Responding to Adverse Childhood Experiences Across the Lifespan

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Summary

The adverse childhood experiences (ACE) study, including long-term health implications, is reviewed, followed by an overview of community approaches to addressing ACEs by building resilience in programs and communities. The restorative integral support (RIS) model embodies social work's person-in-environment perspective and offers a framework to understand and respond to ACEs and their consequences. Social work's role in addressing ACEs includes the importance of cross-disciplinary, interprofessional, and community-engaged strategies to enact community and system-wide change. Policy and practice implications to foster a culture of health and well-being are emphasized.

Keywords: adverse childhood experiences (ACEs), trauma, restorative integral support, post-disciplinary, community resilience, cross-sector collaboration, equity

The link between adversity and long-term mental health outcomes has been studied for decades. Numerous studies (see Horwitz, Widom, McLaughlin, & White, 2001; Norman et al., 2012; Springer, Sheridan, Kuo, & Carnes, 2007) have shown increased odds of short- and long-term mental health problems in people who experienced maltreatment as children. Furthermore, several studies have examined the intergenerational transmission of trauma and maltreatment (see Abrams, 1999; Dekel & Goldblatt, 2008). The developmental impact of early childhood adversity and the ensuing social, emotional, and cognitive impairments is noteworthy for social work practitioners in particular as the social work profession specializes in the interaction between individuals and their respective environments.

Over the past two decades, scholars have begun to examine the link between maltreatment and other adverse events experienced during childhood and long-term physical health problems. Specifically, recent research has addressed the science behind negative long-term health outcomes and exposure to adverse events during childhood. Researchers have examined the impact of diverse types of adversity during childhood—such as parental incarceration or living with a problem drinker—on long-term outcomes. Furthermore, studies

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have examined the consequences of accumulated adversities as well as the interrelationship between multiple categories of childhood adversity. A better understanding of the science behind exposure to accumulated early adversities and their impact on developmental trajectories and health outcomes helps advance implementation of preventive measures and timely interventions.

This article provides an overview of the Adverse Childhood Experiences (ACE) Study <https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/about.html>, the long-term impact of ACEs, and integrative responses. Specifically, the article focuses on frameworks and initiatives that respond to ACEs and concludes with future directions for social work to foster a culture of health and resilience.

The ACE Study and Research Extensions

The observation that many adults presenting physical health problems had experienced adverse events as children led to the Adverse Childhood Experiences (ACE) Study at Kaiser Permanente's San Diego Health Appraisal Clinic (Felitti et al., 1998). Over 17,000 participants who received physical health exams were administered a retrospective questionnaire exploring categories of adverse events experienced prior to 18 years of age. The original ACE questionnaire covered domains of emotional abuse, physical abuse, sexual abuse, household substance use, household mental illness, exposure to domestic violence, parental separation or divorce, and parental incarceration. Two additional categories were added starting in the second wave of the ACE Study that related to neglect: emotional and physical neglect. The questions related to emotional neglect were reverse-coded, as were the first two questions related to physical neglect. The definitions of each of the original ACE categories are presented in Table 1.

Table 1. ACE Definitions (Centers for Disease Control and Prevention)

ACE category	Definition
Emotional abuse	An adult living in your household yelled at you or threatened you
Physical abuse	An adult in your household pushed, grabbed, slapped, or hit you so hard that you were injured
Sexual abuse	An adult who was at least 5 years older touched you in a sexual way, made you touch his/her body in a sexual way, or attempted to have sexual intercourse with you
Domestic violence	Mother was pushed, grabbed, slapped, had something thrown at her, kicked, bitten, hit with a fist, hit with something hard, repeatedly hit for over at least a few minutes, or threatened by a knife or gun by your father (or stepfather) or mother's boyfriend

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ACE category	Definition
Household substance use	Someone in the household was a problem drinker or used illicit substances
Household mental illness	A member of the household was depressed or mentally ill
Parental separation/ divorce	Parents separated or divorced
Household incarceration	A member of the household was incarcerated
Emotional neglect	A member of your household made you feel important, you felt loved, people in your family looked out for each other and felt close to each other, and your family was a source of strength and support
Physical neglect	There was someone to take care of you and take you to the doctor, you didn't have enough to eat, your parents were too drunk or too high to take care of you, you had to wear dirty clothes

