teacher connectedness and school bonding (Voisin et. al., 2016). Elementary schools in Syracuse, New York, in areas that commonly deal with gun violence had 50% lower test scores and higher rates of standardized test failure, compared to elementary schools in areas with low levels of firearm violence. Black high school students are more than twice as likely as their white counterparts to miss school due to

safety concerns (Schenkein, n.d.). These schools are all too often the ones that already receive less funding and attention due to racist and classist education funding policies. Unsurprisingly, carceral methods of trying to 'help' these schools have been unsuccessful. Shootings that occur on school grounds often lead to increased levels of security, although studies show a direct correlation between extreme security measures and increased incarceration rates. These excessive measures are not a new reality for schools in low-income communities and communities of color (Anderson, 2016).

Overall, with the majority of gun violence research focusing on deaths, and mainly from mass shootings at that, the information on long-term effects of gun injuries and exposure is relatively scant, so those listed are just some of the possible issues that arise from symptoms of mental illness and living in perpetual violence.

Exposure to gun violence has also been associated with other unwanted health risks and issues in teenage years and adulthood, such as physical inactivity, sexual risk-taking, smoking, drinking, and suicide attempts (Santilli et. al., 2017). Another study showed that students who knew someone who was murdered were "two times as likely to report suicidal ideation and four times as likely to report suicide attempts" (Pastore, 1996). Yet, this violence and it's systemic causes remain unaddressed.

Those who were shot continue to suffer for years after the incident(s) from increased unemployment, substance abuse, and post traumatic stress disorder, even after having minor injuries. There are systematic problems in healthcare with the lack of attention given to wounded victims, as the mental health of patients is often ignored after they are quickly discharged from the hospital. Growing evidence suggests that gunshot trauma is harder to recover from than other

types of injuries. (Wan, 2019). Doctor Mark Seamon says that “We also just don’t know enough about gun violence and what makes it so different from other injuries. I see it in my work as a trauma surgeon. Patients who can’t sleep, who say they can’t get it out of their heads. Other traumas may cause greater physical injury, but the mental toll from gunshots is deeper for some reason” (Gialanella, 2019). What might be even worse is that 50% of gunshot victims are discharged from the hospital with a disability, which can lead to a lifetime of expenses and other issues (Everytown Research For Gun Safety, 2020).

Regardless of level of exposure, fear of recurrence affects the whole community. In a sample taken after a school shooting, children in all exposure groups were convinced that the threat was not over even after the shooter was dead, and equal numbers feared that a second assailant had escaped prison and would return to shoot at them again. The "ripple effect" of anxiety or "symptom contagion" following a traumatic event may be procured from this fear of recurrence. Beyond the smaller community that was in the direct vicinity of the shooting, the community as a whole (e.g. city-wide) can experience a toll on mental health, and a study has even found rates of PTSD to be 5% to 10% in communities after mass violence. Addressing the most common fears, rumors, misconceptions can help minimize the spread of this anxiety, but this fear is likely harder to contain in communities where violence is recurrent rather than a single event. These concerns demonstrate the need for advocacy of community consultation, school classroom discussions, and parental counseling within the affected community as a whole (Pynoos & Nader, 1988; Norris, 2007).

Risk Factors for Mental Illness

Some folks may end up needing treatment more than others, as there are certain risk factors that make developing mental illness more likely. The most obvious of such is visible through a meta-analysis of PTSD symptoms from over 8,000 participants, which found that the most exposed groups, including the physically injured, witnesses, and those who that their life was in imminent danger have much greater risk or long-term PTSD symptoms and other mental health illnesses than those farther from the incident (Wilson, 2014).

Research has shown that gun-violence survivors on both ends of the age spectrum are at higher risk for developing PTSD, and the younger side of the spectrum expands all the way to college students. Children under 11 years old who experience traumatic events are three times more likely to develop PTSD than children over 12 years old (Garbarino et. al., 2002).

According to a review of 49 studies, folks with previous traumatic experience or certain pre-existing mental health symptoms (such as an anxiety disorder or on the borderline for depression) are at a higher risk of developing long-term mental health issues after witnessing or being a victim of a shooting. This same meta-analysis discovered that the strongest predictor of all demographic factors is being a woman or girl, likely due to the fact that they are more likely to have multiple trauma experiences due to gendered violence (Lowe & Galea, 2017).

People who are low-income also have a larger risk, at least partially because of a lack of access to resources to address mental illness. Likely connected through the cycle of poverty and institutional oppression, folks with less education are also at a higher risk (Moon, 2018). Regression analyses also indicated that self-esteem and a measure of perceived chronic danger might have a partial connection with mental illness symptoms from violence exposure. While

these folks may be at higher risk for developing mental illness from gun trauma, anyone can develop mental health concerns.

