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Beauty in the Struggle:  
Toxic Stress, Adverse Environments, and Collective Healing

By

Joseph Suratos Griffin

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Public Health

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Jason Corburn, Chair

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## Abstract

### Beauty in the Struggle: Toxic Stress, Adverse Environments, and Collective Healing

by

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Doctor of Public Health

University of California, Berkeley

Professor Jason Corburn, Chair

Early life experience and environmental context “gets under our skin,” playing a role in stress reactivity and affecting health over one’s life (Corburn, 2017; McEwen, 2012; Shonkoff et al., 2012). The body’s physiological response to strong, frequent, or prolonged adversity in the absence of supportive adult relationships during childhood development is toxic stress (Shonkoff et al., 2012). It can result in impaired development that impacts health and wellbeing over the life course (Burke Harris, 2018; Center on the Developing Child at Harvard University, n.d.; Purewal Boparai et al., 2018; Shonkoff et al., 2012). Increased likelihood of chronic conditions such as diabetes and hypertension, increased likelihood of mental health issues such as depression and anxiety, and the development of negative coping mechanisms are associated with toxic stress (Burke Harris, 2018; Center on the Developing Child at Harvard University, n.d.; Purewal Boparai et al., 2018; Shonkoff et al., 2012).

A growing body of literature recognizes the need for greater exploration of toxic stress outside of clinical and social service settings, a movement upstream to situate toxic stress research in an ecological context (Burke Harris, 2018; Corburn et al., 2014; Ellis & Dietz, 2017; Shonkoff et al., 2012). My dissertation research is part of this growing area of toxic stress research. In this dissertation, I have three aims: 1) to identify concepts and frameworks in the academic and professional literature that situate toxic stress within an ecological context, 2) to understand toxic stress and healing at the community level through a case study of a community-driven process as collective healing, and 3) to explore youth perspectives of and experiences with toxic stress and adversity. I will achieve these aims through the completion of a narrative literature review, case study, and youth Photovoice project.

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Twenty-one years ago, I came to campus as an undergraduate student from Richmond, not sure of what to study. I never thought that I would one day come back for my master's degree and then return one last time for my doctorate. Now as I come to the end of this journey, I only have one thing left to say: GO BEARS!

## Dedication

For Richmond

It's beauty in the struggle, ugliness in the success  
Hear my words or listen to my signal of distress  
I grew up in the city and know sometimes we had less  
Compared to some...we were blessed  
(J. Cole, *Love Yourz*, 2014)

## Introduction

### What is Toxic Stress?

Early life experience and environmental context “gets under our skin,” playing a role in stress reactivity and affecting health over one’s life (Corburn, 2017; McEwen, 2012; Shonkoff et al., 2012). The body’s physiological response to strong, frequent, or prolonged adversity in the absence of supportive adult relationships during childhood development is toxic stress (Shonkoff et al., 2012). It can result in impaired development that impacts health and wellbeing over the life course (Burke Harris, 2018; Center on the Developing Child at Harvard University, n.d.; Purewal Boparai et al., 2018; Shonkoff et al., 2012). Increased likelihood of chronic conditions such as diabetes and hypertension, increased likelihood of mental health issues such as depression and anxiety, and the development of negative coping mechanisms are associated with toxic stress (Burke Harris, 2018; Center on the Developing Child at Harvard University, n.d.; Purewal Boparai et al., 2018; Shonkoff et al., 2012). These conditions can be co-occurring in adulthood, resulting in complex clinical profiles and increased healthcare utilization (Herzog & Schmahl, 2018; Kalmakis & Chandler, 2015). Many of the chronic health conditions observed in adulthood find their roots in childhood trauma through this lens.

Toxic stress is one of three possible stress responses (Center on the Developing Child at Harvard University, n.d.). Positive and tolerable stress are two other stress responses related to toxic stress but are considered normal in childhood development. Positive stress refers to brief and mild experiences of challenges that trigger a low-level stress response in the body (Center on the Developing Child at Harvard University, n.d.). Experiencing positive stress is how children learn. For example, the first day of school can create anxiety or excitement in a young child (Center on the Developing Child at Harvard University, n.d.). However, this experience does not generally pose a threat, and the associated excitement may aid in the child’s focus as they learn their new environment (Center on the Developing Child at Harvard University, n.d.). The initial stress resolves, and their stress levels return to baseline without additional support as the child becomes accustomed to school (Center on the Developing Child at Harvard University, n.d.).

Tolerable stress refers to experiences of serious adversity in the presence of proper support (Center on the Developing Child at Harvard University, n.d.). Support is necessary to stop the body’s stress response to such adversity. For example, the loss of a loved one can trigger a negative stress response. However, the support of a parent during the grieving process can buffer the impact of this loss (Center on the Developing Child at Harvard University, n.d.). The length of time of the stress response may shorten, and the child’s stress level will return to baseline sooner as a result. Tolerable stress is transient because children can manage its impact with adequate support.

The body’s ability to respond to stressors, allostasis, plays an integral role in achieving homeostasis (Danese & McEwen, 2012). When turned on and off efficiently and not too frequently, the body’s allostatic systems allow it to adapt appropriately to stressful challenges (McEwen, 1998). Ideally, a short-term release of stress hormones mobilizes the body to protect against danger (McEwen, 1998). Allostatic systems - the nervous, endocrine, and immune systems - are highly integrated within the body, which can mean that stimulation of one system

often results in stimulation of another (Danese & McEwen, 2012). For example, an infection may trigger an immune system response to fight a pathogen. In turn, the metabolic system activates to divert energy to the immune system for this fight (Danese & McEwen, 2012). However, this response becomes more complicated when facing adversity that leads to toxic stress.

The strong, frequent, and prolonged nature of a toxic stress response prevents a return to baseline and can change the body in permanent ways. The constant release of hormones over a long period in response to stressors can result in toxicity and increased allostatic load (Danese & McEwen, 2012). Allostatic load is the cumulative negative effect of stress that creates wear and tear on the body (McEwen, 2006). How efficient the body's response is to stress, how many stressful challenges an individual faces, genetics, early development, and learned behaviors are all factors in one's allostatic load (McEwen, 2006). High allostatic load can create a cascade of negative effects such as negatively impacted allostatic systems, blood glucose dysregulation, excessive plaque buildup in arteries, and an increase in proinflammatory cytokines that aggravate disease.

Adverse childhood experiences (ACEs) are considered traditional sources of toxic stress. ACEs focus on exposure to abuse or household dysfunction (Felitti et al., 2019). These include experiences within the family of maternal depression, emotional and sexual abuse, substance abuse, domestic violence, homelessness, incarceration, mental illness, divorce, and physical and emotional neglect. The more ACEs an individual has experienced, the more at risk they are for many health issues. For example, experiencing four or more ACEs has been associated with a 4- to 12-fold increase in risk for alcoholism, drug abuse, depression, and suicide (Felitti et al., 2019). Clinical, educational, and social service settings can easily identify these ACEs. However, they are not the only forms of adversity contributing to toxic stress. A growing body of toxic stress literature highlights adverse community conditions as contributors to toxic stress (Bethell et al., 2017; Burke Harris, 2018; Corburn et al., 2014; Ellis & Dietz, 2017; Jutte et al., 2015; Shonkoff et al., 2012).

### From an Individual to a Community Focus on Toxic Stress

While the literature on toxic stress has primarily come from the field of pediatrics, academics and professionals have expressed the need for more research at the community level. In her book "The Deepest Well," California Surgeon General Dr. Nadine Burke Harris (2018) described the current clinical approach to toxic stress, developing individual care plans, as only the first step in addressing this issue. While the medical response is needed, so is the public health response to address the issues outside of the clinical and social service settings that contribute to childhood adversity (Burke Harris, 2018).

Studies show that the longer children are exposed to adverse community conditions, the more lasting the impacts on lifelong health. For example, exposure to community violence and housing insecurity are adverse environmental conditions that can cause lifelong mental health, emotional health, and behavioral issues when experienced in childhood (Cooley-Strickland et al., 2009; Hill & Madhere, 1996). Social stress stemming from community factors like poverty, inadequate food or nutrition, and exposure to violence stimulates similar cortisol production among infants as adult caregivers (McCrae et al., 2021). Infants also experience

chronic stress from environmental factors through their relationships with their caregivers. (McCrae et al., 2021). As the world changes due to the Covid-19 global pandemic, studies suggest that epidemics lead to increased levels of toxic stress related to high levels of severe anxiety and depression among parents and acute stress disorder, post-traumatic stress, anxiety disorders, and depression among children (Araújo et al., 2020). Where social distance is an effective public health strategy to stop the spread of infectious disease, children may be cut off even further from the social supports needed to mitigate toxic stress (Araújo et al., 2020). To better engage with these factors, ecological and community-level frameworks are required.

### Healing from Toxic Stress

In this dissertation, I focus on the process of healing from toxic stress. Healing is a concept that is both familiar yet vague in its definition (Egnew, 2005). Healing can be a process of making free from injury or disease, making well again, restoring to health, or making sound or whole (Merriam-Webster, n.d.). Healing is often conceived as an individual and intensely personal journey. It can be subjective in terms of the type of reconciliation needed to transcend or move past trauma (Chioneso et al., 2020; Egnew, 2005). Transcendent healing does not require a return to a previous state, nor does it connote that remnants of the trauma disappear completely (Ginwright, 2018; Pouligny et al., 2007; Um, 2015). Trauma may persist in some form, existing simultaneously and in space with the process of healing.

Collective healing requires an understanding of healing in the context of these remnants of trauma. Scholars of historical trauma experienced by indigenous people of North America point to past trauma passed down as intergenerational post-traumatic stress disorder, structural violence in the form of present-day policies, and the perseverance of oppressive societal structures (Kirmayer & Moses, 2014). Healing from the trauma of colonization is a process of standing in one's power and self-worth to recover from the past and protect from future trauma (Gonzales, n.d.).

Similarly, scholars focused on the collective healing of Africana communities from racial trauma have noted that healing is an active response to historical and intergenerational trauma (Chioneso et al., 2020). Healing from personal trauma as part of a larger community framework can lead to a more transformational process facilitated by a shared collective memory that accounts for oppressive sociopolitical forces and violence committed against the community (Chioneso et al., 2020). Rather than a personal journey of transcendence, the process of healing is a collective act of pursuing justice. The healing process strengthens social connections within the community, promotes culture as a source of resilience, and advances critical consciousness as a way to resist disempowerment (Chioneso et al., 2020; Gonzales, n.d.).

### Gaps in the Toxic Stress Literature

A review of the toxic stress literature reveals gaps concerning understanding and exploration of toxic stress beyond a focus on the individual. This dissertation will address three gaps in the literature. First, frameworks for discussing toxic stress and adversity at the community level are few. Without these, developing a coherent body of literature or prevention strategies focused on adverse environmental conditions that lead to toxic stress

becomes more difficult. Second, healing from trauma at the community level is not explored in-depth in the toxic stress literature. Further research on community-level adversity and toxic stress must contend with the trauma that communities experience at multiple levels and how communities approach healing. Third, the toxic stress literature marginalizes the voices of impacted communities. In particular, youth voices are largely absent. Studies tend to retrospectively collect data about adversity experienced in childhood from adults, which may introduce response or recall bias (Petrucci et al., 2019).

I will address these gaps by achieving three aims: 1) Identifying concepts and frameworks in the academic and professional literature that situates toxic stress within an ecological context, 2) Understanding toxic stress and healing at the community level through a case-study of a community-driven process as collective healing, and 3) Exploring youth perspectives of and experiences with toxic stress and adversity. I will use qualitative inquiry methods to achieve these goals. In the spirit of health equity, I conduct my research through a community-based participatory research orientation in studies involving empirical research with communities.

For the first paper, *Beyond Adverse Childhood Experiences: Framing Adversity at the Environment and Community-level*, I conducted a narrative review of the literature to examine how toxic stress is discussed beyond a focus on the individual to achieve the first aim (Grant & Booth, 2009; Samnani et al., 2017). Paper one presents five conceptual areas as building blocks for framing the discussion of toxic stress beyond adverse childhood experiences. Through analysis of the toxic stress, public health, and broader social justice-based literature, I present these concepts as tools to aid researchers and practitioners.

For the second paper, *Collective Healing through Community Development: Urban Park Redevelopment as Healing-centered Engagement in Richmond, CA*, I conducted a case study of the community-driven redevelopment process of Elm Playlot in the Iron Triangle neighborhood of Richmond, CA, to achieve the second aim. From 2007-2015, residents of the neighborhood led a transformative process of planning, designing, and rebuilding this local park. The community development process is explored as a form of collective healing itself.

For the third paper, *Adverse Community Environments: Youth Photovoice Highlighting Toxic Stress in Richmond, CA*, I conducted a youth Photovoice project in the Iron Triangle neighborhood in Richmond, CA, to achieve the third aim. The Photovoice project explored toxic stress at the community level. The inclusion of youth researchers in the toxic stress literature can aid in the inquiry of sensitive, hidden, and hard-to-report phenomena (Horn et al., 2016; Paton et al., 2018).

As a whole, this dissertation contributes to toxic stress research that employs an ecological perspective. The aims of the dissertation are designed to build upon the current toxic stress research and explore this issue in contemporary settings. In doing so, I hope that this research contributes to the toxic stress literature and public health practice.

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# Beyond Adverse Childhood Experiences: Framing Adversity at the Environment and Community-level

## Introduction

Research on environmental and community-level factors associated with toxic stress is not as prevalent as research on individual experiences associated with toxic stress. This situation exists because much of the literature is rooted in the field of pediatrics (Burke Harris, 2018; Felitti et al., 2019; Shonkoff et al., 2012). Discussion of the physical and social environment is not absent in these studies. However, the literature often treats the environment as part of a black box of residual contributing factors to be explored in the future (Araújo et al., 2020; Burke Harris, 2018; Felitti et al., 2019; Hege et al., 2020; Oral et al., 2016; Purewal Boparai et al., 2018; Ridout et al., 2018; Srivastav et al., 2017; Turner et al., 2020). Some studies vaguely define adverse environment conditions to avoid unintentionally excluding sources of toxic stress (Bethell et al., 2017; Purewal Boparai et al., 2018). In recent years, models that describe the role of the environment in the production of toxic stress have appeared in the literature (Ellis & Dietz, 2017; Shonkoff et al., 2012). While a start, I argue that a more developed conceptual foundation is needed to support research and practice focused on the relationship between toxic stress and adverse conditions of the environment. In this paper, I present conceptual building blocks to help form this foundation.

Toxic stress literature is traditionally situated as a result of adverse childhood experiences (ACEs) (Felitti et al., 2019). ACEs are adversity experienced by children within the home that impair physiological, cognitive, and behavioral development (Center on the Developing Child at Harvard University, n.d.; Felitti et al., 2019). The measurement of ACEs tends to focus on a finite list of experiences of physical and emotional abuse, neglect, and household dysfunction (Felitti et al., 2019; Ridout et al., 2018; Turner et al., 2020). However, definitions of ACEs continue to evolve to capture other types of adversity that lead to toxic stress. For example, the World Health Organization screens for family dysfunction; physical, sexual, and emotional abuse and neglect by parents or caregivers; peer violence; witnessing community violence; and exposure to collective violence as ACEs (WHO, n.d.). Moreover, researchers increasingly acknowledge that ACEs are influenced by the environments in which they occur and that the environment can be a source of toxic stress itself (Burke Harris, 2018; Corburn et al., 2014; Ellis & Dietz, 2017; Shonkoff et al., 2012).

### Gaps in the Literature

I address two gaps in the toxic stress literature concerning the exploration of adverse environments that contribute to toxic stress. First, the literature lacks a well-developed ecological perspective. The Ecobiodevelopmental Framework for Early Childhood Policies and Programs (EBD) was developed to focus toxic stress interventions on reducing adverse conditions in the environment as a pathway to reducing the risk of adverse experiences (Shonkoff et al., 2012). However, this model is underdeveloped in its distinguishing of ecological factors at different levels. Frameworks common to community health literature, such as the Ecological Model and Ecosocial Theory, do distinguish such factors (Krieger, 2012; McLeroy et al., 1988). Additionally, EBD fails to acknowledge the role of larger societal concepts like racism

in shaping adverse environments (Williams et al., 2019). Second, largely absent in the toxic stress literature is the discussion of how to engage affected communities in addressing this issue. Few studies exist that include participatory processes in the examination of toxic stress. However, the studies that do exist have shown that community-engaged processes can aid in deepening understanding of toxic stress and developing innovative public health practices (Matlin et al., 2019; Pachter et al., 2017). I posit that addressing these gaps in the literature is essential to situating toxic stress in terms of adverse environments.

### Research Questions

In this paper, I answer two questions to address these gaps. First, what ecological frameworks in the public health literature can be used to situate toxic stress in an ecological context? Second, what models of community engagement in the public health literature are pertinent to developing meaningful partnerships with traumatized communities such as those experiencing toxic stress?

I present five conceptual areas as building blocks for framing the discussion of toxic stress beyond adverse childhood experiences. The first three conceptual areas are concerned with situating toxic stress from an ecological perspective. The final two conceptual areas explore models of community engagement for partnering with traumatized communities. Together, I propose that these conceptual areas can support the development of future research and practice that addresses adverse environmental conditions that lead to toxic stress.

### Method

I conducted a narrative review of the literature to examine how toxic stress and adverse environments are discussed in the health literature (Grant & Booth, 2009; Samnani et al., 2017). The primary databases used were PubMed, SCOPUS, and Google Scholar. Bibliographies of relevant articles were subsequently hand-searched. I used grey literature to complement the peer-reviewed literature to explore specific concepts and works of specific authors in greater depth. The primary search terms used included, in alphabetical order: ACEs, adversity, adverse childhood experiences, adverse environments, built environment, chronic stress, community, community engagement, community health, ecology, intervention, participatory, place, prevention, physical environment, social determinants of health, social environment, stress, and toxic stress.

I used two exclusion criteria for this literature review. Peer-reviewed articles were omitted from consideration that did not appear in a health-related journal or explicitly mention health as an outcome. I deemed these irrelevant because of the focus of this paper. I also omitted non-English articles from consideration due to my language limitations.

During the review, I captured standard information for each document, including title, author(s), year, publication type, analytic approach, findings, and recommendations. I used nVivo 12 software to organize the literature and develop the conceptual areas. Where possible, I identified example conceptual frameworks and empirical studies from the literature to illustrate the conceptual areas.

## Findings

### Situating Toxic Stress within an Ecological Perspective

An ecological perspective focuses on individual and contextual systems – communities, institutions, policies – and the relationship between the two (McLaren & Hawe, 2005). In this section, I present three conceptual areas that situate toxic stress from an ecological perspective. First, I introduce the concept of toxic stress existing within a broader context of social and environmental adversity. Second, I build upon the ideas in the previous section to highlight structural violence as a way to view toxic stress through a social inequity lens. Third, I present a relational view of adversity to explore the relationship between adverse childhood experiences and adverse conditions of the environment.

### From Adverse Experiences to Adverse Environments

In this section, I present a brief definition of toxic stress, its impact on health over the life course, and the early literature that has framed this body of knowledge. The identification of adverse childhood experiences (ACEs) revealed the relationship between experiencing adversity and negative health outcomes (Felitti et al., 2019). However, it also focused much of the toxic stress research on individual experiences, unintentionally omitting exploration of adverse environments (Burke Harris, 2018; Purewal Boparai et al., 2018). Public health literature has many conceptual frameworks that can help explore the connection between adverse environments and toxic stress. I introduce the Ecological model and Ecosocial theory as two conceptual models that do so. More specific to stress and development, I introduce the Weathering Hypothesis in my analysis of racism as a condition of adverse environments. I present these frameworks for their potential to broaden the scope of toxic stress research when considering the forms of adversity that contribute to toxic stress.

Toxic stress has been described as how adversity “gets under our skin,” influencing childhood development and impacting health into adulthood (McEwen, 2012; Shonkoff et al., 2012). The American Academy of Pediatrics defines toxic stress as the body’s physiological response to strong, frequent, or prolonged adversity in the absence of supportive adult relationships during childhood development (Shonkoff et al., 2012). It can result in impaired development that impacts health and wellbeing over the life course (Burke Harris, 2018; Center on the Developing Child at Harvard University, n.d.; Purewal Boparai et al., 2018; Shonkoff et al., 2012). Toxic stress is associated with an increased likelihood of chronic conditions such as diabetes and hypertension, increased likelihood of mental health issues such as depression and anxiety, and the development of negative coping mechanisms (Burke Harris, 2018; Center on the Developing Child at Harvard University, n.d.; Purewal Boparai et al., 2018; Shonkoff et al., 2012).

Adverse childhood experiences (ACEs) were the first sources of toxic stress identified (Felitti et al., 2019). In the seminal study on ACEs, 9500 members from Kaiser Permanente, an integrated managed care system, completed a self-reported survey about childhood experiences of adversity. The ACEs measured in this study were categorized as physical and emotional abuse, neglect, and household dysfunction. Of the many findings, the researchers found that participants who experienced four or more ACEs had a 4- to 12-fold increase in risk for alcoholism, drug abuse, depression, and suicide (Felitti et al., 2019). These participants also

had a 2- to 4-fold increase in smoking and poor self-rated health (Felitti et al., 2019). The study also found a graded relationship between the number of ACEs experienced with the presence of adult diseases such as heart disease, cancer, and chronic lung disease (Felitti et al., 2019). The connection between adversity and negative impacts on lifelong health was established.