Based on the number of "yes" responses to whether or not they had experienced each of the ACE categories (not incidents) prior to the age of 18, participants received a summated score. The higher the ACE score, the more categories of adversity a person had been exposed to during childhood. The summated score grouped participants into five categories: those who had not experienced any ACEs (ACE score of 0); those who had experienced one (ACE score of 1); those who had experienced two (ACE score of 2); those who had experienced three (ACE score of 3); and those who had experienced four or more ACEs (ACE score of 4). The original ACE Study found that approximately two thirds of this primarily middle-class sample had experienced at least one ACE, while 12.5% had experienced four or more (Centers for Disease Control and Prevention & Kaiser Permanente, 2016).

Studies have found that an increased ACE score is powerfully associated with a plethora of negative outcomes, including risky health behaviors, physical and mental health problems, and social issues. For example, a higher ACE score is linked to substance use disorders (Dube et al., 2003; Felitti et al., 1998; Rosenberg, Lu, Mueser, Jankowski, & Cournos, 2007), underage drinking, alcoholism (Anda et al., 2002; Dube et al., 2001; Felitti et al., 1998), tobacco use (Anda et al., 1999; Ford et al., 2011), psychotropic medication use (Anda et al., 2007), and illicit drug use (Dube et al., 2003). Furthermore, physical health problems such as autoimmune diseases (Dube et al., 2009), increased risk of HIV (Rosenberg et al., 2007), chronic obstructive pulmonary disease (Anda et al., 2008), Ischemic heart disease (Dong et al., 2004), liver disease (Dong, Anda, Dube, Felitti, & Giles, 2003), and health-related quality of life (Barile, Edwards, Dhingra, & Thompson, 2015) are related to higher ACE Scores. Other issues linked to ACEs are depression (Chapman et al., 2004), suicide attempts (Dube et al.,

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2001), risky sexual behaviors (Hillis, Anda, Felitti, & Marchbanks, 2001), homelessness (Rosenberg et al., 2007) criminal justice involvement (Rosenberg et al., 2007), and early death (Felitti et al., 1998) among others. Notably, a systematic review conducted by Hughes et al. (2017) examined empirical articles published that compared adults who had experienced at least four ACEs with those who had experienced none; a total of 37 studies were included that assessed increased odds of outcomes including self-directed violence, drug use, mental health issues, cancer, obesity, and diabetes, among others. As this study demonstrated, a wealth of research extending the original ACE study continues to identify a link between higher ACE score and diverse long-term health and social problems.

While numerous studies have incorporated the conventional ACE categories scale, it has been criticized as insufficient for a wider population since the ACE Study itself does not directly address the negative impact that factors such as poverty, racism, sexism, and discrimination can have on an individual's life. For example, minorities, females, and people living in poverty may be more vulnerable to high ACE scores given the historical and current cultural and systemic context. Since the original ACE Study findings were first published in 1998, several researchers have called for an expansion of ACE categories. Cronholm et al. (2015) examined the prevalence of five additional adverse events during one's childhood: witnessed violence, felt discrimination, unsafe neighborhood, experienced bullying, and lived in foster care. Finkelhor, Shattuck, Turner, and Hambry (2013) added categories of peer victimization, parent arguing, property victimization, someone close to child having had a bad accident or illness, exposure to community violence, no close friends, below-average grades, parent deployed, disaster, and homelessness. In response to the impact of ACEs, the World Health Organization (WHO, 2009) has also called for structural changes to establish a global network that provides guidance on how to best address ACEs. Furthermore, the WHO document addressed former critiques of the largely homogeneous Caucasian sample in the original ACE study by presenting findings from similar surveys administered in Africa, China, Hong Kong, Taiwan, Singapore, and Malaysia. While the WHO (2009) concluded that findings from these studies strongly suggested a universal effect of ACEs and their impact across diverse populations, they also proposed greater attention to social violence and categories reflecting the unique traumas children experience in diverse parts of the world (such as organized violence and criminality, forced marriage, or living in a war zone).