Healing and Prevention Solutions

Measures to take at the individual level include seeking help from mental health professionals, creating a strong support network, and maintaining a healthy lifestyle. There are also many community solutions to gun violence, from helping those affected with interventions through schools, local programs, and healthcare; to preventative measures like gun safety laws (see Figure 4).

Personal Intervention

For those struggling with symptoms of mental illness, professional mental health treatment is especially important. A study has even shown that a "standardized 10-session cognitive-behavioral group intervention can significantly decrease symptoms of PTSD and depression in students who are exposed to violence" and it can successfully occur on school campuses through trained school-based mental health clinicians. (Stein et. al., 2003). This proves that even minimal intervention can have a significant impact. Trauma-focused therapies like exposure therapy and eye movement desensitization and reprocessing (EMDR) have also been proven helpful (Bridges to Recovery, n.d.). Younger children may respond well to creative approaches, like using role-play responses, puppets, sand trays, and art (Jones, 2007). However, "limited evidence suggests that predominantly CBT treatments are effective" in C-PTSD, so it is important to take a holistic approach to treatment (Dorrepaal et. al., 2014). Moreover, many people feel shame or guilt in seeking help, as talk-therapy and other healing modalities are deeply stigmatized, not to mention expensive. Only a small percentage of folks exposed seek

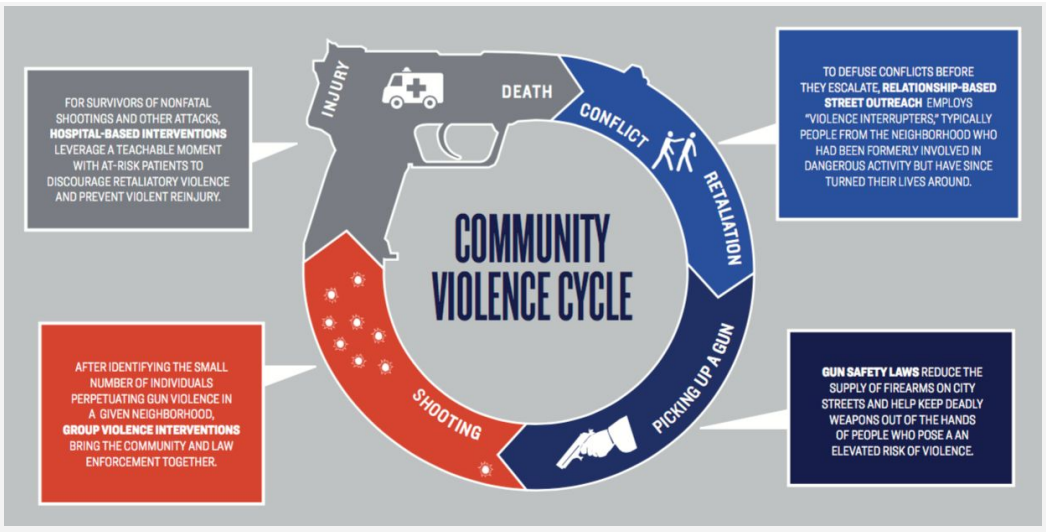
treatment, and many wait several years before doing so (Brady: United Against Gun Violence, n.d.).

Community Program Intervention

Yet, many different treatments exist beyond cognitive-behavioral therapy, including social support, individual coping activities. Research shows that having a family, friend, or other network leads to better mental-health outcomes (Moon, 2018). A study on C-PTSD in African American youth also showed that combined supports and spirituality demonstrated buffering effects on exposure to violence (Jones, 2007). Research also shows that good family functioning can have modest protection potential again developing mental illness from violence (Luthar & Goldstein, 2004). There are also a number of other practical steps that can be helpful coping tools, such as focusing on sleep, diet, and exercise (Daley, 2019).

Figure 4

Stopping The Community Violence Cycle



Adapted from “What Is Community Violence Intervention?” by Giffords Law Center to Prevent Gun Violence.

A number of youth-centric intervention programs are also school-based programs, which are more accessible for many folks. Evidence-based programs include the Skills for Psychological Recovery (SPR) and Cognitive Behavioral Intervention for Trauma in Schools (CBITS) programs, which help survivors learn tools to manage distress, such as problem solving and enhancing support networks (Moon, 2018). A program for younger students, called social emotional learning, can be integrated into classwork and teaches kids how to recognize and express their feelings. Implementing such programs into school curriculum seems like one of the simplest ways to help traumatized youth with no financial burden, but the majority of schools are lacking this type of learning material. Even worse, schools in urban, impoverished communities are perpetually underfunded and lack the resources to create programs outside of class, which is often why community programs and organizations are more prevalent.