While these findings laid the groundwork for research on toxic stress, the unintended consequence was a focus on individual experiences in the subsequent literature. However, scholars recognized the need for a better understanding of the relationship between community-level adversity and toxic stress (Burke Harris, 2018; Mueller et al., 2021; Shonkoff et al., 2012). The recognition that factors beyond the individual impact health is a hallmark of modern public health, making the concepts found in the public health literature at large applicable to toxic stress research.

### **Ecological View of Adversity**

The Ecological model describes the reciprocal influence that the environment and individuals have on one another (McLeroy et al., 1988). In this model, the environment is conceptualized as concentric circles of influence surrounding the individual comprised of interpersonal relationships, organizations and institutions, community, and policy levels (McLeroy et al., 1988). The Bay Area Regional Health Inequities Initiative (BARHII) further developed an ecological framework for reducing health inequities at distinct but connected levels to illustrate the connections between social inequities and individual health (Bay Area Regional Health Inequities Initiative, n.d.). Doing so demonstrated how unjust policies rooted in discrimination could create unequal living conditions, shaping health behaviors that impact disease, injury, and mortality (Teresa, 2016). These policies can have a double impact, functioning as direct sources of stress and shaping living conditions that cause stress.

A related theory, Ecosocial Theory posits that lived experiences in societal and ecological contexts are biologically embodied and create patterns of health and disease within a population (Krieger, 2012). The pathways to embodiment involve adverse exposure to social and economic deprivation, exogenous hazards, and social trauma, among others (Krieger, 2012). The seminal Whitehall Study is an example of an empirical study that revealed how social environment influences health. This study found that British civil servants' occupational level had an inverse relationship with their likelihood of mortality (Marmot et al., 1991). This study and others paved the way for further study of the social determinants of health and are relevant to understanding toxic stress.

### **Racism as a Condition of Adverse Environments**

More specific to stress and development, racism has been explored as a societal condition that impacts health. The cumulative negative effect of chronic stress due to racism as a condition of the environment is explained through the Weathering Hypothesis. The Weathering Hypothesis states that racism causes chronic stress that damages the body and brain in individuals and populations (Geronimus, 1992). Racism creates chronic exposure to social and economic disadvantage for people of color (Forde et al., 2019). More recent research conceptualizes racism as negative normative beliefs and attitudes towards stigmatized racial groups and as a structured system that shapes social institutions to reinforce, justify, and perpetuate racial hierarchies even in the absence of explicitly racially prejudiced individuals (Williams et al., 2019). The system of racism – racialized social structures that determine

differential access to resources, opportunities, and risk that drive health – is itself a fundamental cause of health inequities (Williams et al., 2019). Accelerated aging and the onset of unfavorable health conditions among disadvantaged groups, compared to advantaged groups, result from living in a society shaped by this system (Forde et al., 2019; Williams et al., 2019). How racism affects the body over the life course reveals a clear connection between racism and toxic stress (Jutte et al., 2015; McEwen, 1998; Shonkoff et al., 2012).

### **Toward Understanding Societal Forces as Forms of Adversity**

Like the example above, understanding the forces that shape where people live, work, and play is an essential element of understanding the adverse conditions of the environment they experience. A recent review article applying the Ecological model to the exploration of the relationship between mental health, adversity, and toxic stress argued that a deeper understanding of the structural violence that creates toxic stress, trauma, and adverse community experiences could transform how mental health is conceived and ultimately addressed (Brandow et al., 2019). However, the connection between structural violence and toxic stress has not been made explicit in the literature. In the next section, I explore structural violence as a concept that shapes the environment and, in turn, produces toxic stress.

### Toxic Stress is a Symptom of Structural Violence

To this point in the paper, I introduced adverse environments as conditions of the social and physical environment. In this section, I more explicitly focus on historical context in shaping adverse conditions. Adverse community environments are not naturally occurring phenomena. The “rules of the game” that govern society and privilege one group with power and resources over another are established at a structural level (Krieger, 2020). Institutions, policies, social norms, and cultures that influence living conditions and individual behavior enforce these rules (Bay Area Regional Health Inequities Initiative, n.d.). I introduce the concept of structural violence to explore these ideas. I then present houselessness, which has been recognized as a form of adversity that contributes to toxic stress, as a condition that exists due to structural violence. In doing so, I make the connection between toxic stress, adversity, and structural violence.

### **Structural Violence**

The World Health Organization defines violence as the intentional use of physical force or power against oneself, another person, or a community, resulting in injury, death, psychological harm, maldevelopment, or deprivation (*Global Status Report on Violence Prevention 2014*, 2014). Structural violence is a form of violence embedded within a society whose influence is independent of the actors in that society (Galtung, 1969). It is considered an avoidable and intentional cause of disparity between groups (Galtung, 1969). The mutually reinforcing policies and practices across multiple domains within a society such as city planning, housing, bank and mortgage lending, education, and insurance that create an unequal distribution of power and resources are forms of structural violence (Galtung, 1969). Structural violence as a framing tool invites consideration of what is responsible for adverse community environments.

Racism, sexism, and heterosexism are all sources of structural violence (Krieger, 2020). They are connected systems of ideas, beliefs, and practices purposefully conceived as the basis for harmful societal systems that privilege one group over another (Krieger, 2020). In doing so,

they structure health inequities between dominant and submissive groups (Krieger, 2020). These structured systems are dynamic, reinforced by multiple societal systems, and adapt over time by developing various mechanisms to maintain their perverse effects when other means diminish (Williams et al., 2019). Over time, these systems contribute to damaged environments and the aggregation of traumatized individuals within a community, inhibiting community development and sense of agency (Galtung, 1969; Pinderhughes et al., 2015). Structural violence results in a normalization of health inequity and unequal life chances that diminish a community (Galtung, 1969).

### **Houselessness: Form of Adversity and Symptom of Structural Violence**

Houselessness is a form of adversity that is multifaceted in its construction when viewed through the lens of structural violence. Houselessness is labeled an adverse childhood experience, while housing affordability and quality is an adverse community environment condition in the Pair of ACEs model (Ellis & Dietz, 2017). Housing insecurity in childhood is associated with lifelong health impacts such as lower global health ratings, increased mental health and behavior concerns, and higher rates of adverse childhood experiences (Cutts et al., 2011).

Policies and programs at macro levels largely determine houselessness. The practice of redlining has had a lasting impact on communities of color in the United States. Redlining was a federally sponsored policy introduced by the Home Owners' Loan Corporation in the 1930s that codified legal discriminatory lending practices until the 1960s (Krieger et al., 2020). Redlining was the practice of color-coding areas on a map according to desirability as "best," "still desirable," "definitely declining," or "hazardous." The population's race locally determined desirability, which had the impact of encouraging investment in predominantly white and affluent areas while discouraging investment in areas with residents of color (Krieger et al., 2020). Private banks and mortgage companies used these ratings to deny loans resulting in limited homeownership and subsequent wealth building by African Americans (Nardone et al., 2020). Today, the remnants of this practice are associated with the prevalence of cancer, asthma, poor mental health, lack of health insurance, lack of quality food options, and inequitable distribution of environmental disamenities (Eisenhauer, 2001; Grove et al., 2018; Nardone et al., 2020).

The federal response to houselessness is mixed at best. In 2018, the United States Interagency Council on Homelessness stated that affordable and available housing lowered the likelihood of households becoming houseless and increased the likelihood of unhoused individuals exiting houselessness (United States Interagency Council on Homelessness, 2019). However, 12.8% of the nation's low-income housing has been permanently lost since 2001, primarily due to decreased funding of federally subsidized housing (National Law Center on Houselessness & Poverty, 2015).

The local government's role in the criminalization of houselessness further complicates its involvement. In a survey of 187 cities, local laws prohibited acts in public such as camping, sleeping, begging, sitting down, lying down, sleeping in vehicles, and food sharing with houseless people (National Law Center on Houselessness & Poverty, 2015). Of the cities surveyed, bans on camping have increased 60%, bans on sitting or lying down in public increased 43%, and bans on sleeping in cars increased 119% (National Law Center on Houselessness & Poverty, 2015). Houseless individuals described sleeping near train tracks or

under highway overpasses, despite the health risk of exposure to high levels of exhaust and other chemicals, rather than being arrested (Goodling, 2020). These spaces are policed less due to jurisdiction grey areas, such as the land near train tracks that are often federal lands not policed by local law enforcement (Goodling, 2020). These local policies that criminalize houselessness add another layer to the experience as a source of toxic stress.

Houselessness is an example of adversity that is sustained by systems and policies, not individuals. In cases where individuals may act to change conditions, other policies exist that enable these conditions to persist. These conditions, in turn, create adverse experiences. In the next section, I further explore the relationship between adverse experiences and adverse environments.

### **Making the Connection Between Adverse Experiences and Adverse Environments**

As demonstrated in the previous section, houselessness can be framed as both an adverse experience and an adverse condition of the environment. The relationship between experiences and environments is essential to discussions of toxic stress (Hege et al., 2020; Vaughn & DeJonckheere, 2021). In this section, I present concepts that aid in doing so.

#### A Relational View of Adversity

Rather than a view of adverse experiences or adverse environments, researchers must explore the relationship between these forms of adversity. In this section, I introduce a relational view of adversity. The concept of a relational view is rooted in the literature on place. However, the concepts are applicable to the toxic stress literature. The Pair of ACEs model is presented as an emerging toxic stress model that embraces a relational view. I then apply this conceptual area to the issue of community violence to demonstrate how a relational view can be used to understand the relationship between individual experiences and community conditions.

#### **Adopting a Relational View**

The relational view concept finds its origins in the relational view of place (Table 1). This view of place was proposed as a way to understand how people and policies influence the places in which they live and vice versa (Cummins et al., 2007; Macintyre et al., 2002). Through this lens, place is a dynamic set of factors influencing health. The social environment defines place as much as the physical environment. While a conventional view of place may define space via the built environment and as a static variable, a relational view of place defines space via relationships that consist of nodes in networks that are dynamic (Cummins et al., 2007). Distance is described in terms of socio-relational connections, changing over time, influenced by the mobility of individuals, and experienced at multiple levels simultaneously (Cummins et al., 2007). This approach addresses a limitation of conventional empirical research that can underestimate place effects on health because it focuses on isolating the individual contributions of place-level and individual-level factors (Cummins et al., 2007; Macintyre et al., 2002). A relational view of place recognizes the mutual and reinforcing nature of people and places.

**Table 1**

Conventional vs. Relational View of Place

<b>Conventional View of Place</b>	<b>Relational View of Place</b>
Space consists of discrete geographical units	Space consists of nodes in networks
Physical distance defines distance	Socio-relational connections define distance
Area features are relatively static and fixed	Area features change over time, is influenced by individuals, and experienced at multiple levels

Adopting a relational view of adversity that leads to toxic stress can reframe how it is understood. First, a relational view of adversity situates childhood experiences that lead to toxic stress within relationships with adversity that people, places, and institutions constitute. The nature of connections people have with their social and physical environments is considered, unlike in a conventional view that holds adversity that leads to toxic stress as discrete experiences. Second, a relational view recognizes that adversity is experienced in the absence of supportive community structures, institutions, and policies, unlike a conventional view that solely focuses on the lack of supportive adult relationships. Community solutions such as after-school programs for youth and economic opportunities for their caregivers can buffer toxic stress by facilitating supportive relationships and building the capacity of supportive adults (Shonkoff et al., 2012). Third, the social and physical environment is dynamic, changing over time. It is influenced by the individuals who inhabit the environment as much as it influences them (Burke Harris, 2018; Shonkoff et al., 2012). A relational view of adversity recognizes that treatment of adversity at the community level is equally as essential as a conventional approach of treating individuals to mitigate toxic stress. The Pair of ACEs model is built upon the concept of a relational view.

**Table 2**

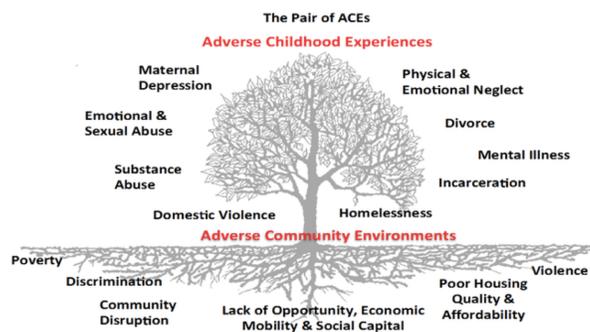
Conventional vs. Relational View of Adversity that Leads to Toxic Stress

<b>Conventional View of Adversity</b>	<b>Relational View of Adversity</b>
Adverse childhood experiences	Adverse childhood experiences are situated within relationships with adversity that are constituted by people, places, and institutions
Experienced in the absence of supportive adult relationships	Experienced in the absence of supportive adult relationships, community structures, institutions, and policies
Treatment focused on the individual	Treatment of the conditions at the community level that exacerbates the impacts of toxic stress or acts as barriers to healing from it is as essential as individual treatment

### **Pair of ACEs Model**

A framework that describes this relationship between individual-level and community-level adversity is the Pair of ACEs model developed by The Building Community Resilience

Collaborative at George Washington University (Figure 1) (Ellis & Dietz, 2017). In this framework, two categories of ACEs exist: ACEs found within the family and ACEs found within the community. ACEs found within the family are labeled adverse childhood experiences and have been discussed earlier in this paper. ACEs found within the community are labeled adverse community environments (Ellis & Dietz, 2017; The Building Community Resilience Collaborative, n.d.). Adverse community environments are synonymous with the social determinants of health. They include poverty, discrimination, community disruption, lack of opportunity, mobility, and social capital, poor housing quality and affordability, and violence. ACEs in the community are the context in which individual experiences occur and are influenced by these experiences.



**Figure 1** Pair of ACEs Tree (The Building Community Resilience Collaborative, n.d.)

Missing in the Pair of ACEs model is that ACEs are not naturally occurring, inevitable, or accidental. As I discussed in the structural violence section, the soil in which these conditions grow consists of public policies, practices, and institutions that advantage one group and create inequity. In the following section, I apply these concepts of a relational view of adversity to the exploration of community violence.

### **Applying a Relational View of Adversity to Community Violence**

Applying a relational view of toxic stress to community violence illustrates how this framing aids in exploring the complexity of adversity. Community violence is a form of interpersonal violence occurring outside the home irrespective of the relationship between the perpetrator and victim (*Global Status Report on Violence Prevention 2014, 2014*). As an adverse childhood experience, 80% of children in urban settings experience community violence as a victim, survivor, perpetrator, witness, or bystander at some point in their lives (Cooley-Strickland et al., 2009; Gorman-Smith et al., 2004b). As individuals, children may suffer from lifelong mental health, emotional, and behavioral issues due to chronic exposure (Cooley-Strickland et al., 2009; Hill & Madhere, 1996). Living in these conditions for more than five years increases youth susceptibility to the harmful effects of the neighborhood, such as a decreased sense of self-worth (Paschall & Hubbard, 1998). Those who perceive high levels of community violence may experience anxiety consistent with post-traumatic stress disorder and an increased willingness to retaliate with violence (Hill & Madhere, 1996). Willingness to retaliate can drive future community violence, particularly among young people who lack

supportive parental and familial relationships (Gorman-Smith et al., 2004a). However, individual experiences of community violence tell only part of the story.

As a condition of adverse community environments, community violence has many impacts. It can result in damaged social relationships that create fractured intergenerational relationships, broken social networks, and a lack of infrastructure for social support (Pinderhughes et al., 2015). It can also elevate social norms that promote violence, replace community-oriented positive social norms with unhealthy behaviors, and decrease collective efficacy (Pinderhughes et al., 2015). A mutually reinforcing relationship between violence, community trauma, and the built environment results in deteriorating environments that consist of unhealthy public spaces, crumbling infrastructure, and high availability of harmful products such as alcohol (Pinderhughes et al., 2015). In turn, levels of investment in the neighborhood are affected by this disruption, resulting in concentrated poverty that may increase the risk of violence and community trauma (Pinderhughes et al., 2015). Inequitable educational and economic opportunities manifest in these communities as intergenerational poverty, relocation of businesses and jobs, limited employment opportunities, and disinvestment by government and private businesses (Pinderhughes et al., 2015).

If viewed only as a form of adverse childhood experiences, community violence is a difficult issue to tackle, but researchers and practitioners may look for opportunities to build supportive relationships that buffer against these experiences. When the scope of understanding of community violence is broadened, and a deeper understanding of the ways in which the community environment is negatively impacted is gained, the path towards addressing the issue becomes more complicated. However, struggling with the complexity that is revealed through a relational view can lead to solutions that truly address the problem.

### Participatory Models for Addressing Toxic Stress

In the previous section, I presented conceptual areas that aid in framing toxic stress in an ecological context. Equally important to furthering the study of toxic stress is the inclusion of communities traumatized by toxic stress in the research process. I present two conceptual areas that can aid in doing so. First, I present models that center community engagement in the knowledge production process. Second, I highlight models that recognize trauma in communities and make space for healing. Together, these conceptual areas provide opportunities to build an equitable partnership with communities and meet them where they are.

### Center Community Engagement

Collaborative processes that center community engagement can be beneficial for both professionals and the communities they serve. Community-based Participatory Research (CBPR) is an approach to research-based in developing equitable partnership, co-production of knowledge, and taking action (Wallerstein & Duran, 2010). CBPR research can be conducted with communities and often within their neighborhoods. However, collaborative processes are also needed in clinical settings and other spaces where adverse childhood experiences are used as a measure of health. I introduce the Expert Patient model as a way to include clients in ACEs discussions that provide opportunities for them to place their experiences within the context of their environment. Lastly, I highlight a case in Philadelphia where collaborative partnership

resulted in a deeper understanding of the types of adversity that affected their local community. The models in this section highlight opportunities for community engagement in different health settings.

### **Collaborative Models**

Community-based participatory research (CBPR) embraces partnerships between community, academic, and other stakeholders that use research to take action based on the community's priorities to improve health and achieve equity (Wallerstein et al., 2018). A set of core principles guide practitioners of CBPR (Wallerstein et al., 2018). A CBPR process strives to be participatory; cooperative - engaging community experts and professional experts in a joint process where both can contribute equally; a co-learning process; inclusive of systems development and community capacity building; empowering - participants can increase control over their lives; and balanced between research and action (Wallerstein et al., 2018). As an approach to deepening understanding of toxic stress at the community level, CBPR is a well-suited model.

While toxic stress is discussed in some clinical settings, the relationship between experience and environment is not always explicit. A model tailored for use in a clinical setting that creates an opportunity for such discussion is the Expert Patient model (Tattersall, 2002). Developed by the National Health Services of the United Kingdom, this model treats patients living with chronic disease as experts in managing their condition. They are key decision-makers in their treatment rather than passive observers (Tattersall, 2002). Much of the clinical research on ACEs focuses on screening methodology to treat adverse childhood experiences. Applying the Expert Patient approach creates space for patients with histories of trauma to give context to their experiences (Purewal Boparai et al., 2018; Turner et al., 2020). For example, mindfulness is an oft-cited strategy for dealing with toxic stress (Burke Harris, 2018). Inclusion of patients in identifying their sources of toxic stress may lead to mindfulness practice strategies that are better scaffolded against environmental factors, such as poverty or lack of community spaces to practice. The Expert Patient model is an opportunity for community engagement to occur within the clinical setting and other settings that screen for ACEs.

### **Philadelphia ACEs Taskforce: Case for Collaboration**

The Philadelphia ACEs Taskforce (PATF) is an example of how community engagement can broaden understanding of adversity within a community. In 2012, the Institute for Safe Families, a local Philadelphia non-profit, brought together local public health, medical, and funder partners with the mission of providing space to explore adverse childhood experiences in the metropolitan Philadelphia, PA region (Pachter et al., 2017). Soon after local leaders and youth-serving organizations joined the work, they pointed out that the list of traditional adverse childhood experiences did not include many of the sources of trauma experienced in the Philadelphia area. Using community-based focus groups, the task force developed an expanded list of adversity that included community-level measures of adversity identified by members of the community, such as: witnessing violence, experiencing racism/discrimination, living in unsafe and unsupportive neighborhoods, experiencing bullying, and being in foster care (Pachter et al., 2017). The inclusion of community members played a vital role in the development of a research agenda that identified forms of childhood adversity pertinent to children in Philadelphia. It also shifted the focus of PATF from clinical to a broader goal of

creating an ecosystem of childhood support services to address childhood adversity (Pachter et al., 2017).

### **Making Space for Healing**

I proposed in this section the benefit of including communities affected by toxic stress in the process of addressing it. However, a barrier to participation by these communities may be the trauma they experience associated with toxic stress. While accounting for this trauma may be implied in community engagement, in the next section, I explicitly explore how to make space for community healing.

### Center Community Healing

Healing is often conceived as an individual and intensely personal journey, subjective in terms of the type of reconciliation needed to transcend trauma and feel whole again (Chioneso et al., 2020; Egnew, 2005). Collective healing has been conceptualized as a process of communities standing in their own power and self-worth (Gonzales, 2020). In this section, I present two interconnected models that approach healing from different ends of the spectrum. Trauma-informed Care (TIC) is a model that is used to address toxic stress at multiple levels of an organization (Oral et al., 2016). Practitioners of TIC actively work to recognize trauma and not re-traumatize individuals (SAMHSA's Trauma and Justice Strategic Initiative, 2014). An emerging model that, in some ways, is a successor to TIC is Healing-centered Engagement. Healing-centered Engagement is an asset-based model that views individuals as more than their trauma (Ginwright, 2018). It is focused on collective healing as much as individual healing (Ginwright, 2018). Each model presents an opportunity for researchers and public health professionals to meet communities where they are on their journeys from trauma to healing.