Both with the conventional ACE categories and the suggested expanded categories, research points to a long-term impact of ACEs on an individual's health trajectory. Peer rejection, peer victimization, community violence exposure, school performance, and socioeconomic status (Finkelhor et al., 2013) as well as high youth exposure to community violence (Finkelhor et al., 2013) have all, like the ACE Study's original 10 domains, been associated with negative social and health consequences into adulthood. Family financial problems, food insecurity, homelessness, parental absence, bullying, and violent crime have also been studied with the interrelated nature of these risks in mind (Mersky et al., 2017).

Several organizations, including the CDC and Substance Abuse and Mental Health Services Administration (SAMHSA) have continued to study the impact of ACEs. The Kaiser study on the long-term impact of ACEs on a plethora of measures of well-being influenced the creation of the National Child Traumatic Stress Initiative and the National Child Traumatic Stress Network in 2001. Their aim was to support identification of people with high ACE scores in order to foster early intervention to mitigate the impact of the adverse events. Recently, organizations such as the WHO (2009) have recognized the importance of intervening beyond

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the individual and family context to include diverse communities. This has resulted in a move beyond micro-focused clinical interventions to also include mezzo, macro, and policy interventions that address family, community, and systemic issues contributing to adversity. Considering the push to expand the thinking about ACEs to attend to discrimination, poverty, and neighborhood violence, among others, it is therefore necessary to respond to ACEs by fostering community resilience and addressing policy equity in addition to providing tailored support for individuals and families at risk. As a result, the growing field of ACE-informed care fosters resilience in programs and communities (see Larkin, Beckos, & Shields, 2012).

Biopsychosocial Perspective: Developmental and Life Course Knowledge, Person-In-Environment

Neurobiological models have emerged that explain the science behind the impact of trauma that can help us better understand how ACEs affect long-term well-being (see Anda et al., 2006; Danese & McEwen, 2012). The biopsychosocial perspective provides an explanation for how environmental and familial factors can produce physiological changes in an individual. This perspective is particularly relevant to social work, in that it considers each individual within his or her environment. The biopsychosocial perspective demonstrates that various factors at the individual biological and psychological level, as well as social and environmental factors, influence how an individual copes with and manages stress and trauma. Social workers can use this perspective to better understand the individual, family, and environmental factors that might constitute adversity or trauma for a client (Larkin, Felitti, & Anda, 2014).

To better understand the impact of trauma, SAMHSA (2012) offers a helpful definition of trauma as an “event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or threatening and that has lasting adverse effects on the individual’s functioning and physical, social, emotional, or spiritual well-being” (p. 2). Therefore, all of the ACE categories have the potential to constitute a traumatic event for an individual and can result in inhibited functioning; the ACE study has provided a unique insight into the impact of accumulated adversity, having found that a higher ACE score is strongly associated with a plethora of negative health outcomes (Felitti et al., 1998; Hughes et al., 2017).

When children are exposed to trauma, their levels of cortisol increase, leading to hyperarousal and dysregulation (Perry, 1994, 1997, 1999). These increased levels of cortisol impact the amygdala, hippocampus, and prefrontal cortex of the brain, which can result in difficulties in their relational abilities, such as forming and maintaining relationships over time (Forkey & Szilagyi, 2014; Perry, 2006). This has also been referred to as *allostatic overload*, reflecting the adaptation of the nervous, endocrine, and immune systems to toxic stress (Danese & McEwen, 2012). This constant state of hyperarousal or of system overload can lead to “wear and tear” of the allostatic systems that increases the odds of certain physical and mental health problems (Danese & McEwen, 2012). Furthermore, chronic exposure to adverse experiences can result in elevated levels of hormones and amino acids as the body adapts to stress, resulting in overwear. This is particularly impactful in childhood, when systems are

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developing and maturing. As a result, chronic exposure to ACEs during childhood can cause biological changes that have a long-term impact on an individual's well-being (Larkin et al., 2014).