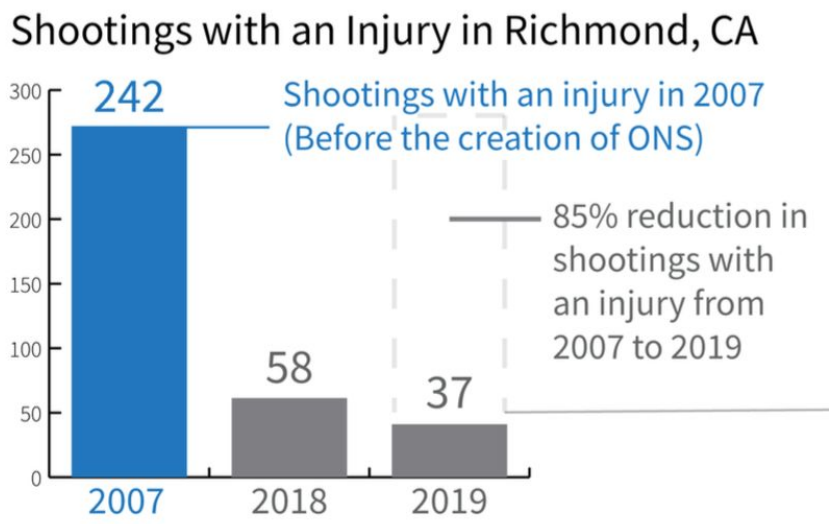
Yet, teachers must acknowledge their role in stopping cycles of violence. It would be tremendously useful for schools nationwide to implement training on trauma in youth and how it shows up in the classroom. However, this is unlikely to happen anytime soon, so it is up to teachers to inform themselves on these topics. If they do not individually implement trauma-based learning into the curriculum, they can at least try to recognize symptoms of trauma and provide appropriate resources (e.g. referring the student to the school psychologist or counselor). At the very least, they must respond to poor class behavior by taking an empathetic approach, checking in with the student to figure out the root of the issue, rather than immediate punishment that can worsen stress related to trauma symptoms.

At a community level, mentoring programs have been proven to be useful in reducing youth violence and improving academic marks, which is likely why the majority of youth programs involve at least one aspect of mentoring.

Richmond, California has reduced shootings involving injury or death by 82% since 2007, when Operation Peacemaker began (Advance Peace, n.d.). This reduction is even higher when regarding shootings with injury alone, visible in the graphic.

Figure 3

Reduction in Shootings with an Injury in Richmond, CA (2007-2019)



Adapted from "Learning Evaluation Impact" by Advance Peace.

The Fellowship was started by DeVone Boggan after millions had been spent on anti-crime policing programs to no avail. It had been debated by the City Council whether a state of emergency should be declared and a state senator even compared Richmond to Iraq, which

was actually accurate when considering similar homicide rates; in 2004, Richmond had a higher proportion of homicides compared to the direct conflict death rate of warring Iraq, at 35 versus 34.94 killed per 100,000 (Murphy, 2014; The Geneva Declaration, n.d.). This number kept rising until Operation Peacemaker began (Spiker et. al., 2007).

The 18-month long program uses police records and personal collected street knowledge to identify the 50 people most likely to perpetrate gun violence and to be a victim of a shooting themselves. The Office of Neighborhood Safety tracks down the most "lethal and vulnerable" on the list and invites them to the program, providing a number of opportunities. The Fellowship includes inter-generational mentoring by volunteers who struggled with similar experiences, and an opportunity to earn $300 to $1,000 each month for 9 months through staying out of violence and following a "life map" of personal and professional goals. Fellows can receive even more money for "teaming up with someone from a rival community to renounce violence altogether," although that hasn't occurred yet. The fellows are also provided with access to social programs like education and therapy, as well as occasional travel opportunities to expand horizons. While the program is governmentally funded, it resolutely does not have contact with or share information with the police, likely giving it more street credit (Murphy, 2014; The Battery San Francisco, n.d.). 114 offenders between the ages of 13 and 25 were invited to the program over a period of six years, of whom, 92 accepted and 84 stayed engaged. The fact that the majority of these youth stayed involved shows that violence is clearly not the first choice, but rather related to circumstance, and they are willing to and have desire to change their lives given the opportunity. Of these 84 youth, "94% remain alive; 83% have not been injured by a firearm and 77% are not a suspect in a new firearm crime since becoming a Fellow." This program proves

that conditional financial allowances significantly aid in steadying chaotic lives. Moreover, it is supported by an empirical model: in 1972 in Baltimore, financial assistance to ex-convicts was found as the most effective way to reduce recidivism (The Battery San Francisco, n.d.; Murphy, 2014). Not only is the program beneficial to the community, it is profitable for the government and economy. A study done by the University of Southern California found a "net present value of over $500 million for the first five years of program impact" from homicide reduction, decrease of recidivism, and economic productivity (Huguet, 2016).