### **From Trauma-Informed to Healing-Centered**

The Trauma-informed care (TIC) model can be used by organizations seeking to address toxic stress. The model is under exploration for its benefits to working with individuals who have experienced adverse childhood experiences (Fredrickson, 2019). It is a comprehensive, multilevel approach to trauma that can support individuals experiencing toxic stress from many forms of adversity (Oral et al., 2016). Trauma-informed organizations recognize the signs of trauma, respond using the principles of a trauma-informed approach, and seek to resist re-traumatization (SAMHSA's Trauma and Justice Strategic Initiative, 2014). Prevention of re-traumatization of clients occurs through recognition and validation of their trauma, culturally sensitive and responsive practices, common coping strategies, and effective treatments (Oral et al., 2016). The principles of a trauma-informed approach are safety – staff and participants feel physically and psychologically safe; trustworthiness and transparency – decisions are made with the goal of building and maintaining trust among all involved; peer support – seen as key to building trust, establishing safety, and empowerment; collaboration and mutuality – meaningful sharing of power and decision-making; empowerment, voice, and choice – strengths of all involved are recognized, built on, and validated; and cultural, historical, and gender issues – actively move past cultural biases towards cultural humility and healing (SAMHSA's Trauma and Justice Strategic Initiative, 2014). Organizations that adopt a trauma-informed care approach create supportive environments and structures that are often missing in the lives of people experiencing toxic stress. In doing so, the environment becomes responsive to the trauma and the related lived experiences of the community being served.

Engaging communities that experience toxic stress requires making space not only for their experiences of trauma but also for healing. An emerging model that draws inspiration from trauma-informed care, but stands apart from TIC, is the Healing-Centered Engagement (HCE) model (Ginwright, 2018). Responding to individual experiences of trauma requires a response to the environmental context from which harm originates (Ginwright, 2018). HCE moves beyond centering the experience of trauma towards a more holistic view of wellbeing (Ginwright, 2018). This holistic view involves culture, spirituality, civic action, and collective healing. In doing so, individuals are identified by more than their worst trauma (Ginwright, 2018). Instead, trauma and healing are experienced collectively and concurrently.

Healing-Centered Engagement is based on four principles (Ginwright, 2018). First, HCE is explicitly political, not clinical. The sources of trauma are more than individual experiences but also reflect inequitable societal conditions. Second, HCE is culturally grounded and views healing as the restoration of identity. Culture grounds communities in a sense of meaning, self-perception, and purpose that encourages supportive environments. Third, HCE is asset-driven and focused on wellbeing. The experience, knowledge, skills, curiosity, and other positive traits in a community are talents to be supported. Fourth, HCE supports providers with their own healing. A heal-the-healers approach promotes collective healing by restoring and supporting those in the community who attempt to restore and support those who have been traumatized.

Healing-Centered Engagement frames healing from adverse community environments as a process. It is action-oriented, asset-based, and focused as much on collective healing as individual healing. Through this lens, communities are agents in their own wellbeing, finding healing in awareness of and addressing the conditions that create trauma. Power, purpose, and control over life situations and decision-making processes are considered functions of wellbeing. The uplift of shared culture, community history, and individual skills becomes a pathway to social support that creates an environment for collective action. Collective action that uproots the source of trauma is a healing process that can lead to healthy and healing environments (Ginwright, 2015, 2018). HCE transforms the social environment into an engine for community-wide change that supports lasting wellbeing.

Together, these approaches highlight the importance of considering the trauma that affected communities have and are experiencing. Toxic stress is an issue that requires sensitive inquiry, empathy, and humility of outside partners. Adopting models that help researchers and practitioners do so is not optional but essential.

### Conclusion

Research and work on toxic stress continue to evolve. Environmental and community-level factors are increasingly considered for their role in exacerbating known sources of toxic stress and as sources of toxic stress themselves. I presented five conceptual areas that can help further the discussion beyond adverse childhood experiences, theoretically and in practice. First, I introduced social and environmental adversity as a way to situate toxic stress within a broader context. Second, I built upon the ideas in the previous section to highlight structural violence as a way to view toxic stress through a social inequity lens. Third, I presented a relational view of adversity to explore the relationship between adverse childhood experiences

and adverse conditions of the environment. Fourth, I presented models that center community engagement to introduce community expertise into the knowledge production process. Fifth, I highlighted models that recognize trauma in communities and make space for healing to account for the trauma that community partners may be experiencing. Together, these conceptual areas help frame intentional conversations about the environment and community as they relate to toxic stress.

Public health literature has many conceptual frameworks that can aid in the exploration of the connection between adverse environments and toxic stress. I introduced the Ecological model, Ecosocial theory, and the Weathering hypothesis as seminal conceptual models that do so. These frameworks have the potential to broaden the scope of toxic stress research whose focus on adverse childhood experiences has narrowed the area of study. I proposed the adoption of an ecological view of adversity as a way to address this tendency.

An ecological perspective was necessary to understand the way in which toxic stress is a symptom of structural violence. I asserted that adverse community environments are not naturally occurring phenomena. Institutions, policies, social norms, and cultures that influence living conditions and individual behavior uphold social and health inequities are lasting examples of structural violence. Through an analysis of houselessness, I further explored how these structures work together to sustain adverse conditions. In doing so, I highlighted the connection between toxic stress, adversity, and structural violence.

Understanding the relationship between forms of adversity, rather than a view of adverse experiences or adverse environments, is essential for future toxic stress research. I proposed a relational view of adversity as an opportunity to do so. The Pair of ACEs model is an emerging toxic stress model that embraces a relational view. Application of such models to recognized forms of adversity like community violence can aid in the exploration of these conditions from a nuanced point of view.

Another way that nuanced research and practice can be achieved is through collaborative processes that center community engagement. Community-based Participatory Research (CBPR) is a widely accepted approach in public health that builds equitable partnership, results in co-produced knowledge, and is action-oriented. However, community engagement must also occur in clinical settings where individuals are more likely to be screened for ACEs. The Expert Patient model is a way to include clients in ACEs discussions and situate their experiences within the context of their environment. There is a role for including community experts in all settings where toxic stress and adversity are discussed.

There is also a role for healing in these spaces that are shared with community experts. Healing can be an intensely personal journey. It can also be a collective process of standing in one's own power and self-worth (Gonzales, 2020). Accounting for where communities are in their personal and collective healing journeys is an essential component of building strong partnerships. Strong partnerships between research and public health professionals and community experts are necessary to expand the body of knowledge.

In this paper, I argued that a more developed conceptual foundation is needed to support research and practice focused on the relationship between toxic stress and adverse conditions of the environment. I presented conceptual building blocks that addressed two gaps in the toxic stress literature concerning the exploration of adverse environments by making connections to public health concepts that have proven valuable in the study of other health

issues. In doing so, I presented concepts that can lead to a more developed ecological perspective in discussions of toxic stress. I also presented models of community engagement that focus on the development of equitable partnerships with affected communities. The inclusion of said communities can increase the diversity of perspectives and expertise represented in the toxic stress literature. Together, these concepts build a broad and promising foundation for the future of toxic stress research and practice.

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## Collective Healing through Community Development: Urban Park Redevelopment as Healing-centered Engagement in Richmond, CA

### Introduction

Historical trauma literature conceptualizes collective healing as a process of standing in one's own power and self-worth, facilitated by a shared collective memory of oppressive sociopolitical forces and violence committed against the community as part of a larger collective experience (Chioneso et al., 2020; Gonzales, 2020). The process of healing is an act of pursuing justice collectively by strengthening social connections within the community, promoting culture as a source of resilience, and advancement of critical consciousness as a way to resist disempowerment (Chioneso et al., 2020; Gonzales, 2020). This type of healing addresses trauma that can be passed down as a form of intergenerational post-traumatic stress disorder and structural violence in the form of present-day oppressive policies and structures that contribute to adverse environments (Kirmayer & Moses, 2014). However, this concept of healing is largely absent from the toxic stress literature.

From this perspective, I propose that community-driven community development can be a form of collective healing. Community development is historically based on social advocacy and calls to social action to pursue equity (Phillips & Pittman, 2015). It is both a process and an outcome (Phillips & Pittman, 2015). As a process, community development requires acting collectively (Phillips & Pittman, 2015). It can be a capacity-building experience that nurtures group decision-making, problem-solving, group action, strengthens interpersonal relationships and relationships with institutions, and transform community norms (Phillips & Pittman, 2015). Community-driven processes can center community expertise, encourage equitable partnerships between communities and outside partners, and make space for healing in communities that have been traumatized (Ginwright, 2018; SAMHSA's Trauma and Justice Strategic Initiative, 2014; Wallerstein & Duran, 2010).

The case of the redevelopment of Elm Playlot in Richmond, CA, is one of collective healing through community-driven redevelopment to transform the built and social environment. This local park is located in the Iron Triangle neighborhood of Richmond, CA. The city government designated the Iron Triangle for specific healthy development projects because of its poor health, social, and economic conditions in 2008 (Corburn et al., 2014). Redevelopment of the park occurred from 2007-2015. Many residents and community partners credit the iterative and participatory process of redevelopment with improving the physical and social environment of the community. Recent survey data indicates that quality of life has improved in this area of Richmond. For example, the percentage of residents who felt their neighborhood was a good place to live increased 84% from 2015-2019 (Richmond, CA, 2015, 2019). I will explore how the process of redevelopment at Elm Playlot may have contributed to this outcome.

### Gaps in the Literature

In the literature review for this paper, I found the concept of collective healing largely absent in the toxic stress literature. Toxic stress researchers often view healing as an individual process (Center on the Developing Child at Harvard University, n.d.; Shonkoff et al., 2012).

Healing from personal trauma is often conceived as an individual and intensely personal journey that is subjective in terms of the type of reconciliation needed to transcend trauma and feel whole again (Chioneso et al., 2020; Egnew, 2005). Treatment of toxic stress often consists of a holistic care plan that includes mental health services for children and caregivers, lifestyle changes that include healthy diet and exercise, and mindfulness practice (Burke Harris, 2018). In doing so, upstream factors that buffer against or mitigate toxic stress are not addressed (Nutbeam, 2010; Shonkoff et al., 2012).

A conceptual framework nearest to collective healing in the toxic stress literature is the Ecobiodevelopmental Framework for Early Childhood Programs and Policies (EBD) (Shonkoff et al., 2012). As pictured in Figure 1, a strong and supportive ecology is deemed essential to preventing toxic stress in the individual. The ecology is categorized as policy and program levers for innovation, caregiver and community capacities, and foundations of healthy development.

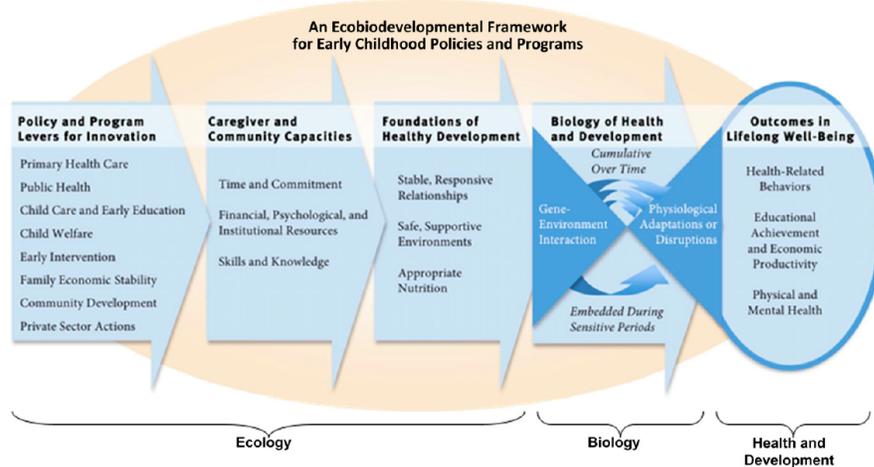


Figure 2 Ecobiodevelopmental Framework for Early Childhood Programs and Policies (Shonkoff et al., 2012)

While EBD contains many elements necessary for collective healing, I have three critiques of this model about that end. First, the model is designed for individual health. Improvements to the community are done in service of this goal and do not account for the shared impacts of community-level adversity. Second, historical, political, and cultural context are absent in this model. Considering these factors is necessary to better understand the mechanisms that influence ecological conditions. Third, community agency is underdeveloped in this model. How resources and support are delivered in communities that have been traumatized is as important to addressing toxic stress as what resources and support are given. A new approach to addressing toxic stress is needed to address these issues.

### Research Questions

I aim to answer three questions in this paper. First, what was the process of community-led redevelopment at Elm Playlot in Richmond, CA? Second, how can the Pair of ACEs model inform a community-led redevelopment of an urban park? Third, how can a community-led process of redevelopment be healing-centered? I present the redevelopment of Elm Playlot in Richmond, CA, as a case study in community-led redevelopment to answer these questions. I employ a case-study design to explore new conceptual models for toxic stress that apply to a contemporary phenomenon (Yin, 2013).

A new approach to healing from toxic stress should be built upon the emerging understanding of how adverse childhood experiences and adverse conditions in the environment interact with one another. I highlight the Pair of ACEs model as a framework that explores this relationship (Ellis & Dietz, 2017). Through application of this model, I argue that a more nuanced understanding of how adversity at multiple levels affect individuals and communities as a whole can be found.

As a complement, I propose the Healing-centered Engagement (HCE) model as a an approach to collective healing from adversity that contributes to toxic stress (Ginwright, 2018). HCE is closely related to trauma-informed care, which prior research has identified as a promising practice for addressing toxic stress (Matlin et al., 2019). HCE is an asset-based model aimed at holistic well-being involving culture, spirituality, civic action, and collective healing (Ginwright, 2018). Healing-Centered Engagement frames healing from trauma as a process. Communities are agents in their wellbeing, finding healing in awareness of and addressing the conditions that create their trauma (Ginwright, 2018). The process of addressing these conditions becomes an engine for collective healing through community-wide change that supports lasting wellbeing.

## Background

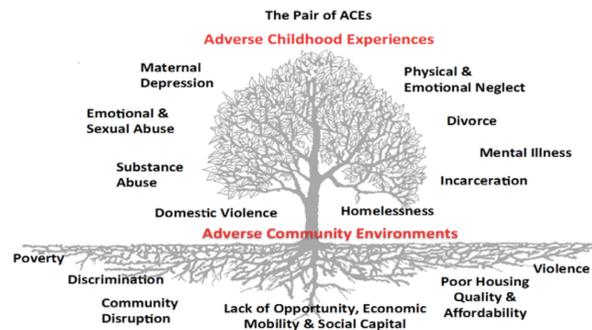
### Pair of ACEs: A New Understanding of Toxic Stress

Toxic stress is defined as the body's physiological response to strong, frequent, or prolonged adversity in the absence of supportive adult relationships during childhood development (Shonkoff et al., 2012). It can result in impaired development that impacts health and wellbeing over the life course (Burke Harris, 2018; Center on the Developing Child at Harvard University, n.d.; Purewal Boparai et al., 2018; Shonkoff et al., 2012). Prolonged exposure to toxic stress can cause physical and mental impairment and can be a precursor to chronic disease later in life (Jutte et al., 2015; McEwen, 1998; Shonkoff et al., 2012). When viewed through a toxic stress lens, heart disease, diabetes, depression, and other illnesses more common to adulthood can be seen as developmental diseases (Center on the Developing Child at Harvard University, n.d.).

A growing body of research recognizes that adverse experiences and adverse environments contribute to toxic stress (Burke Harris, 2018; Egnew, 2005; Shonkoff et al., 2012). The Pair of ACEs Model illustrates the relationship between individual-level and community-level adversity (Figure 2) (Ellis & Dietz, 2017; The Building Community Resilience Collaborative, n.d.). In this framework, two categories of ACEs exist: ACEs found within the family and ACEs found within the community. ACEs found within the family are known as adverse childhood experiences. These include experiences within the family of maternal depression, emotional and sexual abuse, substance abuse, domestic violence, homelessness, incarceration, mental illness, divorce, and physical and emotional neglect. These ACEs can be easily identified in clinical, educational, and social service settings. They are also considered symptoms of the broader ACEs found in the community.

ACEs found within the community are known as adverse community environments. Adverse community environments include poverty, discrimination, community disruption, lack of opportunity, mobility, and social capital, poor housing quality and affordability, and violence.

The Pair of ACEs model frames individual experience within the context of the conditions in which they are experienced. It also considers the reciprocal nature of these two types of adversity, in which adverse community environments influence adverse childhood experiences and vice versa (Hege et al., 2020; Vaughn & DeJonckheere, 2021).



**Figure 3** Pair of ACEs Model (Ellis & Dietz, 2017; The Building Community Resilience Collaborative, n.d.)

The combination of prolonged exposure to stressful experiences, adverse environments, genetics, and behavior has a cascading effect that can increase allostatic load, the wear and tear of stress on the body (McEwen, 2006). This results in inefficiencies in the body's handling of both imminent dangers and the challenges of daily life (McEwen, 2006). Allostatic load accumulates and may appear in the body as allostatic (stress response) systems that frequently activate, systems that do not shut off after stress, and inadequate responses that lead to elevated activation of other counter-regulated allostatic systems in response to stress (McEwen, 1998). The nervous, endocrine, and immune systems can all suffer from high allostatic load (McEwen, 1998).

Addressing allostatic load from a Pair of ACEs perspective requires individual-level and community-level strategies. Social relationships and physical activity have been discussed as critical factors in developing interventions that target allostatic load (McEwen & Gianaros, 2011). Social integration has been associated with better health over the lifespan, and social support has been associated with a greater ability to cope adaptively with acute and chronic stressors (McEwen & Gianaros, 2011). Physical activity has been shown to improve memory, have antidepressant effects, and be beneficial for the brain, cardiovascular, and metabolic systems (McEwen & Gianaros, 2011). Government and private policies that promote physical exercise and social engagement are promising strategies to reduce allostatic load (McEwen & Gianaros, 2011). A Pair of ACEs approach considers the individual and environmental change necessary to counter the effects of toxic stress.

### Healing-Centered Engagement

Collective action that uproots the source of trauma is a healing process that can lead to healthy environments (Ginwright, 2015, 2018). Healing-Centered Engagement (HCE) frames healing from adverse community environments as a process. It is action-oriented, asset-based, and focused on collective healing and individual healing. Through this lens, communities are agents in their own wellbeing, finding healing in awareness of and addressing the conditions that create trauma. Power, purpose, and control over life situations and decision-making

processes are considered functions of wellbeing. The uplift of shared culture, community history, and individual skills becomes a pathway to social support that creates an environment for collective action. HCE transforms the social environment into an engine for community-wide change that supports lasting wellbeing.

Healing-Centered Engagement is based on four principles (Ginwright, 2018). First, HCE is explicitly political, not clinical. The sources of trauma are more than individual experiences and reflect inequitable societal conditions. Second, HCE is culturally grounded and views healing as the restoration of identity. Culture grounds communities in a sense of meaning, self-perception, and purpose that encourages supportive environments. Third, HCE is asset-driven and focused on wellbeing. The experience, knowledge, skills, curiosity, and other positive traits in a community are talents to be supported. Fourth, HCE supports providers with their own healing. A heal-the-healers approach promotes collective healing by restoring and supporting those in the community who attempt to restore and support those who have been traumatized.

## Method

### Case Definition and Selection: The Redevelopment of Elm Playlot

The Iron Triangle neighborhood of Richmond, CA was designated for specific healthy development projects because of its poor health, social, and economic conditions in 2008 (Corburn et al., 2014). The neighborhood, named for the three sets of railroad tracks that define its borders, is a majority community of color and has a reputation for community violence (Rogers, 2009). It is densely populated, with 14,418 residents in a 0.722 square mile area, roughly five times Richmond's citywide density (City Data, n.d.). The neighborhood's median household income is roughly \$25,000 less than the median household income of Richmond, and nearly twice as many Iron Triangle residents live below the federal poverty level compared to the city overall (City Data, n.d.). Adversity in the environment is not only present in the Iron Triangle neighborhood, but compared to Richmond overall, it is amplified.



**Figure 4** Map of the Iron Triangle Neighborhood - Richmond, CA (Hallissy & Sarkar, 2001)

However, since 2015, perceptions of neighborhood conditions have improved. I compared responses to the 2015 and 2019 Richmond Community Survey Geographic Comparison Reports and found increases in positive perception of several characteristics of the Iron Triangle's area (Table 1) (Richmond, CA, 2015, 2019). While the regions used in the report combine multiple neighborhoods into single reporting units, this data can be seen as a reasonable proxy where neighborhood-specific data is unavailable. Regarding Richmond

overall, 41% of respondents in the Iron Triangle region felt it was a good place to live, and 55% thought it was an overall safe place to live. This response represents a 52% and 55% increase, respectively, compared to 2015 responses. Perceptions of one's neighborhood as a good place to live increased by 84% from 2015-2019. The number of respondents who perceived affordable quality housing as available also rose 69%. Regarding community agency and social connection, the number of respondents who felt a good opportunity to participate in community matters increased 100%, and the perception of neighborliness in Richmond rose 244%. This data suggests improved living conditions that may contribute to improved health of the community.

**Table 3**

Richmond Community Survey Geographic Comparison Report 2015 and 2019, Percent Agree with Statement

<b>Statement from Richmond Community Survey</b>	<b>2015</b>	<b>2019</b>	<b>Difference</b>
Richmond as a place to live	27%	41%	+52%
Overall feeling of safety in Richmond	11%	17%	+55%
Your neighborhood as a place to live	19%	35%	+84%
Availability of affordable quality housing	13%	22%	+69%
Opportunities to participate in community matters	19%	38%	+100%
Neighborliness of residents in Richmond	9%	31%	+244%

Community redevelopment may be a reason for improved quality of life. From 2007-2015, residents of the Iron Triangle neighborhood led a transformative process of planning, designing, and rebuilding of Elm Playlot, a local park. The transformation of the physical and social environment at Elm Playlot has been heralded as a model for urban park redevelopment. It has been highlighted in the City of Richmond's Health in All Policies report, The Field Guide for Creative Placemaking and Parks, and awarded The San Francisco Foundation's Community Leadership Award (Pogo Park, 2017a, 2017b; Richmond, 2015).

This case study will explore the community-driven redevelopment process of Elm Playlot in the Iron Triangle neighborhood. The redevelopment process of Elm Playlot was not conceived as a form of healing at its outset. However, this case study will explore how this process functioned as a form of Healing-Centered Engagement (HCE). HCE highlights the importance of engaging communities impacted by trauma as active participants in their wellbeing, finding healing in identifying and addressing the causes of their trauma (Ginwright, 2018). In addition to repairing the built environment as a sign of recovery, community residents experienced many aspects of HCE as participants in the redevelopment process.

I consider this a revelatory case study because of my unique opportunity to observe and analyze this process in a way previously inaccessible to inquiry (Yin, 2013). Interventions that address adversity that leads to toxic stress can be highly context-specific and rarely include the voices of those experiencing adversity in the research-to-action process (Burke Harris, 2018; Egnew, 2005; Felitti et al., 2019; Shonkoff et al., 2012). Before beginning my doctoral studies, I participated in the community development process as a volunteer and Richmond resident. In 2008, I planned and facilitated a Photovoice project with community residents to identify opportunities and barriers to the redevelopment of Elm Playlot. Since then, I have helped

facilitate community meetings and participated in various activities. My direct experience and understanding of the context of the process is an asset to community partnership building, data collection, and data analysis.

### Study Location and Population

Richmond, CA is located in the San Francisco Bay Area and home to 108,853 residents (Bureau, n.d.). The city is ethnically and racially diverse. Forty-two percent of the population identified as Hispanic or Latino, 20% identified as Black or African American, 18% identified as White alone, and 15% identified as Asian alone (Bureau, n.d.).

The city suffers from many conditions of adverse community environments. Almost 50% of housing is renter-occupied, 17% lack broadband internet, and seven percent of total housing is vacant (Bureau, n.d.). Twenty-eight percent of the population has an income below 150% of the poverty level (Bureau, n.d.). Richmond has a history of community violence and environmental pollution. In the mid-2000s, Richmond was one of the most violent cities in the nation, with a homicide rate of 46 per 100,000, many times higher than the five per 100,000 seen in similarly sized cities in California (Matthay et al., 2019). A 2014 report by the city listed homicide as the third leading cause for years of life lost among males in Richmond (The Richmond Health Equity Partnership by Contra Costa Health Services, n.d.). The city is also home to a Chevron refinery that has been the site of numerous chemical release incidents over the years. A 2012 refinery fire resulted in Contra Costa County declaring a Tier 3 Multi-Casualty Incident Plan, reserved for an incident with mass casualties or potential for mass casualties (Remy et al., 2019). Communities nearest the refinery saw a nearly four-fold increase in emergency department visits the four weeks following the incident (Remy et al., 2019). Many adverse conditions in the environment put residents' health at risk.

In response to these issues, the City of Richmond became one of the first cities in the nation to develop an element of its general plan, the Community Health and Wellness Element (Health Element), that addressed the link between public health and community design (Cohen et al., 2009). From this, the Richmond Health Equity Partnership (RHEP) was formed. Eight toxic stressors affecting city residents were identified through a series of 18 community meetings, 13 city staff meetings, and 17 RHEP meetings (Richmond, 2015). They were: 1) racial profiling; 2) poor air quality and lack of safe space; 3) residential segregation; 4) street, neighborhood, and school violence; 5) economic insecurity; 6) overburdened social services; 7) high food prices/lack of affordable foods; and 8) lack of affordable care (Richmond, 2015). These stressors guided the development of a framework for collaboration among city departments, community-based organizations, and other government agencies to address community health, equity, and sustainability (Richmond, 2015). This resulted in adopting a Health in All Policies ordinance in 2014 to operationalize the Health Element (Richmond, 2015). Richmond, CA became a city dedicated to mitigating and preventing toxic stress.

### Study Design

Data was collected from multiple sources to triangulate and confirm findings and address the potential bias I might introduce by proximity to the case study. In the spirit of a community-driven process, a community-based participatory research (CBPR) approach was used to collect and analyze data in partnership with community members. Individual

interviews, facilitated group discussions, participation in community meetings, review of archival documents, and participant observation notes informed the findings in this paper.

A detailed narrative of the redevelopment process proved to be beyond the scope of this paper. Rather, I present the findings as answers to the three research. First, I provide a summary narrative of the redevelopment process to give context for the thematic analysis. Second, I identify themes related to adversity that shed light on the impetus for redevelopment. Third, I identify and describe "healing features" of the process, themes that point to elements that aided in individual and collective healing.

### Data Collection

I collected data for this study in the form of 15 semi-structured interviews, participant-observation field notes from 2017-2020, two facilitated Pogo Park workshops, and participation in one Pogo Park leadership team planning meeting. Twenty-four archival documents and media files from Pogo Park, the City of Richmond, publicly available reports, and media outlets were also reviewed. All interviews, workshops, and meetings were audio-recorded and transcribed.

I conducted 15 semi-structured interviews with 15 participants, divided between three stakeholder groups: Pogo Park staff (10), Iron Triangle residents (3), and representatives from partner organizations (2). These interviews provided insight into the neighborhood pre-redevelopment, how and why residents got involved, the challenges faced during redevelopment, and the strategies used to overcome them. Interviews were approximately 60 minutes in length. I identified initial interviewees in collaboration with Pogo Park leadership and members from a UC Berkeley research team working on research related to Pogo Park. I used purposive sampling methods to find subsequent interviewees. Interviews were conducted anonymously to protect confidentiality and encourage open and honest responses.

I facilitated two timeline development workshops with the Pogo Park team. The group developed a timeline of key events and milestones in the process of redevelopment at Elm Playlot. As a form of CBPR, these meetings were an opportunity for me to support Pogo Park in capturing a piece of the organization's history collaboratively. These meetings consisted of 15 participants each and were two hours in length. I also participated in a Pogo Park strategic planning meeting, consisting of the organization's three directors, partaking in a similar discussion of Elm Playlot's redevelopment history.

Archival documents and media files were procured with the help of Pogo Park leadership and downloaded from publicly available websites. I used these documents to identify additional milestones and confirm findings from the interviews and group discussions. Twenty-four (24) documents in total were reviewed. This included, in alphabetical order: the City of Richmond Health and Wellness Element, Elm Playlot Action Committee Public Meeting minutes, media coverage of Pogo Park, memorandum of understanding between Pogo Park and the City of Richmond, Pogo Park annual reports, Pogo Park media announcements, Pogo Park strategic planning and operations documents, and Pogo Park grant proposals and reports.

I kept participant-observation field notes weekly at a minimum using standard ethnographic methods. These notes provided ongoing analysis and captured any findings from informal conversations and experiences as a member of the Pogo Park team. I was embedded

in the Pogo Park organization as a team member from 2017-2020. In my role, I worked at Elm Playlot a minimum of two days each week, supporting programming and planning efforts.

### Data Analysis and Interpretation

I used process tracing techniques to identify the events and conditions that occurred as part of the redevelopment process. Process tracing is a within-case technique used to determine the sequence of events and sufficient conditions necessary to achieve an outcome (Beach, 2014). Events and conditions are explored within the context of the relationships, resources, and power dynamics present in the process.

I conducted thematic analysis using nVivo 12 software. My initial coding consisted of in vivo codes to center the voices of community members. I further developed major codes from these initial codes under the guidance of my dissertation chair (Table 2). I shared these initial themes and examples for feedback with a joint UC Berkeley-Pogo Park research team in spring 2020. The research team consisted of my dissertation chair, a graduate student, two undergraduate students, a community partner, and myself. The research team gave feedback to clarify questions and discuss the appropriateness of examples presented. I used the feedback from this meeting to clarify themes and review the data again. I experienced a delay in getting community feedback due to the Covid-19 pandemic. In spring 2021, I presented my revised major themes and examples to community partners at a virtual meeting with Pogo Park staff and a separate virtual meeting with the Pogo Park Board of Directors. Community partners provided feedback in clarifying questions and discussion about the relevance of these themes to their experiences in the redevelopment process. From these presentations, I clarified and confirmed the themes presented in this paper.

**Table 4**  
Major Codes, Definitions, and Examples

Question 1: What insight about how adversity affects a community can be gained by analyzing a community-led redevelopment of an urban park using the Pair of ACEs model?		
Code	Definition	Examples
Damaged	Elements of the physical environment were described as deteriorated or being damaged quickly.	"The swings got eaten up by pit bulls that were in the neighborhood."  "...no matter how much people try to make something better... there's still people out that want to make it bad."
Unsafe	Places were deemed unsafe because of the reputation of how the spaces were used, such as to sell drugs.	"It [Elm Playlot] looks like an ideal place and neighborhood for children to be. But it's all a façade."  "Drugs, drug dealers [and] a lot of violence."
Bad Faith	Past attempts to redevelop the park by outside partners who had ulterior motives that did not include the community's best interest	"I thought Toody was another person just coming around, blowing smoke... I didn't hear anything different I done heard from countless people...."

Question 2: What makes a community-led process of redevelopment healing-centered?		
Code	Definition	Examples
Agency	Agency requires belief in achieving a goal and the capacity to do so.	<p>Belief            "...for the community; you give them a chance. I gave all of the other people chances. And what it sounded like she [Toody] was doing was that she was giving chances to my family as well, so, I got on the bandwagon"</p> <p>Capacity            "So, he suddenly... didn't have that problem anymore... like those kinds of little things... You have to really make the, the threshold as low as possible."</p>
Voice	Understanding the context of the community – its history, who lived there, their needs and wants – requires listening to the community	"Photovoice revealed to the actual residents and the people who live and work in this neighborhood that there is a path for self-actualization."
Incremental	An incremental approach consists of achieving a series of small milestones rather than focusing on one finish line	"...everybody is getting an opportunity to be a key to go in...make a change and given opportunity..."
Invest	Investment in the community members who were driving the redevelopment process was just as important as investment in the physical park	"...by building something, and giving the community a chance to be a part of it, it seemed like it brought...some love...some strength and some protection... a sense of hope..."

### Limitations

A limitation to this study was purposive sampling in the interview process. Pogo Park staff were the starting point for these interviews. Participants who were referrals tended to view the process at Elm Playlot in a favorable light. I was made aware of potential participants who had negative experiences with the redevelopment process, but refused participation.

Reaching community residents who Pogo Park had not employed proved challenging, partly because participation by residents who lived in the neighborhood during the time of redevelopment was high. Other current residents were excluded because they did not live in the Iron Triangle neighborhood during redevelopment. Residents also seemed hesitant to engage in any survey or interview process. As one participant who was a recognized leader in the neighborhood told me, because of the political climate, "...people were more comfortable being invisible right now," (Interview #8, September 24, 2019).

Lastly, three scheduled interviews were canceled due to the Covid-19 shelter-in-place orders of March 2019 and could not be rescheduled. As the pandemic continued, scheduling additional interviews was not possible. I could not garner as many different perspectives from non-Pogo Park affiliated community residents and community partner organizations as planned.

## Findings

I present the findings of the case-study in three sections. First, I explore themes related to adverse community conditions that informed the redevelopment process. Second, I share a brief overview of the redevelopment process to highlight key moments of the process. Third, I identify and describe "healing features" of the process, themes that aid in exploring redevelopment as an act of Healing-Centered Engagement.

### Adverse Community Environments: An Impetus for Redevelopment

#### Disruption and Unsafe Public Space

Many forms of adversity in the physical and social environment informed the redevelopment process. Symptoms of adversity found in the physical environment were identified in Elm Playlot itself. Pre-redevelopment, the park was described as "regular" and "typical out of the box." However, the built environment was known to deteriorate. Swings, monkey bars, and play structures were damaged quickly at the park. One interviewee said

The swings got eaten up by pit bulls that were in the neighborhood, and the kids that own[ed] those dogs took great pleasure in seeing if their dog could rip things apart. And so...it was the whole genre around here was kind of, of a mode of destruction..."

(Interview Participant #8, September 24, 2019)

The damaged physical environment of the park was also captured in the 2008 Photovoice project. One resident described how this damage could send the message that safe environments for children were not wanted in the community (Figure 4). The presence of graffiti was a reminder that, despite best efforts to create a positive environment for children, resistance to holding such spaces existed in the community.



**Figure 5** "I don't like this graffiti at all because it just shows that no matter how much people try to make something better and make a better environment for the kids to live and, you know, making it a better place, that there's still people out that want to make it bad." (Pogo Park Photovoice Project, 2008)

The misuse of Elm Playlot deterred children and their caregivers from visiting it before redevelopment. Pre-redevelopment, Elm Playlot was, "...just a park you know you couldn't go to as a youngster...because it was kind of tough," (Interview Participant #6, December 6, 2018). Adults were the primary users of the park. Residents remembered the use and sale of drugs, alcohol consumption, and dogfighting at the park. Outside of these activities, residents described the park as "always empty," a place where "kids couldn't come out," with "drugs,

drug dealers [and] a lot of violence." Elm Playlot "...really, wasn't safe to come here even...if your parent would be with you" (Interview Participant #5, December 5, 2018). One participant stated

"there's so much going on... you know... at this park and... you don't want your kids [seeing it] .... Because they doing all of this crazy stuff in front of the kids... It got to that point where they didn't even care if the kids was outside. They curse and they drank and, you know, they doing whatever right in front of the kids." (Interview Participant #7, September 24, 2019)

Another Photovoice caption noted that the physical appearance of Elm Playlot masked the true nature of the park (Figure 5). Its peaceful appearance hid the actual use of its space that deterred children and families.



**Figure 6** "This is the Elm Street park in the morning. It's calm, it's clean, it's peaceful. It looks like an ideal place and neighborhood for children to be. But it's all a façade. As the hours and time ticks by...the neighborhood awakens. You have people that's doing drugs...People that come in the park with their animals and let them... put feces and urine and stuff, and chew on the swings... It's just awful...You wouldn't believe the stuff that's going on. It's just a bad place." (Pogo Park Photovoice Project, 2008)

### Disruption and Unsafe Housing

The housing surrounding Elm Playlot was similarly representative of adverse community environmental conditions. Pre-redevelopment housing surrounding the park was described as "abandoned," "boarded up," and "dope houses." One participant shared her experience of moving into one of these houses and quickly becoming aware that her unit was previously known as a place to buy drugs. Constantly warding off drug-seekers from her window made living near Elm Playlot scary and dangerous. She said

...it was kind of scary, you know, but they would just go through the window, 'Can you give me a dime? Can you give me this?' and stuff like that... and they will knock on the window, and I go, 'They don't live here anymore.'... and they will leave after a while... (Interview Participant #1, November 20, 2018).

For another resident, the homes surrounding the park were a source of drug use, violence, and death from which they struggled to shield their children (Figure 6). These factors made children and their parents afraid of their neighborhood.



**Figure 7** "This building here is one of three houses in a row that's boarded up and abandoned. I have a four-year-old that knows about dope houses, she knows about drugs, she knows about guns, she knows about gangs. And it's...she knows about death. And that's basically what's going on in our neighborhood. And I don't think it's fair for a four-year-old to be scared to come outside to the park because she sees grown-ups there that's doing what they're not supposed to be doing. Or seeing dope fiends or dope sellers in buildings like just setting up shop, and she's afraid to come outside to go to the park because she thinks there's going to be violence or a shooting. She's only four years old, and it's not only my children, it's a lot of other children that's in the neighborhood as well, that feel the same way." (Pogo Park Photovoice Project, 2008)

### Memories of Inauthentic Partnership

Previous attempts to improve Elm Playlot remained in residents' memories as negative experiences. These bad faith partnerships made long-time residents skeptical of working with outside partners. Bad faith partners professed good intentions but had ulterior motives that did not benefit the community. They did not improve neighborhood conditions but used the goodwill of residents to further their own goals. Pre-redevelopment, one resident said

I didn't really believe it [the goal of Pogo Park] because you know, living here all of these years...you get a bunch of people that come and say that they want to help, and they're going to do this...and it's like, okay, you take it with a grain of salt. (Interview Participant #7, September 24, 2019)

Pogo Park's vision sounded familiar to false promises made by previous organizations and individuals outside of the community that never came to fruition. Another community resident described her first impression of Toody Maher as the latest in this line of bad faith partners.

The resident was wary of another person who wanted the publicity and resources that accompanied helping this community but did not want to help the community. She said

I thought Toody was another person just coming around, blowing smoke... I didn't hear anything different I done heard from countless people...that we are here to help the community...And then it's a big event, hot dogs, entertainment, and t-shirts...the whole thing. But when the smoke clears, it was still the same way... I don't call them [this] myself personally. I've heard another person use this term, poverty pimps. (Interview Participant #3, December 3, 2018)

This section highlighted the varying forms of adversity present in the Iron Triangle neighborhood pre-redevelopment. Adversity existed in both the physical and social environment as the deterioration of the built environment and deleterious use of space negatively affected life in the community. Collective memory of community development in which residents felt taken advantage was an additional barrier to the redevelopment process. However, step-by-step, Elm Playlot was rebuilt. In the next section, I share a brief history of the redevelopment process.

### A Brief Overview of the Redevelopment Process

A single turning point or milestone did not mark the redevelopment process at Elm Playlot. Instead, the process was the culmination of many small successes (Figure 7). From 2007-2015, residents from the Iron Triangle neighborhood led the redesign and construction of Elm Playlot and the development of a community-based staffing model for the park.

In 2007, Richmond resident and social entrepreneur Toody Maher established Pogo Park, a community-based nonprofit dedicated to creating rich experiences for children through parks. In the Iron Triangle neighborhood, she found community partners who shared this vision which led to the formation of the Elm Playlot Action Committee (EPAC), named for the park that would become the focus of its work.

In 2008, the formation of EPAC, consisting of eight women of color who were long-time residents of the neighborhood, gave access to an extensive network of friends and family in the neighborhood who would participate in the redevelopment process. EPAC members established Pogo Park's connection to Opportunity West, a trusted community-based organization that became another pipeline to participation for many residents. EPAC also led community engagement efforts through door-to-door surveys, community discussions, model building activities, a Photovoice project, and informal conversations with their neighbors. One of the first meetings held by EPAC resulted in identifying characteristics of a great park that informed the later park design and staffing model. According to Pogo Park, a great park 1) Is safe; 2) Is staffed by people who care for it and who care for children; 3) Is stimulating, ever-changing, and fun; 4) Offers basic amenities (bathroom, running water, snacks); and 5) Is a community hub (offers other programs, services, classes, and events) (Community Input Meeting notes – Pogo Park Internal Communication, December 10, 2018).

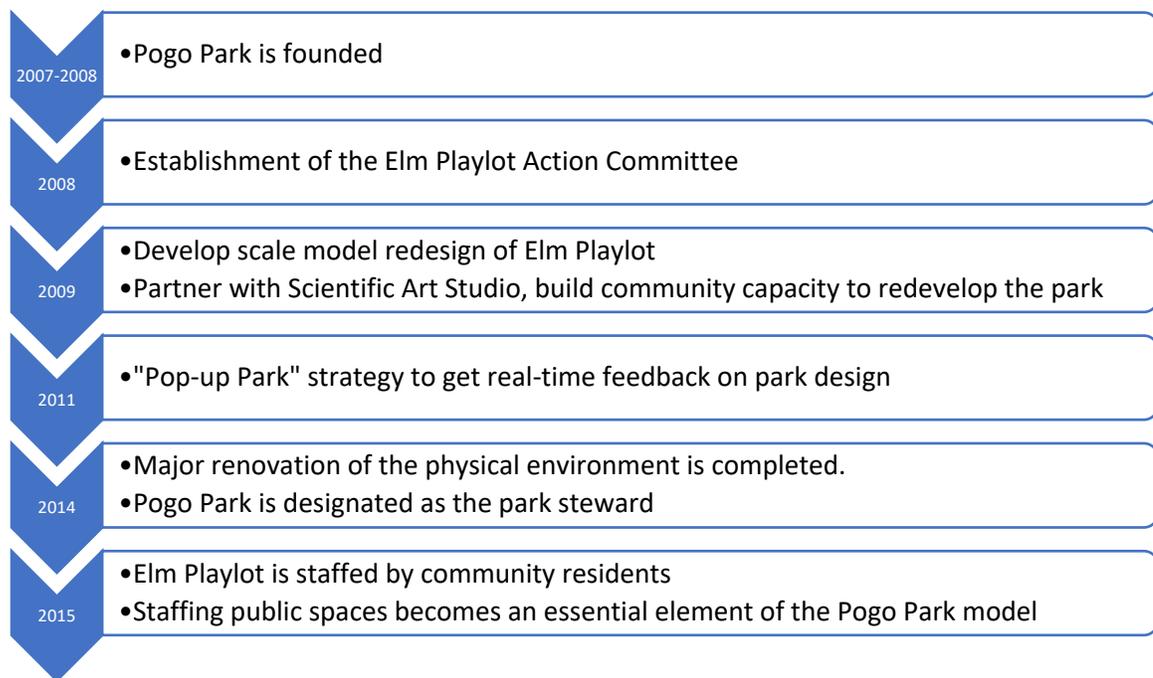
In 2009, Pogo Park team members collected data through community discussions that informed the first scale model redesign of Elm Playlot. With design ideas in hand, community experts worked with partners from Scientific Art Studio (SAS), a for-profit company located on the industrial side of the Iron Triangle neighborhood, providing technical assistance in developing the model. SAS additionally provided Pogo Park with its first dedicated office space and training in park redevelopment. This partnership created opportunities for residents to learn the skills necessary to build the park themselves and opportunities for SAS to become more involved in the community.