Smaller organizations include the Safe Passage program, Hip Hop Heals and Becoming A Man programs (Everytown Research For Gun Safety, 2020). The first of these helps elementary-aged children safely arrive at school, and has increased school attendance, while decreasing crime by 32% since 2012. The Becoming A Man program, which helps teenage boys navigate the circumstances of growing up in an at-risk environment, has reduced total arrests by 35%, reduced violent crime arrests by 50%, and improved school engagement for male Chicago Public Schools students. The research also "estimates that it creates up to $30 in societal gains for every $1 invested in the program, from realized reductions in crime alone." Researchers believe this number may actually be higher, because obtaining a high school diploma often allows for higher earning potential when compared to dropping-out (Youth Guidance, n.d.).

Such significant financial returns from these programs may be an incentive for apathetic taxpayers to help promote the resolution of gun violence in low-income neighborhoods, also considering that gun violence costs to the American economy have been estimated at at least $229 billion every year, including $8.6 billion in direct expenses (Giffords Law Center to Prevent Gun Violence, 2016). Folks in the community involved in these types of initiatives stress

that these programs are most successful when members from the community, who commonly have similar experiences themselves, are involved in the program creation and implementation (Amnesty International, 2018). This certainly appears to be true based on the financial returns.

When implementing violence intervention programs, it is necessary for interventions in communities of color to consider the importance of reducing incarceration rates. While the state often does not consider this, that may explain why community-based programs are so much more successful. Even state-based programs that have been embraced as community efforts often fail to consider their harmful presence, potentially putting people of color at risk for facing police brutality. While this is another horrifying reality of communities of color that we must acknowledge, it is beyond the scope of this report.

Hospital and Medical Interventions

Healthcare interventions range from hospital-based interventions when gunshot victims are admitted, to conversations with a primary care doctor or mental health professional. Professionals in this sector are getting more and more involved as they recognize urban gun violence as an issue of public health. California is "slated to fund a statewide medical education curriculum," New Jersey funded a research consortium, and programs like the Health Alliance for Violence Intervention that work with youth have gained ground. Overall, there has been $15 million in new contributions in the last year (Ranney & Betz, 2019).

However, it seems like the programs that work directly with the community have been most impactful thus far. These interventions are especially helpful because of high rates of injury recidivism in systemically abandoned communities. A 2018 study in Annals of Emergency Medicine found that youth are 25-60% more likely to be the victim of another assault-related

trauma after the first trauma. A study of youth treated in the Flint Emergency Department for violent injury were found to have had twice the likelihood of being assaulted again within two years, which matches data in other cities like Detroit and Oakland (Barna, n.d.).

These interventions, like Beyond Violence at John Muir Health, take advantage of the window of opportunity right after a shooting victim ends up in the hospital, when they are self-reflective and may be more responsive to such services. An intervention specialist, who is commonly from the same community, meets them when they arrive, and if they accept, they are provided with a range of applicable community services, which can include health care and mental health assistance, education, housing, legal advocacy, home visits and support sessions, conflict resolution services, and family interventions. In 5 years of the program, at least 95% of youth involved avoided arrest, re-injury, and did not seek retaliation (Barna, n.d.). Other similar programs have also shown highly promising results.

More education for healthcare workers has been implemented in the last several years. The American Medical Association, FACTS consortium (funded by the National Institute of Health), UC Davis and Johns Hopkins have launched online curricula for physicians (Barna, n.d.). While most pediatricians recognize their role in gun violence prevention, only ⅓ of pediatric residency programs offer formal firearm safety counseling training, and the majority of physicians believed they did not have enough training (Tsou & Barnes, 2016).

While healthcare is heading in the right direction becoming more involved in this public health issue, we need more allocation of funds to these programs and educations for medical workers.

Gun Laws

While many deny it, lack of gun regulation has a significant impact on levels of gun violence. A 2016 review of 130 studies in 10 countries discovered that "legal restrictions on owning and purchasing guns tended to be followed by a drop in gun violence." With clear disregard to this wisdom, the US has an estimated 120.5 guns per 100 residents; the country second to this has below half of that amount. The US is 5% of the world's population, but owns 45% of the world's private guns (Lopez, 2019).

Just a number of policies could prevent many deaths. A survey of 29 well-established academic researchers of violence prevention weighed in on laws that would make the most impact. These include reducing gun trafficking by allocating more funding for the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), rescinding policies that prevent ATF from modernizing or sharing data, and increasing inspections and regulation of gun dealers (The Joyce Foundation, 2019).

Amnesty International also recommends implementing laws related to background checks; public carrying; licensing, registration and training; reporting of lost and stolen guns, and regulation of semi-automatic assault rifles, shotguns, and submachine guns. Gun technology to prevent unauthorized use, like biometrics, magnets, microchips, and radio-frequency identification (RFID), is also recommended and may be a more likely first step (Amnesty International, 2018).

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