In 2011, Pogo Park assumed responsibility for Elm Playlot through the City of Richmond's Adopt-a-Park program. By this time, Pogo Park had helped the city secure funding to renovate the park, playing an essential role in gathering community input. As the city permitting process for the redevelopment of Elm Playlot moved along behind the scenes, the organization sensed community momentum waning. This led to what Pogo Park called its "Pop-

up Park" strategy. Pogo Park developed temporary structures and temporary programs to test out design ideas at Elm Playlot in real time. Community members identified the most popular and needed at Elm Playlot, influencing its design. The "Pop-up Park" process required Pogo Park staff to monitor and support the park while children and families visited. Residents commented on the benefit of having a park staffed by trusted adults.

In 2014, major renovation of Elm Playlot's physical environment was completed. This included purchasing the vacant house adjacent to Elm Playlot that is transformed into an indoor office/community center. The City of Richmond made Pogo Park the official park steward of Elm Playlot. As park steward, Pogo Park has autonomy over the design and build of the park.

In 2015, Elm Playlot is staffed primarily with residents from the neighborhood. These staff members are referred to as the Community Resident Team and is comprised of 11 residents who oversee the daily programming, maintenance, and operations at Elm Playlot. Daily programming includes distributing free snacks and meals to all children at the park, facilitating arts and crafts, and distributing play equipment. Five team members lived directly across the street from Elm Playlot, and two were members of EPAC. The staff becomes the trusted hosts of the park and staffing the park is described by Maher (2019) as how the vision of Pogo Park is "activated."



**Figure 8** Brief Timeline of the Redevelopment Process at Elm Playlot

Healing Features of a Community-driven Redevelopment Process

I observed healing in many different forms in the process of redevelopment. Healing of the environment was noted by one participant in the changing perception of Elm Playlot. A member of the Pogo Park team described the moment she realized that the reputation of the space had changed

It feels peaceful, because a lot of people come in and they say...this is awesome...this is awesome over here...I feel like an embrace...like somebody's hugging us. You feel peace here...A lot of people have told me that...it feels like there's a peaceful place here to go to. And I know that's because we're all together [laughs] where before we weren't, but now we're together. (Interview Participant #1, November 18, 2018)

Resident perception of a safer environment extended to the neighborhood. One resident commented on the increased ability to use public spaces without fear of violence

Today, the neighborhood from what it was back then, I feel like it's about 10 times better to me...people walk around, you know, a little more freely than what they did...back then...people not really getting shot like that...for the most part though...you be outside, you see people walking around, people got their kids outside... (Interview Participant #7, September 24, 2019)

Perceptions of safety and peacefulness point to a sense of healing in environments that were previously marked by trauma.

The investment in people from the community and the investment of residents in the redevelopment process had a positive effect on residents. Outside partners noticed a positive change in community members. One partner said, "...[you] see them evolve, you know, becoming happier people...healthier people that radiate self-confidence...that is awesome..." (Interview Participant #13, March 9, 2020). Participants found a profound value in the redevelopment process that has shaped their personal identities. The idea that the community achieved change together was celebrated among residents. It was seen as a source of pride, a collective identity that connected residents to the community. One resident said, "The process has given the community something to feel proud about and call its own...people in the community are hands on, have their ideas, and their sweat in the project. They have more pride because of that..." (Interview Participant #9, October 4, 2019). Another community partner shared

Elm gave the people in this neighborhood and this community the opportunity to create something for themselves, they now have...the ability to take care of and to, to make permanent for themselves and their families in their neighborhood...and that's awesome... it's a beautiful asset and it's a beautiful thing to be proud of. (Interview Participant #8, September 24, 2019)

How the process contributed to this sense of healing is the focus of the remainder of the findings section. I identified four strategies essential to the success of Elm Playlot's redevelopment and collective healing. First, a focus on agency building puts community residents in decision-making capacities early in the process and develops the necessary skills to lead the process. Second, the process was rooted in community context, ensuring that it was responsive to community history, culture, and experiences. Third, the process advanced incrementally as a series of small successes that created opportunities for community engagement throughout the process and the ability to adapt to changing factors in the environment. Fourth, through practices like paid employment, the process supported community experts tangibly, which increased community buy-in. Together, I label these strategies "healing features" because they lead to collective action based on the strengths of the community. These strategies keep power, purpose, and control over life situations and decision-making processes within the community as functions of wellbeing (Ginwright, 2018).

## Healing Feature 1: Build Agency

Agency requires belief in achieving a goal and the capacity to do so. Building agency within the community required the implementation of two-pronged strategy. First, Pogo Park built trust among community residents and organizations. Second, Pogo Park provided opportunities to get involved and removed barriers that would deter community participation. Belief in the process of redevelopment and the ability to participate in it were achieved using these strategies.

Early on, a key strategy was to build credibility within the community by building relationships with existing community-based organizations in the Iron Triangle neighborhood. An example of this was in the relationship built with Opportunity West. Opportunity West was a trusted had a long history of resident participation, functioning as a community quarterback, coordinating partnerships and resources throughout the community (Jutte et al., 2015). The director of Opportunity West was receptive to Pogo Park, a new organization, for two reasons. First, the two organizations shared a vision for the community that felt well thought-out and evidence-based. Second, the long-term vision of Pogo Park focused on improving the Iron Triangle neighborhood rather than using the neighborhood as a temporary pilot or demonstration site before shifting focus to a different or broader scope. A community partner present at the time said about Pogo Park

...it was rooted in data and research. And it wasn't just some fly by night, pick some ideas out of the blue. I'm going to try this, I'm going to try that, but more, I'm going to have a foundation here that I'm going to put down with the people here and let them help to develop it, but always...have evidence that what we're doing is having impact. (Interview Participant #8, September 24, 2019)

Through this relationship Pogo Park built partnerships with other organizations and found residents receptive to its vision. Coincidentally, Opportunity West began winding down its operations as an organization around the time that Pogo Park was establishing. Many of the residents who worked with Opportunity West were familiar with Pogo Park and encouraged to work with the organization. The baton was passed from one trusted organization to another.

The redevelopment process required building skills in planning and design, carpentry, metalwork, community engagement, fundraising, and advocacy. Each of these areas required varying levels of skill and training. Providing training for these skills was necessary and it was essential to address any barriers in the lives of residents that could prevent participation. One community partner described his experience working with a resident who wanted a job but could not take it because he did not have a license and could not travel between work sites during the day. The community partner offering the job did not consider this obstacle but realized that providing a job was insufficient. It was also essential to provide the proper support. He said:

... There's so many other things in their [residents'] lives that will keep them from doing just that one simple thing, right? Like [participant], for example, he didn't have his driver's license. So, he couldn't drive...so Toody and team helped him to get his driver's license. So, he suddenly... didn't have that problem anymore... like those kinds of little things...You have to really make the, the threshold as low as possible. (Anonymous Partner #13, March 9, 2020)

Lowering the threshold to participation, particularly in new skill areas, was an initial step towards building community capacity to lead redevelopment.

### Healing Feature 2: Understand Community by Centering Community Voices

When I asked Toody Maher, "Why did you involve community members?" (Personal Communication, November 9, 2021), Maher responded, "I just knew that they knew more than me. There was no way you can change anything without input from the community. They knew what the community needed." (Personal Communication, November 9, 2021).

Understanding the context of the community – its history, who lived there, their needs and wants - was essential for the redevelopment process. To do so, Pogo Park employed strategies that recognized the diversity in the community, was led primarily by members of the community, and engaged the community creatively in the planning process. As mentioned earlier, the Elm Playlot Action Committee (EPAC) consisted of eight women of color who were long-time or lifelong residents of the neighborhood. EPAC played an essential role in the community engagement strategy. For example, EPAC members spent two weeks passing out 800 flyers to houses, schools, churches, and stores in the neighborhood for the first general planning meeting in the community. Approximately 40 participants attended the event, 25 of which were community residents or local activists (Community Input Meeting notes – Pogo Park Internal Communication, December 10, 2018). From this meeting, Pogo Park learned that community residents were most concerned about safety and felt that the park would fail without a sense of security. This meeting identified physical amenities, programs and services offered, and cross-cultural activities to connect residents from different backgrounds as desired park elements.

Community meetings were one form of community engagement implemented. Another form of engagement that the organization embraced was Photovoice. Photovoice enables local communities to identify the problems and opportunities that exist within their community while preserving the complexity of these conditions, with the ultimate goal of advocating for action based on their findings using a combination of photography and written captions (Catalani & Minkler, 2010; Wang & Burris, 1997). I led the first Photovoice project conducted by Pogo Park in 2008 after meeting with Toody Maher for an informational interview as part of a class assignment. During our conversation, Maher mentioned her intention to get community input about the park. I shared my experience with Photovoice, having recently completed two youth Photovoice projects in Berkeley, CA. We agreed that Photovoice was a unique and creative way to get community feedback. I joined Pogo Park as a volunteer facilitator of the Photovoice project two months later.

As a novel approach to community engagement, Photovoice presented an opportunity for residents to share nuanced experiences of the neighborhood. In doing so, Photovoice revealed opportunities for action to participants. One participant said

When Photovoice came, people were able to see that there were elements in the community that actually could be changed fairly easily. It didn't need a million dollars to...move the pit bulls out of the park. It didn't need a million dollars to make a concerted effort to let the dope dealers know that they weren't welcome here...You didn't need a million dollars to do a lot of things that would make a huge change in the quality of life for people around here. So Photovoice revealed to the actual residents

and the people who live and work in this neighborhood that there is a path for self-actualization. (Interview Participant #8, September 24, 2019)

Centering community brought neighbors together and aided in building social connections. As one resident said, "...we didn't even know our own neighbors. Cause you know, nobody wanted to come out...But like...he works for the park too. He lives right there around the corner. And I didn't even know him...now we're working together..." (Interview Participant #1, November 20, 2018).

### Healing Feature 3: Incremental Improvement

An incremental approach consists of achieving a series of small milestones rather than focusing on one finish line to achieve a goal. Participants in the redevelopment process credited this approach for sustaining participation over the years. An incremental approach increased opportunities for community members to get involved. One participant noted, "...everybody is getting an opportunity...make a change..." (Interview Participant #6, September 24, 2019). Such a step-by-step approach allows for a dynamic process that can adapt to changing forces. A Pogo Park staff member highlighted this as a process strength that balanced several projects at once. He said, "...we do best when we can change horses midstream and declare that something else has taken a priority and come back [to it later]..." (Interview Participant #2, November 26, 2018).

One strategy that aided in an incremental approach was that Pogo Park took a strengths-based approach to working with community residents. While some residents joined the team through other community organizations, others described more organic ways in which they got involved that was a function of meeting residents where they were. One participant who lived across the street from Elm Playlot described his experience as seeing "the lady with the hat" who "was in the park...every day, pretty much" and asking if she needed any help (Interview Participant #4, December 4, 2018). Others described similar interactions with Maher and other members of EPAC in which they learned about the project and offered the types of help they could give. From "load[ing] the sandbox" in the toddler area to providing Spanish interpretation for "the babies that go there," Pogo Park team members employed flexibility in their planning. They accepted any help that community members could provide, matching the strengths of community residents with what could be done.

Similarly, Maher said yes to partnerships and accepted help from partners outside of the community. Help with the scale-model redesign of Elm Playlot evolved from a meeting between the founder of Scientific Art Studio and Maher at an Iron Triangle Neighborhood meeting. Conducting the Photovoice project in 2008 resulted from a chance meeting between myself and Maher for an informational interview. Maher developed a relationship with MIG, the organization tasked with leading the conversation about the City of Richmond's Health Element in 2007-2008, and subsequently was invited to planning meetings. Regarding Maher's involvement, an organizational partner in drafting the health element noted

...Toody became an active participant in the meetings and discussions we had about the Health and Wellness element...believe Pogo Park was, I'm going to say it was a year or two old at that point...Toody was clearly the driver of it all. (Interview Participant #12, November 18, 2019)

Another incrementalism influenced strategy was the "Pop Up Park" approach. The "Pop Up Park" was a participatory approach that provided experiential feedback used in the final design of Elm Playlot. In 2011, funding had been secured for the redevelopment of Elm Playlot through the Prop. 84 grant, but two years would pass before that funding could be used. From August 2011 – August 2012, Pogo Park constructed temporary play structures - a sandbox, hillside slide, stage, and "Global Village" - and provided free afternoon programming – supervised games and snacks - for children among other activities while waiting for the funding to arrive (Pogo Park Holiday Fundraiser Newsletter, 2012). Pogo Park was able to pilot these ideas at Elm Playlot because in 2009 it joined the City of Richmond Adopt-A-Park program, assuming responsibility for the park (City of Richmond Adopt-A-park/Trail Program Agreement, September 1, 2009) Pogo Park collected feedback daily and experience as a development team how the community used the park. As noted in a team meeting by a staff member, "The Pop-Up park was where we started to really, to implement our model...and also it gave us a chance to, you know, learn to work together as a team" (Pogo Park Leadership Team Meeting, March 5, 2020).

#### Healing Feature 4: Invest in the people as much as the park

Investing in the community members who were driving the redevelopment process was as important as investing in the physical park for participants in the process. The investment was tangible, not metaphorical or symbolic. Pogo Park paid community residents for their participation, employed community residents primarily, and developed apprenticeship-style activities to support career development. Early investment in residents helped Pogo Park build trust in the community by providing economic opportunities where few existed. By the end of physical redevelopment in 2014, Pogo Park reported employment of more than 60 local residents, directing total wages over \$1 million at an average wage of \$17-\$20/hour (Pogo Park Annual Report, 2014). The process removed a barrier to participation for those who could not afford to volunteer and ensured that the people moving the process forward would be from the community.

A variety of jobs were available to community residents throughout the process. It was common for residents to transition from one position to another as the process progressed and needs changed. For example, after the major renovation of Elm Playlot's built environment in 2014, Pogo Park added a team of staff members to oversee the daily programming, maintenance, and operations at Elm Playlot. The team was referred to as the Community Resident Team and comprised of 11 residents. Five group members lived directly across the street from Elm Playlot and had previously participated in the design and build process. Two members of the team were original Elm Playlot Action Committee members. Opportunities like these were a chance for Pogo Park to express loyalty to its community partners and retain community expertise.

Along with funding positions, Pogo Park created opportunities for residents to grow their skill-bases. Finding the right partners with the needed expertise to teach these skills and mentor staff was essential. Over the years, Pogo Park worked with many organizations, but the partnership forged with Scientific Art Studio (SAS) has been essential to helping community members develop specific skill sets. SAS is a design and custom fabrication studio whose campus is located in the industrial part of the Iron Triangle neighborhood. Upon relocating to

Richmond, the founder of the organization, Ron Holthysen, began working with Pogo Park in 2007 after Maher presented to the neighborhood council in which he participated. Pogo Park was given workspace at the SAS campus and taught design techniques by Ron and his team, including how to build scale models. Over time, the relationship grew, and community residents were exposed to other skills such as carpentry and metalwork. Eventually, some Pogo Park team members functioned as shared employees with SAS, helping at the SAS campus in apprentice roles.

While pay and career support is essential to this work, the value of investment in community members is in the transformative influence of the process. One of the Pogo Park team members who works between the two organizations reflected deeply on the redevelopment process's impact on him. Interview Participant #6 grew up in the Iron Triangle. Joining the Pogo Park team was a chance to further leave behind a lifestyle from his youth that included drug dealing and resulted in prison. Instead, he found a new appreciation for how the community is built. He said, "... [the process] taught me to look at things differently. As far as the way things are built, the way things are made, I have a whole different understanding of it..." (Interview Participant #6, December 6, 2018). He further described how the process influenced his outlook on the community, "...by building something, and giving the community a chance to be a part of it, it seemed like it brought...some love...some strength and some protection... a sense of hope..." (Interview Participant #6, December 6, 2018). The work became more than a job for him. It became a way to invest in his community and became part of something that transformed his home

It wasn't just a job to me. It was just like; I want to be a part of that.... Cause I was across the street, looking at it, looking at them, do these things when it wasn't nothing...When it wasn't...I couldn't even see the vision, but I can see these people working together and forming something that was good. And that's what I wanted. (Interview Participant #6, December 6, 2018)

### Discussion

In this paper, I set out to answer three questions. First, what was the process of community-led redevelopment at Elm Playlot in Richmond, CA? Second, how can the Pair of ACEs model inform a community-led redevelopment of an urban park? Third, how can a community-led process of redevelopment be healing-centered? Regarding the first question, I provided a brief summary of the process, recognizing that comprehensively capturing it was beyond the scope of this paper. I will dedicate the rest of the discussion section to addressing the latter two questions.

#### How can the Pair of ACEs model inform a community-led redevelopment of an urban park?

The Pair of ACEs model provides a framework for exploring the relationship between adverse community environments and adverse childhood experiences. The impetus for community redevelopment in this case-study came from conditions of adverse community environments. Particularly, disruption to public spaces and lack of quality housing were highlighted as types of adversity included in the Pair of ACEs model. Housing was discussed as unsafe for the tenant from one perspective and cause fear of safety for others in the

neighborhood because of the tenant from another perspective. An additional adverse community environment condition discussed was distrust of community development. The significance of this adversity is that it adds an element of time to understanding of adversity and represented historical trauma in the community.

The common adverse childhood experiences were not represented in this case-study. Potentially adverse childhood experiences discussed included witnessing drug dealing, substance use, dog fighting, and violence in the community. The Pair of ACEs model helps situate these experiences within the context of community adversity. For example, knowledge of the negative influences at Elm Playlot pre-development explains why residents felt a public park was not suitable for children to use.

The Pair of ACEs model was useful as a framing tool for understanding adversity in a community. The model itself is described as a template for communities to adapt (Ellis & Dietz, 2017). When used as such, it aid in my exploration of the relationship between adverse community environments and adverse childhood experiences.

### How can a community-led process of redevelopment be healing-centered?

Healing-Centered Engagement (HCE) is based on four principles: 1) HCE is explicitly political, not clinical; 2) HCE is culturally grounded and views healing as the restoration of identity; 3) HCE is asset-driven and focused on wellbeing; and 4) HCE supports providers with their own healing (Ginwright, 2018). In this case-study, I identified four healing that can be considered elements of Healing-Centered Engagement. Below, I discuss how these strategies found in a community-led redevelopment process compare to the principles of Healing-Centered Engagement.

#### Building Agency

In some ways, this strategy aligned with the principle that healing is political, not clinical. Building agency aligned with this principle because it was centered around the community addressing the issues that affected it. Pogo Park's approach recognized that action was a function of cultivating the belief in a vision and the skills necessary to achieve that vision. However, building agency was not an overt political act to address social inequities. A recent report found that 92% of respondents felt their local parks benefitted their community (National Recreation and Park Association, 2015). An argument can be made that park redevelopment is an apolitical issue that benefits from bipartisan support.

#### Understanding Community by Centering Community Voices

This feature aligns somewhat with the principle that healing is culturally grounded and is the restoration of identity. The redevelopment process grounded residents in a shared sense of meaning, self-perception, and purpose, creating a supportive environment. The pride that residents felt in their work became a source of collective identity. Pogo Park staff in this study commented on how participation in the redevelopment process created social connections for them across ethnic lines where none existed previously. Efforts to learn about others' cultures as part of the redevelopment process was not mentioned beyond the desire for cross-cultural activities identified at a community meeting in 2008. Understanding of how the redevelopment process was culturally grounded in this way has room for investigation.

### Incrementally Improving

Incremental improvement aligned closer to the HCE principle that HCE is asset-driven and focused on wellbeing that at first glance. Incremental projects met community members where they were and gave them a chance to participate from a place of strength. Asset-driven approaches have been studied for their roles in promoting overall health, mental health, and psychological resilience in communities (Kobau et al., 2011). An incremental redevelopment process provided many opportunities to identify and nurture community assets over time, increase the likelihood of success at each step, and promote community wellbeing. Incremental projects highlighted possibilities for community wellbeing rather than concentrate on deficits. They leveraged opportunities in the community as they were presented and adapted the overall plan to meet the community's strengths.

### Investing in the People as much as the Park

Investing in the people who led and sustained the redevelopment process supports the fourth principle of healing-centered engagement that HCE supports adult providers with their own healing. This principle emphasizes the need for restorative and sustaining practices for providers often suffering from trauma themselves (Ginwright, 2018). The literature on job engagement states that engagement is sustained when energy, involvement, and job efficacy remain high (Maslach et al., 2001). Paid employment, career development, and decision-making authority were practices of the process that have kept residents engaged. How the process aided in explicit support of healing from trauma was not discussed in-depth but is a potential area for future study

### Conclusion

The Pair of ACEs model proved to be a useful tool in examining the types of adversity experienced in the Iron Triangle neighborhood of Richmond, CA. Regarding adverse community environments, I identified disruption to public spaces and housing that decreased feelings of safety in the neighborhood. I also identified historical trauma in the shape of fractures to the social environment made by outside partners who reneged on promises to improve the community. Regarding adverse childhood experiences, I identified witnessing illicit activities and navigating the aforementioned unsafe environments as potential risks. Regarding the relationship between the Pair of ACEs, adverse conditions in the environment influenced behaviors in the community. In turn, behaviors dictated who used certain spaces in the community which then defined the reputation of the spaces. The Pair of ACEs model highlighted how adversity is sustained and opportunities for intervention at the community and individual level.

Similarly, the use of the Healing-centered Engagement framework helped me understand healing as an active development process. Collective healing was an act of agency building in which a community both grew to believe in a shared vision and developed the skills to achieve it. Collective healing was an act of centering community voices to situate community transformation within the history and culture that made up the community. Collective healing was an act of incremental improvement built upon the community's assets and provided more opportunities for community engagement. Lastly, collective healing was an act of investing in

the people who made up the community, as much as the park itself, through employment, job growth, and decision-making opportunities. These healing features were essential to the process of redevelopment at Elm Playlot.

In closing, Healing-Centered Engagement asserts that people are more than the worst thing that has ever happened to them(Ginwright, 2018). People who experience trauma have an intimate relationship with it. Their knowledge is born out of their own suffering and ability to survive their circumstances. Survival requires the expertise of resilience to do so. This strength cannot be overlooked by those leading a process of redevelopment that is community-driven and healing-centered.

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## Introduction

Community-based participatory research (CBPR) is an approach that “...embraces collaborative efforts among community, academic, and other stakeholders who gather and use research and data to build on the strengths and priorities of the community for multilevel strategies to improve health and social equity,” (Wallerstein et al., 2018). Youth-led Participatory Action Research (YPAR) is a form of CBPR that centers young people as active and equal partners in identifying problems, conducting research, and advocating for change based on their findings (Ozer & Piatt, 2018). Like Healing-Centered Engagement, YPAR views young people as more than their worst trauma or a problem to be “fixed” (Ginwright, 2018; Ozer & Piatt, 2018). They are expert cocreators of knowledge and active decision-makers in addressing the issues that affect their lives (Ginwright, 2018; Ozer & Piatt, 2018).

The Photovoice method centers insider expertise in exploring their community (Wang & Burris, 1997). Photovoice enables local participants to identify the assets and deficits within their community while preserving the complexity of these conditions (Wang & Burris, 1997). Youth researchers have used Photovoice to act on a variety of issues. They have studied topics such as the negative impacts of urban development and multiple environmental hazards, the harmfulness of residential wood smoke, and risky sexual behavior that place youth at risk of HIV infection (Aber et al., 2017; Evans-Agnew & Eberhardt, 2019; Lofton et al., 2020). In this method, local participants provide an expert insight into their communities that outsiders may lack (Wang & Burris, 1997). Participants use photography as a means of visually capturing community conditions. Then, they analyze their photos through activities such as developing written captions, group discussions, and individual interviews (Catalani & Minkler, 2010; Wang & Burris, 1997). In doing so, a community can record and reflect on their strengths and concerns, promote critical dialogue, and influence policy change (Catalani & Minkler, 2010; Wang & Burris, 1997).

## Gaps in the Literature

A gap in the current toxic stress literature is the lack of representation of youth voices despite the potential expertise accompanying recently experienced toxic stress (Shonkoff et al., 2012). Studies tend to collect data about adversity experienced in childhood retrospectively from adults (Petruccelli et al., 2019). Such methods may introduce response or recall bias (Petruccelli et al., 2019). Retrospective data also struggles with examining how youth experience adversity (Petruccelli et al., 2019; Turner et al., 2020). Adults who remember adverse childhood experiences may be affected differently than adults who have forgotten, misremembered, or have distorted memories of such incidents (Petruccelli et al., 2019; Turner et al., 2020). The influence of adversity on one’s life may change as proximity to the experience lessens over time (Turner et al., 2020).

Another gap in the toxic stress literature lies in understanding community-level adversity. Experiencing adversity is conceived primarily as an individual experience through the concept of adverse childhood experiences (ACEs) (Felitti et al., 2019; Shonkoff et al., 2012). ACEs are adversity experienced by children within the home, such as physical and emotional

abuse, that impair development (Center on the Developing Child at Harvard University, n.d.-b; Felitti et al., 2019). However, this definition limits the causes of toxic stress to a finite list of individual experiences. Researchers developed the Pair of ACEs model in response to this limitation. The Pair of ACEs model recognizes two forms of adversity that lead to toxic stress: adverse childhood experiences and adverse community environments (Ellis & Dietz, 2017). Adverse community environments refer to conditions of adversity that occur outside of the home, in the environment, and at the community level (Ellis & Dietz, 2017). The developers of this model present it as a template to be customized to identify adversity at multiple levels and their relationship (Ellis & Dietz, 2017).

A shortcoming of the Pair of ACEs model is that it lacks explicit recognition of the historical context that creates adverse community conditions. From the historical trauma literature, collective trauma is often a result of structural violence rooted in past atrocities (Gonzales, 2020; Kirmayer & Moses, 2014). This violence persists due to discriminatory policies and practices that enable social inequity (Gonzales, 2020; Kirmayer & Moses, 2014). Future research on community-level adversity may benefit by explicitly identifying the historical context that has created it.

### Research Questions

This paper aims to address these gaps by answering two questions. First, what do youth identify as the sources and solutions to toxic stress in their community? Second, how do youth experience these sources and solutions in their community? To answer these, youth researchers from the Iron Triangle neighborhood in Richmond, CA, participated in a Photovoice project to explore toxic stress at the community level. Their research can aid in understanding what forms of adversity at the community-level impact youth and how.

## Background

### Youth Participatory Action Research

Youth Participatory Action Research (YPAR) is a form of Community-based Participatory Research (CBPR) that is uniquely responsive to the context of youth (Ozer & Piatt, 2018). YPAR promotes positive youth development and improves inequitable conditions by including insider expertise overlooked in research that is adult-focused (Ozer et al., 2020; Ozer & Piatt, 2018). As a form of youth development, YPAR provides opportunities for youth to build research, communication, and group work skills (Horn et al., 2016). YPAR methods can strengthen cognitive and social development through exposure to different thinking, problem-solving, and strategizing within the group (Wong et al., 2010). YPAR creates opportunities for youth to feel belonging, believe in their ability to make a difference, and feel that their participation matters to the world around them (Horn et al., 2016).

As an approach to research, YPAR can be a powerful way to strengthen the rigor, reach, and relevance of findings (Horn et al., 2016). The inclusion of youth as insider experts can aid in the inquiry of sensitive, hidden, and hard-to-report phenomena (Horn et al., 2016; Paton et al., 2018). The issues identified by youth researchers can include broader community concerns and aid in overall community development (Wong et al., 2010). YPAR is an approach well suited for

the exploration of health inequities that provides an opportunity for youth to have a meaningful say in the places in which they live (Horn et al., 2016; Ozer & Piatt, 2018)

However, challenges exist with taking a YPAR approach. Creating spaces for collaboration between adults and youth that balance power, encourage co-learning, and translate research into action requires investment (Wong et al., 2010). Power-sharing between adults and youth researchers requires making decisions on aspects of a study such as research question definition, study design, research methods, and determining what action to take (Ozer et al., 2020). These discussions may require more time than a standard research study. For example, activities designed to build trust between adult and youth partners to level power imbalances may be needed (Ozer & Piatt, 2018). The inclusion of such activities may require additional resources, lengthen project timelines, affect organizational priorities, and challenge organizational culture (Wong et al., 2010). Researchers using a YPAR approach may require an orientation shift to conduct effective youth-oriented research.

### Photovoice and YPAR

While youth Photovoice projects focused on toxic stress were not found during the literature review for this paper, many projects exist that explore forms of adversity recognized as sources of toxic stress. For example, violence is considered a condition of adverse community environments in the Pair of ACEs model (Ellis & Dietz, 2017). Youth-led Photovoice has explored how youth perceive and negotiate community violence and resulted in a more nuanced understanding of the correlation between race, poverty, and violence (Chonody et al., 2013). Another condition of adverse community environments, poor housing quality, has been explored through youth Photovoice in informal settlements (Harris, 2018). In doing so, youth researchers looked beyond their individual housing needs and identified personal safety, nuisance abatement, safe spaces for socializing and recreation, and spaces for self-reflection and personal development as conditions needed to improve their communities (Harris, 2018). As local experts, youth experiences can become the impetus for structural and societal change (Wang & Burris, 1997).

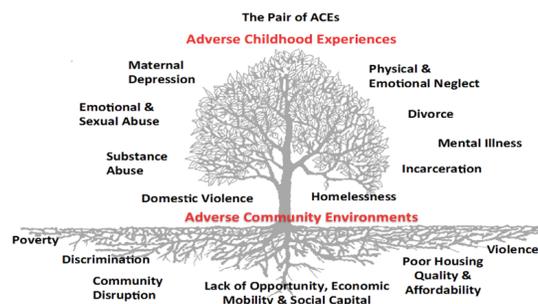
Photovoice supports the principles of Youth Participatory Action Research. In *Community-Based Participatory Research for Health: Advancing Social and Health Equity, 3rd Edition*, three fundamental principles define a YPAR approach (Ozer & Piatt, 2018). First, adult researchers view youth as experts capable of generating knowledge and providing leadership rather than sources of concern who lack agency. Photovoice supports this principle by promoting critical consciousness and framing knowledge production as rooted in experiences of the community (Wang & Burris, 1997). The community leads the process of defining the issue explored rather than outside researchers defining it for the community (Wang & Burris, 1997). Second, YPAR requires intentional sharing of power between adult facilitators and youth participants to counter power imbalances inherent in adult-youth relationships. Photovoice supports this principle because it is built upon the concept of centering the narratives of marginalized or stigmatized groups (Wang & Burris, 1997). Third, YPAR focuses on generating data and acting based on those data. As seen above, Photovoice is often used as impetus for action. Photovoice is an ideal method for researchers taking a Youth Participatory Action Research approach.

## Toxic Stress: Sources and Solutions

Toxic stress is the body's physiological response to strong, frequent, or prolonged adversity in the absence of supportive adult relationships during childhood development (Shonkoff et al., 2012). Previous literature established the health impacts of toxic stress (Oral et al., 2016; Purewal Boparai et al., 2018; Shonkoff et al., 2012). Toxic stress impairs development in childhood and health over the life course (Burke Harris, 2018; Center on the Developing Child at Harvard University, n.d.-a; Purewal Boparai et al., 2018; Shonkoff et al., 2012). Impairment of development results from chronic activation of the stress response system that leads to wear and tear on the body, speeds up maturation of the body's allostatic systems and hastens biological aging (Danese & McEwen, 2012).

The literature most commonly frames toxic stress as a result of adverse childhood experiences (ACEs). ACEs traditionally have focused on abuse or household dysfunction (Felitti et al., 2019). These include experiences within the family of maternal depression, emotional and sexual abuse, substance abuse, domestic violence, homelessness, incarceration, mental illness, divorce, and physical and emotional neglect. Professionals can quickly identify these ACEs in clinical, educational, and social service settings. As someone experiences more ACEs in childhood, they are more likely to suffer from disease, physical and psychological conditions, and risk behaviors in adulthood. Examples include ischemic heart disease, cancer, chronic lung disease, skeletal fractures, liver disease, post-traumatic stress disorder, borderline personality disorder, depression, obesity, and diabetes (Felitti et al., 2019; Herzog & Schmahl, 2018; Kalmakis & Chandler, 2015). These conditions can be co-occurring in adulthood, resulting in complex clinical profiles and increased healthcare utilization (Herzog & Schmahl, 2018; Kalmakis & Chandler, 2015).

More recently, research has begun to focus on sources of toxic stress beyond adverse childhood experiences. A framework that illustrates this relationship between individual-level and community-level adversity is the Pair of ACEs model (Figure 1) (Ellis & Dietz, 2017; The Building Community Resilience Collaborative, n.d.). In this framework, adverse childhood experiences are considered in relation to adverse community environments. Adverse community environments are synonymous with the social determinants of health. They include poverty, discrimination, community disruption, lack of opportunity, mobility, and social capital, poor housing quality and affordability, and violence. This model moves the toxic stress discourse beyond the individual into a community domain, questioning the relationship between ACEs found at the individual and community levels.



**Figure 9** Pair of ACEs Model (Ellis & Dietz, 2017; The Building Community Resilience Collaborative, n.d.)

A complementary model meant to identify the elements needed to address and prevent toxic stress to promote healthy human development is the Ecobiodevelopmental Framework for Early Childhood Programs and Policies (EBD) seen in Figure 2 (Shonkoff et al., 2012). In this framework, healthy development (learning, behavior, and physical and mental well-being) is a result of the ongoing and inextricable interactions between biology (physiological adaptations and disruptions) and ecology (social and physical environments) (Shonkoff et al., 2012). EBD posits that health promotion and disease prevention policies meant to improve the health of adults would be more effective if accompanied by evidence-based investments in prenatal and early childhood health (Shonkoff et al., 2012). Further, decreasing the quantity and severity of adversity experienced in childhood and strengthening protective relationships that can blunt the impact of trauma from toxic stress can significantly reduce chronic disease over the life course (Shonkoff et al., 2012). EBD states that change must occur at the ecological level to achieve these goals.

Ecology consists of three constructs in EBD (Shonkoff et al., 2012). The Foundations of Healthy Development construct identifies stable and responsive relationships, safe and supportive environments, and good nutrition as the essential elements of a healthy community. The Caregiver and Community Capacities construct describes the resources needed to establish the foundations of health and develop the social capital to sustain them. Lastly, the Policy and Program Levers for Innovation construct encompass the myriad of public and private sector policies and programs that influence the previous levels. Ecological improvements are thus pathways to preventing and treating toxic stress (Shonkoff et al., 2012).

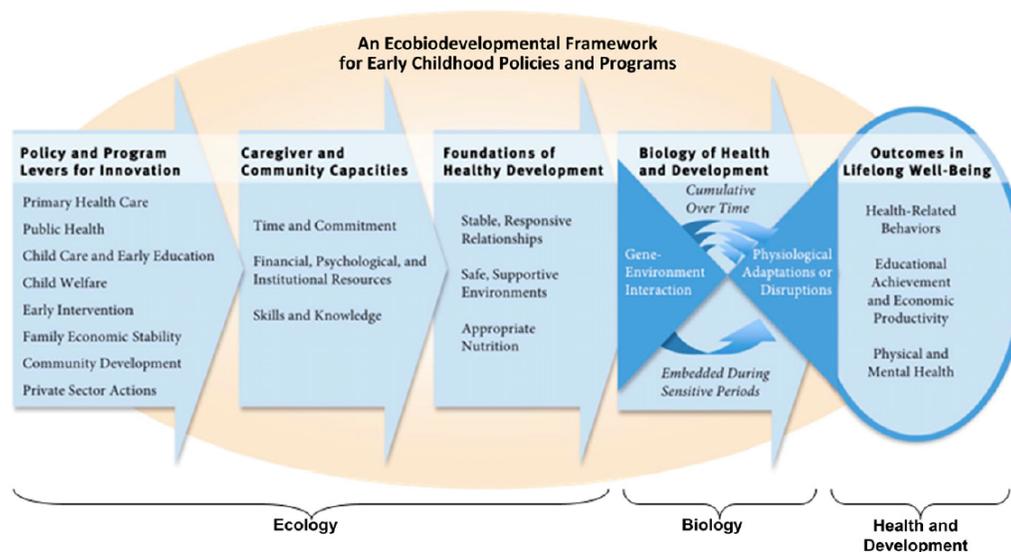


Figure 10 Ecobiodevelopmental Framework for Early Childhood Policies and Programs

Conceptually, these models provide a clear foundation for situating toxic stress in an ecological context. However, both models invite further exploration through empirical study. The Pair of ACEs model is a template for communities to build upon and welcomes communities to map the ACEs in their community. (Ellis & Dietz, 2017). While the EBD model focuses on the environment as the point of intervention, its constructs are under-defined as the model moves upstream compared to models like the Ecological model. For example, living

conditions are noticeably absent in the EBD model despite an existing body of literature on the topic as it relates to health. YPAR is an opportunity to develop a more nuanced conversation based on these models and bring together concepts from each in a novel way.

### Methods

#### Study Location: Iron Triangle Neighborhood of Richmond, CA

In 2015, the city of Richmond, CA, held focus groups with residents who identified eight significant sources of adversity in their environment: racial profiling, poor air quality and lack of safe recreation space, residential segregation, street/neighborhood/school violence, economic insecurity, overburdened social services, high food prices/lack of healthy foods, and lack of affordable health care (Richmond, 2015). Richmond has contended historically with many of these issues. In the mid-2000s, the city was one of the most violent cities in the nation. Its homicide rate of 46 per 100,000 was much higher than the rate of five homicides per 100,000 seen in similar-sized cities in California (Matthay et al., 2019). The city is also home to a Chevron refinery, with residents living as close as within four miles of the campus (Remy et al., 2019). The refinery has been the site of over a dozen chemical release incidents over the years, some of which were associated with the development of respiratory and other health problems among residents (Remy et al., 2019). The media often associates the Iron Triangle neighborhood with high rates of violence, gangs, availability of illicit drugs, and vacant buildings (Rogers, 2009). The city government designated the Iron Triangle neighborhood as one of two communities for neighborhood-specific healthy development projects because of its poor health, social, and economic conditions (Corburn et al., 2014). This occurred as part of Richmond’s Community Health and Wellness element in 2008 (Corburn et al., 2014). Despite recent neighborhood development efforts, many adverse conditions still exist within the community (Chouteau, 2020).

#### Study Participants

Eleven young people, ranging in age from 13-17, participated in this study (Table 1). One participant dropped out of the study due to other family obligations after the initial meeting with ten youth completing the Photovoice project. Of the participants who completed the project, three identified as male and seven identified as female. Nine youth identified as Black/African American and one identified as Latinx. All participants were residents of the Iron Triangle neighborhood and primarily English speaking.

**Table 5**  
Study Participant Demographics

<b>Total Participants (n=11)</b>	
Completed Photovoice Project	10
Dropped Out	1
<b>Gender (n=10)</b>	
Female	7
Male	3
<b>Race/Ethnicity (n=10)</b>	

African American	9
Latinx	1
<b>Iron Triangle Resident (n=10)</b>	10
<b>Primarily English Speaking (n=10)</b>	10
<b>Age (years)</b>	13-17

I chose Pogo Park as the lead community partner for this project for many reasons. I led a Photovoice project with the organization to explore the development of a local public park in 2008 and knew that the organization was a champion of the method as a form of community engagement. As part of my doctoral research, I was a member of the Pogo Park team since 2016 and had an active working relationship with the staff. I also led a group of Pogo Park Summer All-Star interns, Pogo Park’s summer employment and enrichment program for Richmond youth, the previous summer. With support from Pogo Park leadership, I recruited youth researchers for the study as part of Pogo Park’s internship offerings for the summer of 2019.

After completion of the Photovoice project, participants received \$250. I discussed and agreed upon this amount with Pogo Park leadership. Pogo Park values creating economic opportunities for youth. The organization’s policy is to pay youth \$50 for attending trainings. Youth participants attended four Photovoice workshops, which according to Pogo Park’s policy, would merit a \$200 payment. We paid youth an additional \$50 to complete the Photovoice project by submitting photos, completing text captions, and presenting their projects.

#### Photovoice Procedure

Youth participants met weekly for two-hour workshops during the summer of 2019. We held four meetings in total. These meetings were spaced one week apart, except for the final meeting held two weeks after the previous session due to a holiday-related scheduling conflict. In between workshops, youth completed Photovoice missions. We allowed youth researchers to use their own cameras to take photographs. Pogo Park loaned two additional cameras to the project for participants who did not have a camera. Youth researchers spent approximately 24 hours on their Photovoice projects. I co-facilitated the workshops with an adult staff member from the Pogo Park team, a resident of the Iron Triangle neighborhood.

Each weekly workshop had a learning objective and agenda. Workshop one introduced youth participants to the research study aims, Photovoice method, and began the process of trust-building within the group. Participants began to develop essential skills for photography, agree upon group agreements for a positive environment, learn fundamental safety guidelines, and received their first Photovoice mission. A Photovoice mission is an assignment that consists of a question to answer using photography and written reflection. The question for their first Photovoice mission was, “Who are you?” We instructed the youth to capture images of who they are and what they like. The objective of this mission was to grow comfortable with photography using a familiar topic. Written reflections would be developed in week two.

Workshop two introduced the SHOWED method of self-analysis, the concept of toxic stress, and the next Photovoice mission. The SHOWED method is a series of analytical questions that facilitate self-reflection of an image to promote exploration of the underlying issues

represented by an image (Wang & Burris, 1997). We guided youth researchers on using the SHOWED method to develop captions for the pictures they took about themselves. I introduced the concept of toxic stress this week. However, I recognized that the group had difficulty comprehending the concept. Rather than assign a Photovoice mission on toxic stress, we amended the assignment to focus on stress in general. We asked youth researchers to answer the questions: What can cause stress? What can relieve stress?

Workshop three continued the conversation about toxic stress. Youth developed written captions for the second Photovoice mission using the SHOWED method. Then, we assigned the final Photovoice mission. The questions for this mission were: What can cause toxic stress? What can relieve toxic stress? Youth researchers had two weeks to complete this final mission. During the two weeks, we checked in or met one-on-one with the youth researchers to support the completion of their projects.

Workshop four consisted of a gallery walk, a closing discussion of key themes, and celebration of their accomplishments. Before the final workshop, youth researchers submitted 4-6 pictures with written captions to us. We turned these photo-text submissions into posters and displayed them along the walls of the workshop space. We held a gallery walk, in which each participant presented their findings with their peers. After, we facilitated a group discussion to explore themes from their projects further. Finally, we celebrated each youth researcher with words of appreciation, a certificate of completion, and a stipend.

### Data Analysis

Youth researchers initially analyzed the images by developing written captions using the SHOWED method. I co-facilitated group discussions after each Photovoice mission to further explore the themes in their projects. After each session, I debriefed with my co-facilitator to discuss any themes that emerged for him during the sessions. I focus on the data captured and analyzed in the final Photovoice mission in this paper.

I conducted the first round of coding using in vivo codes to capture the main themes from the photo-text submissions, transcripts of the workshop sessions, and field notes. From this, I developed inductive codes for the major themes. I used nVivo 12 software to conduct this analysis. I reviewed these codes with my co-facilitator and a UC Berkeley-based research team working with Pogo Park. This team consisted of the primary investigator, a community expert, and two undergraduate research assistants. I used feedback from these meetings to review and clarify my themes.

### Limitations

While this research study intended to approach toxic stress from a YPAR orientation, the study was conceived with predefined questions before engaging with youth (Ozer et al., 2020). The Photovoice project was time-limited to fit within the summer programming of the community partner organization. However, youth researchers did have some input in the study design as evidenced by the change in study plans during the week three session in response to youth researcher comprehension of toxic stress. The Photovoice pictures developed were agentic because space was provided for youth reflection and critical consciousness. However, advocacy and direct action stemming from the Photovoice project did not occur. Similar to teachers' experiences implementing YPAR in school settings, structural issues like the format of

the summer program and expectations of youth participation post-program limited a YPAR approach (Buttimer, 2018).

## Findings

### Overview of Stressors and Stress Mitigators

Youth researchers developed 57 photo-text submissions consisting of a photograph and accompanying written caption. Thirty photo-text submissions contained a perceived source of toxic stress. Among these submissions, I identified 12 unique stressors associated with the development of toxic stress. Stressors are community conditions that contribute to toxic stress. Forty-two photo-text submissions included factors related to preventing or addressing toxic stress. Among these submissions, I identified ten unique stress mitigators. Stress mitigators are community conditions and community action that can prevent or address toxic stress. Stressors and stress mitigators are listed alphabetically in Table 2.

**Table 6**  
Stressors and Stress Mitigators

Stressors	Stress Mitigators
1. Automobile pollution	1. Community development that provides resources the existing community needs
2. Alcohol use in public	2. Community involvement in redevelopment processes
3. Community violence	3. House the homeless
4. Damaged Property	4. Improved police training and recruitment
5. Financial Insecurity	5. Parks that feel nurturing, healing, and safe
6. Gentrification due to redevelopment	6. School is a place for positive support
7. Graffiti	7. Spaces free of environmental stressors (i.e., gun-free zones)
8. Homelessness and housing insecurity	8. Spaces for healing from trauma together
9. Lack of access to youth resources	9. Stop Signs
10. Police abuse of power	10. Well-kept natural spaces
11. Prevalence of Trash	
12. School lacks supportive adults	

## Themes

As Table 3 shows, I identified six major themes from the Photovoice project across the two categories of stressors and stress mitigators. Regarding stressors, I observed the themes of distrust, neglect, and violence. Among stress mitigators, I identified the themes of inclusion, accountability, and healing spaces. In the following section, I explore these themes in more depth.

**Table 7**

Major Themes, Definitions, and Examples

Theme	Definition	Example
<b>Stressors: Community conditions that contribute to toxic stress</b>		
Distrust	Skepticism that community development and investment would benefit their community	"...the community won't make that much profits or the community won't benefit too much from this."
Neglect	Disregard for adverse conditions in the community and lack of action to address them	"...some people don't think about the impact it has on other people or the community..."
Violence	Structural violence is represented by abusive institutions  Community violence is represented by remnants of past violence	Structural Violence "...police are a stress to the black community, the community I live in."  Community Violence "...instead of finding other solutions to solving problems, we always rely on guns as a problem solver."
<b>Stress Mitigators: Community conditions and community action that can prevent or address toxic stress</b>		
Inclusion	Community involvement in community development reduces fear of it	"In this picture I see the surroundings of the park that was built by the community [o]f Central Richmond for the community."
Accountability	Who is responsible for addressing the issue	"...we need to speak with the mayor and attend more city council meetings. We can get more teens involved that way we'll have lots of more teens off the streets and active."
Healing Spaces	Space needed to process trauma together or personally revitalize	"...everyone needs a space to just sit and think or to relax in peacefulness, even if it's not being used it's good to know it's there."

## Stressors

### Distrust

Youth researchers generally expressed distrust of community development projects in their neighborhood. They were skeptical of the intentions of these projects. The focus of several photos was the construction site of a new low-income apartment building. While one researcher said it was "a really good housing opportunity" another questioned whether the new housing had enough capacity to meet the need for affordable housing in the community. The latter researcher assumed that there would be more families in need of low-income housing than homes available. As stated in Figure 3, He felt that ultimately the beneficiary of this construction would be the investors, not the community.



**Figure 11** In this picture I see the apartments that are being built nearby the park, just about 10 minutes away from it. These apartments are meant for low-income families, but once it gets full many families will have to go somewhere else for housing, since it's a government owned building invested by private associations and people who are most likely not from Richmond, the community won't make that much profits or the community won't benefit too much from this. (Youth Researcher #6, 2019)

Another reason youth distrusted community development was the belief that it foreshadowed gentrification. Their anxiety concerning gentrification was a focus of the final workshop discussion. While they recognized the benefits of investment in the community, they worried it could lead to an increased cost of living. One young person surmised, "...even though it's a good thing that Richmond is now getting new buildings, this will also cause prices around this place to go high, like housing and other simple stuff," (Group Discussion, July 11, 2019). Young people understood gentrification as a regional issue rooted in race and wealth. They discussed how the increased cost of living in nearby larger cities like Oakland and San Francisco drove people with higher incomes to look for housing in Richmond. A researcher commented that Richmond "... [is] one of the few cities in the Bay Area that has essentially nice type of weather, good locations...you have access to a lot of places...Richmond basically is located in the middle of everything," (Group Discussion, July 11, 2019). Youth feared that improvements to the environment coupled with this perceived location advantage could signal outsiders to move to Richmond and push out the existing community.

### Neglect

Youth researchers explored community neglect primarily through two examples. First, trash was presented as symbolic of a problem that has been normalized within the community. Youth portrayed the problem as invisible to residents or met with apathy. Second, youth identified neglect of houseless people within the community. With this issue, researchers identified stakeholders outside the community that share responsibility in addressing it. This section will begin with an examination of trash in the community as a sign of neglect. Youth researchers used the imagery of trash to illustrate a sense of disregard for problems in the community. They pointed to an abundance of waste as affecting the whole community. One researcher said, "I see trash in our community. It's even where I live at," (Figure 4). Another researcher echoed, "...there is [a] lot of trash in my community," (Figure 5). Youth shared the perception that the community might lack awareness of the seriousness of the situation. A researcher posited that residents might not grasp how their action or lack of action impacts their environment. She wrote (Figure 6)

...people are throwing trash anywhere they are at and not thinking about what they are doing to the environment...it can end up in front of someone's house or just be all over

the streets and sidewalks...some people don't think about the impact it has on other people or the community..." (Youth Researcher #4, 2019)

However, one researcher feared the problem could lead to worsening community and living conditions. He felt that the abundance of waste in the community could increase the likelihood of "rodents to appear in our community, in our homes" (Figure 4). Despite this, youth felt that not enough attention was paid to this issue.



**Figure 12** I see trash in our community. It's even where I live at. That it's a trash can in our community and no one even thought to throw it in the trash. This is our community where [we] live keeping our community clean. I'm speaking for the residents who live here that have to see this. People litter everywhere even in front of their homes. This can cause rodents to appear in our community in our homes. We can put more signs around stating no littering, throw trash away. We as teens need to make our community better. (Youth Researcher #8, 2019)



**Figure 13** What I see in the image is many garbage bins. What is happening in this image is that there is [a] lot of trash in my community. This relates to our lives because of how much trash we live around [in our] community. What we can do to change this situation in our community is [to] have public event to clean our community. (Youth Researcher #3, 2019)



**Figure 14** In this picture, I see the ground from being outside and on the side of the concrete I see trash. This symbolizes toxic stress in the community because people are throwing trash anywhere, they are at and not thinking about what they are doing to the environment. This is important to me because by people throwing trash it can end up in front of someone’s house or just be all over the streets and sidewalks. This is like this because some people don’t think about the impact it has on other people or the community when they throw trash down. If I was in charge I would try to change the impact trash has on a community. (Youth Researcher #4, 2019)

Another area of neglect youth captured concerned the issue of houselessness. Researchers described unhoused individuals as inhabiting overlooked, hidden, and unkempt areas. They identified freeway underpasses (Figure 7), building doorways (Figure 8), and empty lots (Figure 9) as spaces unhoused people occupy. As Figure 7 shows, a researcher described one of these spaces as “...close to trash or pollution... Its sorta (sp.) nasty....” Researchers did not see these spaces as willing habitats, but places that unhoused people ended up because they “...have nowhere else to go...” (Figure 9). One researcher expressed fear of being houseless himself. He wrote in Figure 8, “I see it [houselessness] every time I go outside...one day this could be me or someone I know.”

Unlike the discussion on trash where specific individuals were not held accountable, youth identified stakeholders responsible for houselessness in their community. They identified local government as lacking in their support of unhoused people. In Figure 8, the researcher names the mayor and city council as decision-makers that can build more shelters and provide more resources. In Figure 9, another researcher calls out the lack of action that the city has taken to support houseless people. She writes, “This is like this because the city hasn’t provided a place for me [or] for them to stay.” In this issue, youth identified a clear need, housing, and a responsible party, local government.



**Figure 15** “This is under the bridge of the ramp by triangle court[.] This is close to trash or pollution around the iron triangle community[.] Its sorta (sp.) nasty and it’s many places with these types of dirty areas. (Youth Researcher #5, 2019)



**Figure 16** It[’s] a man that is homeless sleeping in front of public buildings. He’s homeless and has nowhere to live. He sleeping outside with no type of resource for shelter. It should be more resources for the homeless. It’s important to me because one day this could be me or someone I know. I’m a leader and I can be more involved in my community. It exist everywhere in our community. I see it every time I go outside. We can try and find more support within our community. We also can find more shelter or built more shelters for the homeless. So with that we need to speak with the mayor and attend more city council meetings. We can get more teens involved that way we’ll have lots of more teens off the streets and active. (Youth Researcher #8, 2019)



**Figure 17** In this picture I see an empty lot. It symbolizes where homeless people live. This is important to me because it shows how the homeless have nowhere else to go. This is like this because the city hasn’t provided a place for me [or] for them to stay. If I was in charge I would build a rent free apartment complex for them. (Youth Researcher #10, 2019)

## Violence

Youth identified structural and community violence as stressors. Structural violence is captured in imagery of the police as an institution that perpetuates it. Community violence is captured in imagery of places where memories of those lost to violence and remnants of past violence are visible. I explore how these forms of violence affect young people in this section.

Researchers described the police as an institution that functions as a stressor rather than a protector in the community, contributing to community adversity. In Figure 10, one researcher called them “a stress to the black community”. Police presence contributed to feelings of dehumanization because they “mess with people for no reason or always doing extra,” (Figure 11). The term “extra” has a negative connotation and can mean that an action is beyond acceptable or aggravating. In this context, I assume the researcher is referencing police abuse of power. The same researcher further describes police as not facing the same consequences that civilians do. She writes in Figure 11, “...police have a higher authority than us civilians, and when they break the law, they aren’t at fault or punished for any of it.”



**Figure 18** This picture shows a police car. I took this picture because police are a stress to the black community, the community I live in. (Youth Researcher #7, 2019)



**Figure 19** In this picture, I see a police car. It symbolizes the police pulling one man over and calling backup. This is important to me because this shows how the police mess with people for no reason or always do extra. This is like this because police have a higher authority than us civilians and when they break the law, they aren’t at fault or punished for any of it. If I was in charge, I would run a thorough background check for every officer or officer in training. I would also try my best to make it fair for everyone and make backup mandatory only if the person in pursuit had a weapon. (Youth Researcher #9, 2019)

Community violence, particularly gun violence, has had a lasting impression on the Iron Triangle neighborhood. A researcher took a picture of a bullet hole in a stop sign as a metaphor

for the easy access to guns in the community and the prevailing use of guns to settle conflicts. The youth researcher wrote in Figure 12, “...instead of finding other solutions to solving problems, we always rely on guns as a problem solver.” The threat of guns and the deadly consequences of their use is remembered in memorials found throughout the community, including outside the gates of Elm Playlot. Pogo Park erected a memorial for Xavier McClanahan, a Pogo Park team member, outside of the front gate of the park after he was a victim of gun violence in 2016 at the age of 14 (Beagle, 2016). The researcher who captured this photo described the memorial as a reminder of too many people in the community lost to violence and “others hurting each other,” (Figure 13). The loss of Xavier is a symbol of a larger pattern of trauma and loss within the community.



**Figure 20** In this picture, I see a stop sign with a bullet-hole in it. It symbolizes some of the gun violence we have in Richmond and how easy it is to find something that has to do with a gun. This is important to me because this shows us how unsafe this city can be if we make it feel that way and how we show stop gun violence. This is like this because instead of finding other solutions to solving problems, we always rely on guns as a problem solver. If I was in charge I would try my best to stop gun violence and have a big community kickback in Richmond where everyone is invited, but you’d be searched at the door to see if you brought a gun. (Youth Researcher #9, 2019)



**Figure 21** What I see in this image is a poster board of a person in our community that have passed away. What is happening here is that there is too many people in our community passing away. This condition exist because of others hurting each other. What I would do about this is to have program for everyone to come to gather to talk about peace instead of violence even in different communities. (Youth Researcher #3)

## Stress Mitigators

### Inclusion

Youth researchers did not meet community development with the same level of distrust when development included the community as a partner. Their analysis of the redevelopment projects led by Pogo Park, particularly Elm Playlot, displayed this. The redevelopment led by Pogo Park was particularly pointed to as a positive for its improvement to the neighborhood and its inclusion of community residents in the redevelopment process. Elm Playlot was the focus of several photo-text submissions. In Figure 11, Elm Playlot is described as being “built by the community...for the community.” Youth researchers expressed a level of trust in the projects led by Pogo Park because they knew and trusted the adults leading the process, were familiar with the organization, felt a sense of belonging to the organization, and knew the intent of its projects. One researcher said

...I feel like one of the good things that Pogo Park is doing to avoid gentrification is the fact that we actually [are] involved in the community, working with us, as you can see, most of the people that works for Pogo Park, they live in the community. (Focus Group, July 11, 2019)



**Figure 22** In this picture I see the surroundings of the park that was built by the community [o]f Central Richmond for the community. A park that was abandoned and used by homeless and drug usage. Since the park opened its doors, the community noticed a change surrounding the park, more families left their just to enjoy a nice day with their kids or friends. This is also causing renting prices to go high near the park since its now a healthy street and area to live in. Many families won't be able to afford this anymore will have to move and leave all their memories behind. (Youth Researcher #6, 2019)

### Accountability

Regarding the prevalence of trash in the community, researchers assigned accountability primarily within the community. A “public event to clean our community” and signage “stating no littering, throw trash away” were both posed as solutions to this problem that require action by community residents. Specifically, one researcher made a call to action for teens in Figure 4, “We as teens need to make our community better.” The wording “we as teens” may indicate feeling a need to take ownership of the problem.

Regarding houselessness, researchers discussed the actions local government could take to support houseless people. They felt that to address houselessness, more housing explicitly for the houseless was needed as well as wraparound services such as jobs and health care (Group Discussion, July 11, 2019). Youth researcher #8 advocated the need to get teens involved in this process, noting that doing so helps address the issue and provides leadership

opportunities for teens. In Figure 8, he writes, “...we need to speak with the mayor and attend more city council meetings. We can get more teens involved that way we’ll have lots of more teens off the streets and active.”

### Healing Spaces

Researchers mentioned the need for shared spaces in the community to process trauma, particularly as it related to community violence. In Figure 13, the researcher desires a space “...for everyone to come to gather to talk about peace instead of violence.” The researcher in Figure 12 felt that this could only be possible if safety was ensured in these spaces. However, the need for healing space was also explored as an alternative to negative coping strategies observed in the community. In Figure 15, the researcher uses imagery of beer cans to depict overconsumption of alcohol as a problem in the community that is caused by stress. Creating opportunities for people to share “what they (sp) going through” may function as an alternative.



**Figure 23** What I see in this image is can beers. What is happening here is that there is some people in this community abuse them self with beers. This exist because of stressful thing people are going throughout life with. What we can do about this is just have [a] community meeting to talk to people about with they going through. (Youth Researcher #3, 2019)

Researchers described connecting with nature as an outlet for coping with adversity. They specifically identified parks as safe, nurturing places for children within the community. A unique “natural” feature in the neighborhood exists at Elm Playlot, where Pogo Park installed a water fixture resembling a small creek. One researcher describes the creek as “...a place in the community just to sit down, chill, and take a breath,” (Figure 16). The researcher implies that knowing the creek is there and that it was built for community members who are stressed, even if it is not used, provides a benefit to the community.



**Figure 24** In this picture, I see a picture of the creek in the park. It symbolizes peacefulness and it shows that there is a place in the community just to sit down, chill, and take a breath. This is important to me because everyone

needs a space to just sit and think or to relax in peacefulness, even if it's not being used it's good to know it's there. This is like this because the Pogo Park team was thinking of others that might be stressed or would just need a spot to relax. If I was in charge, I would make more spaces like this for people to relax in with more shade. (Youth Researcher #9, 2019)

## Discussion

This paper aimed to answer two questions. First, what do youth identify as the sources and solutions to toxic stress in their community? Second, how do youth experience these sources and solutions in their community? The identification of sources and solutions led to development of larger themes related to stressors and stress mitigators. I struggled to at once organize these themes by stressors and stress mitigators to share my findings and capture the nuance in youth experiences of adversity. By nature of the Photovoice method, youth often discussed problems and solutions within reflection of the same picture. In this section, I will discuss the connection between stressor and stress mitigator themes.

### Distrust and Inclusion

Much of the anxiety youth expressed around community development bore resemblance to a question that has been asked in the literature on urban revitalization and public health, "Who benefits in the short-term and long-term from community redevelopment?" (Cole et al., 2017). Gentrification adversely impacts communities of color more than white communities, primarily due to economic disadvantages related to race (Hwang & Ding, 2020). Explained another way, "Everybody raise the prices because they know the white people got the money, and they going to kick us out..," (Group Discussion, July 11, 2019). At the time we facilitated the Photovoice project, several development projects were co-occurring in the Iron Triangle neighborhood. While youth viewed projects that included community engagement more favorably, these projects did not erase all anxiety they felt about future displacement. However, these feelings can be common in communities undergoing development. Fear of gentrification and displacement have been established as contributors to chronic stress, depression, and suicidal thought patterns in residents of socially vulnerable neighborhoods (Anguelovski et al., 2020). However, for youth in the Iron Triangle, investment in their community was uncommon, leading to skepticism about why it would occur now and fear of when displacement would begin.

### Neglect and Accountability

The use of trash to symbolize community neglect was interesting for many reasons. A previous youth Photovoice project used similar imagery but as a sign of violence (Chonody et al., 2013). The prevalence of trash signaled low community connection which contributed to community violence (Chonody et al., 2013). Community violence was also present in this Photovoice project, but the same thematic connection was not made. Another interesting point is that neglect is often framed as an adverse childhood experience in the toxic stress literature (Ellis & Dietz, 2017). Considering neglect as a condition of adverse environments is a novel approach to understanding how communities experience adversity.

In reviewing the Photovoice project submissions with my co-facilitator, he felt that more accountability needed to be attributed to the city government than what the youth researchers

had. He shared an experience of driving through the Richmond Marina, a more affluent neighborhood adjacent to the Iron Triangle. In the Marina, he saw public trash cans emptied and public green spaces manicured. He exclaimed that this never happened in the Iron Triangle neighborhood and felt that the city gave preferential treatment to wealthier areas. He felt that youth researchers may have felt more personal responsibility for the issue because they were unaware of how it was being addressed in other communities.

Regarding houselessness, as facilitators, we faced a challenge in addressing stigma and negative views of houseless individuals among youth researchers. Some saw houselessness as a form of community disruption, another adverse community environment condition. Houseless encampments were described as “nasty” and “dirty.” A researcher said she felt unsafe around houseless people because, “They be starting problems...they be starting fires,” (Group Discussion, July 11, 2019). My Pogo Park co-facilitator challenged the youth researchers to look at houselessness as something other than an indictment on the individual who did not have a house. He said, “...because ya’ll (sp) think just because people is homeless, that they, you know, crazy. It’s a lot of people that, that are normal people like y’all who are homeless,” (Group Discussion, July 11, 2019). His facilitation of the discussion helped move the conversation beyond further marginalizing an already vulnerable community.

### Violence and Healing Spaces

Community violence, another form of toxic stress, is pervasive in urban communities. In urban settings, it is expected that 80% of children will experience community violence as a victim, survivor, perpetrator, witness, or bystander at some point in their lives (Cooley-Strickland et al., 2009; Gorman-Smith et al., 2004b). Living in a community with high rates of community violence for more than five years increases youth susceptibility to the negative effects of the neighborhood, such as a decreased sense of self-worth (Paschall & Hubbard, 1998). Those who perceive high levels of community violence may experience anxiety consistent with post-traumatic stress disorder and an increased willingness to retaliate with violence (Hill & Madhere, 1996). The lasting impact of trauma from violence can persist across generations in a community (Gorman-Smith et al., 2004a)

Reserving space for communities to come together in areas traumatized by community violence may have to contend with more than rebuilding trust among community members. Youth researchers observed police abuse of power as an interpersonal interaction. However, abuse of power can also present as police exerting control over the physical and social design of communities by invoking public safety (Duarte et al., 2020). Theories like Crime Prevention Through Environmental Design promote the idea that spaces should be constructed with police surveillance in mind (Saville et al., 2005). Such approaches place an undue burden of police surveillance and police violence on communities of color (Duarte et al., 2020). Without accountability, the police can be a source of adverse experience and adverse environment.

### Conclusion

Photovoice served the goals of this paper well in exploring how the sources of toxic stress and opportunities to address it co-exist within the community. The captions developed by the youth researchers preserved the complexity of these issues. Exploring the themes of

distrust and inclusion, neglect and accountability, and violence and healing spaces as pairs led to a more nuanced discussion of how youth experience adversity in their community. Their findings highlight the importance of considering both problem and solution concurrently rather than separately in the toxic stress discussion.

Youth researchers generally expressed distrust of community development projects in their neighborhood. They were skeptical of the intentions of these projects and gentrification as an outcome. However, they were more receptive to community development that included community partners such as the redevelopment projects led by Pogo Park. These projects appeared more inclusive and transparent, alleviating some of the anxiety that accompanied development.

Another stressor youth faced was community neglect. The prevalence of trash in the community was symbolic of a problem that has been normalized over the years. Neglect was also observed in the treatment of houseless people within the community. Regarding the prevalence of trash in the community, researchers assigned accountability primarily within the community. However, researchers saw houselessness as an issue that required action from local government to provide proper support.

Lastly, youth experienced structural and community violence as stressors. Structural violence was captured in imagery of the police as an institution that perpetuates abuse of authority. Community violence was captured in imagery of places where memories of those lost to violence and remnants of past violence were visible. Researchers expressed the need for shared spaces in the community to process trauma, particularly as it related to community violence. They described connecting with nature, such as in parks, as an outlet for coping with adversity in safe, nurturing places within the community.

I highlighted some of the ways in which youth experience and respond to adverse environments in this study. Further youth-oriented research may focus more specifically on what youth consider supportive adult relationships and supportive community structures. A better understanding of both could lead to strategies and programs that support youth in the face of adverse childhood experiences and adverse community environments.

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## Conclusion

I set out to achieve three goals with this dissertation. First, I identified concepts and frameworks in the academic and professional literature to situate toxic stress in an ecological context. Many of these concepts were subsequently used to explore community-level toxic stress in the remainder of the dissertation. Second, I gained a deeper understanding of toxic stress at the community level and collective healing through the exploration of a community-driven process of redevelopment. Third, I explored how adversity and the opportunity to address it can co-exist from a youth perspective by partnering in youth-oriented research. Together, these papers demonstrate how toxic stress can be explored at the community level.

The concepts and frameworks presented in paper one show how research and work on toxic stress continue to evolve. I presented five conceptual areas that can help further the discussion beyond adverse childhood experiences, theoretically and in practice. First, I introduced social and environmental adversity as a way to situate toxic stress within a broader context. Second, I built upon the ideas in the previous section to highlight structural violence as a way to view toxic stress through a social inequity lens. Third, I presented a relational view of adversity to explore the relationship between adverse childhood experiences and adverse conditions of the environment. Fourth, I presented models that center community engagement to introduce community expertise into the knowledge production process. Fifth, I highlighted models that recognize trauma in communities and make space for healing to account for the trauma that community partners may be experiencing. Together, these conceptual broaden the focus of the toxic stress discussion.

The use of Healing-centered Engagement enabled exploration of community development as a form of collective healing. Healing was an active process of development rather than a passive recovery from injury in the Iron Triangle neighborhood. Collective healing was an act of agency building centered around a shared vision. Centering community voices to situate community transformation within the history and culture that made up the community was an essential step. Incremental improvement built upon the assets within the community and made space for individuals to join the process. Lastly, community healing was an investment in the people of the community that was restorative and sustaining. These healing features can be replicated in other communities that recognize that the process is as important as the product in terms of healing community development.

Youth researchers in the same community showed that adversity and the opportunity to address it could co-exist in a community. Youth researchers generally expressed distrust of community development projects in their neighborhood but were more receptive if trusted community partners were involved. Youth identified community neglect as a stressor and accountability as a way to mitigate it. Lastly, youth experienced structural and community violence as stressors and expressed the need for shared spaces in the community to heal from them. Where adversity and opportunity co-exist, so does hope.

The findings from this dissertation are timely and can be of benefit to public health practice. At the state level, California's first Surgeon General, Dr. Nadine Burke Harris, is one of the most vocal champions of addressing toxic stress and looking at ways that California can do more to do so. Richmond, CA, publishes a Health in All Policies report. In it are community-identified toxic stressors and examples of how local efforts address them. The conversation

about toxic stress is becoming more inclusive as public health and city planning take notice. These diverse perspectives in the field and the diverse perspectives in communities impacted by toxic stress play a vital role in understanding how toxic stress affects health and shapes the public health response.

## Appendices

Appendix A: Interview Guide

Appendix B: Timeline Development Workshop #1 Agenda

Appendix C: Timeline Development Workshop #2 Agenda

Appendix D: Photovoice Week 1 Agenda

Appendix E: Photo-mission 1 – Who are you?

Appendix F: Photovoice Week 2 Agenda

Appendix G: Photo-mission 2 – What are sources of stress? What can relieve stress?

Appendix H: Photovoice Week 3 Agenda

Appendix I: What can cause toxic stress? What can relieve toxic stress?

Appendix J: Photovoice Week 4 Agenda

## Appendix A: Interview Guide

### Pogo Park Staff

1. How would you describe your role at the park?
2. What is your personal history with the park?
  - a. When did you start working at the park?
  - b. How did you get involved?
  - c. How have things changed?
3. What is it like to work at the park?
  - a. How does it feel to live nearby?
  - b. What is your everyday experience of working at the park?
4. What was the process of getting the park to where it is today from the beginning?
  - a. What had to happen to get the park to where it is today?
  - b. Who had to be involved to get the park to where it is today?
  - c. What resources were needed?
  - d. What memories do you have of the process?
  - e. What key moments do you remember?
5. What are the issues that the neighborhood is facing?
  - a. What do you think affects the health of people in the neighborhood?
  - b. Why do you think these have an impact?
  - c. How, if in any way, do you think that Elm Playlot addresses these issues?
6. How would you describe the community surrounding the park?
  - a. Have you seen it change with the development of the park?
7. Have you noticed any changes to the neighborhood environment?
  - a. Physically outside of the park?
  - b. Socially, how people relate to one another?
  - c. Economically, more jobs or other resources?
  - d. Services?
  - e. Other changes, that might be hard to notice?
8. How would you describe the culture of Elm Playlot?
  - a. What does it feel like?
  - b. What are its values?
9. What's unique about the way that Pogo engages the community?

### Community Stakeholders

10. What is your connection to Pogo Park?
  - a. Did you participate in any way to the redevelopment of Elm Playlot?
11. What is your relationship to the Iron Triangle?
  - a. Have you or do you provide services to residents?
12. What do you attribute to the development of the park?
13. Have you seen the community change with the development of the park?
  - a. Of the changes to the physical environment, do any stand out to you?
  - b. Have you noticed any changes to how people relate to one another?

- c. Have you noticed any changes to economic opportunities?
- d. Have you noticed any changes to available services in the neighborhood?
- 14. What do you think affects the health of people in the neighborhood?
  - a. Why do you think these have an impact?
- 15. How, if in any way, do you think that Elm Playlot addresses these issues?
- 16. Additional
  - a. What was the neighborhood like when you first got here?
  - b. What is it like now?
  - c. What caused this change?
- 17. Demographic
  - a. Name
  - b. Age
  - c. How long have you operated in Richmond? Iron Triangle

#### Iron Triangle Community Residents

- 18. How long have you lived in the Iron Triangle?
  - a. How would you describe the neighborhood to people not from here?
- 19. What is your personal history with the park?
  - a. When did you start coming to the park?
  - b. What brings you here?
  - c. How often do you come?
  - d. How have things changed?
- 20. What do you think affects the health of people living in the neighborhood?
  - a. Why do you think these have an impact?
- 21. How, if in any way, do you think that Elm Playlot addresses these issues?
- 22. Have you seen the community change with the development of the park?
  - a. Of the changes to the physical environment, do any stand out to you?
  - b. Have you noticed any changes to how people relate to one another?
  - c. Have you noticed any changes to economic opportunities?
  - d. Have you noticed any changes to available services in the neighborhood?
- 23. What do you attribute to the development of the park?
- 24. How would you describe the culture of Elm Playlot?

## Appendix B: Timeline Development Workshop #1 Agenda

### ABC's of Pogo Park (30 minutes)

1. Teams: 3-4
2. Count off
3. Line-up (take turns or have one person write)
4. That describe Pogo Park
  - a. What does Pogo Park do?
  - b. What impact does Pogo Park have?
5. Have each group report out

### Timeline building (60 minutes): How did we get here? One thing to say "We are...", it's another thing to say "We are because we have..."

1. 2007-2015: 9 groups
2. Take a stack of post-its
3. On each post-it, write 1 thing
  - a. We did
  - b. We accomplished
  - c. Key moment/turning point for you
4. 3-minutes each: 27 minutes
5. 5-minutes: grouping and finding themes
6. Report-out: 20 minutes

### Closing Conversation: Why should I care if?

1. I live in the Iron Triangle?
2. I live in Richmond?
3. I am in charge of giving grant money?

## Appendix C: Timeline Development Workshop #2 Agenda

### Warm-up Activity: Pictionary (15 min)

1. Check-in question: What's one thing that brings you energy and joy?
2. Split into two teams
3. 4-6 turns
4. 60 seconds each turn
5. Pull a word from the hat
6. Other team can steal

### World Café (35 min)

1. Need 3 group leaders
  - a. You will facilitate the conversation for one question
  - b. Working-break: put together the key terms
  - c. Report out to the group after the break
2. Each leader responsible for one question
  - a. We are Pogo Park. What do you do?
  - b. What makes Pogo Park different?
  - c. What is your impact?
    - i. Why invest in Pogo?
3. Break into three groups
4. Rotate every 10 minutes
5. Group Conversation and Wrap-up

### Break (5 min)

- Work with group leaders to synthesize

### After Break – Presentations (20 min)

### Time Permitting: Groups of 3-4 (40 min): Writing a Book About This Experience

1. What would the title of the book be?
2. What would the chapters be titled (at least 5 chapters)
3. Draw a cover
4. Vote on: Best overall, Best Book Title, Best Chapter Title, Best Cover

## Appendix D: Photovoice Week 1 Facilitation Guide

### Time Required

2 Hours

### Materials Needed

- Name Tags
- Large Paper
- Regular blank paper (6)
- Markers
- Tape
- Snacks
- Folders (12)
  - Photovoice Workshop Schedule
  - Email and password
  - Photo-mission 1 Assignment/Photo Safety & Ethics

### Purpose

The purpose of this session is to introduce youth participants to the research study, Photovoice method, and begin building trust among participants.

### Learning Objectives

By the end of this module, participants will be able to:

1. Identify what they like in a picture.
2. Identify group agreements for a positive environment.
3. Participate in a Photovoice project.

### Schedule

<b>Section</b>	<b>Length (In Minutes)</b>
<b>1. Welcome: Intros and Icebreaker</b>	10
<b>2. Group Agreements</b>	10
<b>3. Background: Research Study, Photovoice</b>	25
<b>4. BREAK</b>	5

<b>5. Photo-mission 1</b>	<b>20</b>
<b>6. Community Activity</b>	<b>30</b>
<b>7. Closing: Reminders, Additional Help</b>	<b>10</b>

## Appendix E: Photo-Mission 1 - Who are you?

Goal: The goal of this mission is for us to learn more about you.

### Directions

1. Answer each question with 5 pictures.
2. You will have a total of 15 pictures.
3. Email the pictures by replying to the “Photo-Mission 1” email in your Pogo Park email by Tuesday, June 18, 8:00 PM.

### Questions (5 pictures for each question. 15 pictures total)

1. What do you like to do with your free time?
2. What are your favorite foods?
3. What is something that we might not know about you?



### Photo Guidelines

- Do **NOT** take pictures of people
- Be creative
- Only take pictures that you are comfortable sharing
- Treat the community/neighborhood with respect
  - Ask yourself: “Why might someone not want this picture taken?”

### Photography Safety and Ethics

- Be aware of your surroundings. Don’t go to unsafe places
- Don’t trespass: If you do not have permission to be in a place, don’t go there.
- Don’t take pictures of criminal activity.
- Identify yourself as a “youth researcher with Pogo Park” if someone asks
- Contact Joe or Brandon if
  - You feel unsafe
  - Someone has a question that you cannot answer
  - Have a question about the project



## Appendix F: Photovoice Week 2 Facilitation Guide

### Time Required

2 Hours

### Materials Needed

- Photo-Mission 2 Worksheet
- SHO Worksheets
- 5 Things We Learned Poster
- Group Agreements Poster
- Copies of Gmail “how-to” guide (14)
- Poster paper
- Oreos
- Sign-in Sheet w/ Personal Email Slot

### Purpose

1. Introduce the SHOWED method to develop written captions
2. Introduce the concept of “toxic stress”
3. Assign Photo-Mission 2

### Learning Objectives

By the end of this module, participants will be able to:

- Answer the first three questions of the SHOWED method
- Explain what “toxic stress” is
- Identify sources and solutions to “toxic stress” in their community

### Schedule

<b>Section</b>	<b>Length (In Minutes)</b>
<b>1. Ice-breaker (Brandon)</b>	<b>10</b>
<b>2. Review from Last Week (Brandon)</b>	<b>10</b>
<b>3. Photo-Mission 1: Review Photos and Use SHOWED Method (Joe)</b>	<b>40</b>
<b>BREAK</b>	<b>10</b>
<b>4. Defining Health and Toxic Stress</b>	<b>25</b>

<b>5. Photo-Mission 2: Where do we see toxic stress? How can we reduce toxic stress? (Joe)</b>	<b>15</b>
<b>6. Close-out (Brandon)</b>	<b>5</b>

## Appendix G: Photo-Mission 2 - What are sources of stress? What can relieve stress?

### CHANGED 6/20/19

During the session, the conversation on toxic stress took longer than expected. I decided to amend the assignment based on my feelings of where their understanding was. The assignment was changed to:

1. Take 10 pictures answering each of these questions
  - a. What causes stress in your community?
  - b. What relieves stress in your community?

Goal: The goal of this mission is to identify what you see as the sources of toxic stress in your community and what you see as the solutions to toxic stress.

### Directions

1. Answer each question with 10 pictures.
2. You will have a total of 20 pictures.
3. For Question 1: Pick 2 pictures and fill out the Photo-Mission 2 Worksheet
4. For Question 2: Pick 2 pictures and fill out the Photo-Mission 2 Worksheet
5. **Email your pictures by replying to the “Photo-Mission 2” email in your Pogo Park email by Tuesday June 25 at 8:00 PM.**
6. **Bring your 4 filled-out worksheets to the next session.**

### Questions (10 pictures for each question. 20 pictures total)

1. What are the sources of toxic stress in your community?
2. What can relieve toxic stress in your community?



### Photo Guidelines

- Do **NOT** take pictures of people
- Be creative
- Only take pictures that you are comfortable sharing
- Treat the community/neighborhood with respect
  - Ask yourself: “Why might someone not want this picture taken?”

### Photography Safety and Ethics

- Be aware of your surroundings. Don’t go to unsafe places
- Don’t trespass: If you do not have permission to be in a place, don’t go there.
- Don’t take pictures of criminal activity.
- Identify yourself as a “youth researcher with Pogo Park” if someone asks
- Contact Joe or Brandon if
  - You feel unsafe. Someone has a question that you cannot answer

## Appendix H: Photovoice Week 3 Agenda

### Time Required

2 Hours

### Materials Needed

- Photo-Mission 2 Worksheet
- SHO Worksheets
- 5 Things We Learned Poster
- Group Agreements Poster
- Copies of Gmail “how-to” guide (14)
- Poster paper
- Oreos
- Sign-in Sheet w/ Personal Email Slot

### Purpose

4. Introduce the SHOWeD method to develop written captions
5. Introduce the concept of “toxic stress”
6. Assign Photo-Mission 2

### Learning Objectives

By the end of this module, participants will be able to:

- Answer the first three questions of the SHOWeD method
- Explain what “toxic stress” is
- Identify sources and solutions to “toxic stress” in their community

### Schedule

<b>Section</b>	<b>Length (In Minutes)</b>
<b>1. Ice-breaker (Brandon)</b>	<b>10</b>
<b>2. Review from Last Week (Brandon)</b>	<b>10</b>
<b>3. Photo-Mission 1: Review Photos and Use SHOWeD Method (Joe)</b>	<b>40</b>
<b>BREAK</b>	<b>10</b>
<b>4. Defining Health and Toxic Stress</b>	<b>25</b>

<b>5. Photo-Mission 2: Where do we see toxic stress? How can we reduce toxic stress? (Joe)</b>	<b>15</b>
<b>6. Close-out (Brandon)</b>	<b>5</b>

## Appendix I: Photo-Mission 3 - What can cause toxic stress? What can relieve toxic stress?

Goal: The goal of this mission is to identify what you see as the sources of toxic stress in your community and what you see as ways to relieve it.

### Directions

1. Complete three Photovoice Pictures for each question. A Photovoice Picture is a picture with a written caption that explains the picture. **Captions should be 5 or more sentences each.**
2. You will submit a total of 6 Photovoice Pictures.
3. **Email your Photovoice Pictures to Joe AND Brandon by Monday July 8 at 8:00 PM.**

Questions (3 Photovoice Pictures for each question. 6 Total)

3. What can cause toxic stress in your community?
4. What can relieve toxic stress in your community?



### SHOWED Method: Writing Captions

1. What do you **SEE** here? (Sentence 1)
  - a. Storyteller description
  - b. Actually see
2. What is really **HAPPENING** here? (Sentence 2)
  - a. Meaning
  - b. Answers, “So what?”
3. How does this relate to **OUR** lives? (Sentence 3-4)
  - a. Why this is important to you
  - b. Think about who you are/ who you speak for
4. **WHY** does this condition **EXIST**? (Sentence 4-5)
  - a. You are experts
  - b. Give your reason
5. What can we **DO** about this? (Sentence 5-6)
  - a. Positive: What can we do to support?
  - b. Negative: What can we do to change?
  - c. No solution is impossible
  - d. You choose who “We” is: mayor, city council, teens, etc.



## Appendix J: Photovoice Week 4 Agenda

### Time Required

2 Hours

### Materials Needed

- Nametags
- Photovoice Posters for Each Student
- Snacks (Water, Senorita Bread)
- Poster Paper
- Markers
- Recorder
- Certificates - Check-in with Debbie
- Payment- Checks with Letters for Mechanics Bank
- Yolajah's toys

### Purpose

To share views on toxic stress in their community and engage in dialogue around these views.

### Learning Objectives

By the end of this module, participants will be able to:

1. Express their views of toxic stress
2. Identify sources of toxic stress in their community and potential solutions to them

### Schedule

<b>Section</b>	<b>Length (In Minutes)</b>
<b>1. Welcome: Agreements</b>	5
<b>2. Gallery Walk</b>	15
<b>3. Pair Share</b>	15
<b>4. Discussion Part 1 (Focus on Sources/Start with general what they heard and saw)</b>	20
<b>5. BREAK</b>	10
<b>6. Ice-breaker</b>	5

<b>7. Discussion Part 2 (Focus on Solutions: how might this happen, what needs to be done, who needs to be involved)</b>	25
<b>8. Certificates, Payment, Thank You, and Picture</b>	15