In addition to the biopsychosocial perspective, a developmental perspective that recognizes different normative stages that people go through as they age (see Erikson, 1993; Olson & Sameroff, 2009; Piaget, 1972) can help us understand the particular effects of adverse experiences during childhood (see Larkin & Records, 2007). From this perspective, when trauma occurs in early childhood, later normative developmental stages can be affected. Van der Kolk and Courtois (2005) refer to this as *complex developmental trauma*. Experts have argued that exposure to accumulated adverse events and trauma in early childhood can have a long-term impact on development, leading to changes in brain chemistry (Becker-Weidman, 2009; Carrion, 2006; Purvis, Cross, Dansereau, & Parris, 2013).

Despite the biological changes that can occur in response to ACEs, resilience theories offer a framework for understanding how some people have better long-term outcomes and improved well-being despite exposure to risk (see Rutter, 1987; Werner & Smith, 1982). Resilience theory examines protective factors that foster self-efficacy and self-esteem, which in turn can help individuals overcome adversity (Zimmerman, 2013). This framework is particularly relevant to social work, given its strength-based focus (Social Work Policy Institute, n.d.). Thus, resilience theory can inform the design and implementation of ACE interventions to mitigate the impact of adversity by fostering resilience and reinforcing protective factors at the individual, family, and community levels (Logan-Greene, Green, Nurius, & Longhi, 2014).

Implications for Policy, Systems Change, and Interdisciplinary Research

Scholars have developed frameworks for identifying and responding to ACEs within communities (Garner, Forkey, & Szilagyi, 2015; Ko et al., 2008). Ko et al. (2008) identified seven suggestions for practitioners working with people exposed to trauma, including: integration of trauma-informed practices in mental health and other services; recognition of changes to practice and policy in each system that could help improve outcomes; evaluation of benefits of trauma-informed care; inclusion of training on trauma-informed services; provision of trauma-informed early intervention; replication of promising programs; and focus on interdisciplinary collaboration.

Other community approaches have focused on prevention and early intervention, such as home visiting. Early-childhood home visiting programs are among the most proven prevention models, having been rigorously tested with diverse populations across a variety of communities within the United States and in other countries. Evaluation has demonstrated the effectiveness of home visiting programs on child health (Kitzman et al., 2010; Lee et al, 2009), improving positive parenting (DuMont et al., 2008) and preventing child maltreatment (Chartier et al., 2017; Olds et al., 1997; Williams et al., 2017). For this reason, the U.S. Department of Health and Human Services provided funding to expand evidence-based home visiting models through the federal Maternal, Infant and Early Childhood Home Visiting (MIECHV) program in the United States (Avellar & Supplee, 2013). Garner and colleagues (2015) provided a framework for translating the science behind trauma and ACEs into

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practices for healthcare professionals, educators, social service providers, and policymakers. Garner et al. (2015) also recognized the importance of involving diverse systems in creating resilient communities.

At the federal level, SAMHSA created the National Center for Trauma-Informed Care and Alternatives to Seclusion and Restraint (NCTIC) in 2005 with the mission to increase knowledge of trauma-informed care (SAMHSA, 2012). The creation of NCTIC reflected the growing recognition of the impact of trauma and adversity on long-term physical and mental health outcomes. NCTIC developed a framework for trauma-informed care that defines trauma-informed organizations as those that recognize the impact of trauma and paths to recovery, identifies signs of trauma in its clients, responds by incorporating knowledge about trauma into its practices, and takes measures to prevent re-traumatization (SAMHSA, 2012).

Recently, the Robert Wood Johnson Foundation funded the Healthy People 2020 Law and Health Policy Project through the CDC Foundation (U.S. Department of Health and Human Services, 2013). Healthy People 2020 seeks interdisciplinary mobilization and collaboration to improve collective health and recognizes the connection between childhood experiences and long-term health outcomes (U.S. Department of Health and Human Services, 2013). Several of the 10-year target goal areas within the Healthy People Project overlap with ACEs, including mental health and mental disorders, physical health, and substance abuse issues. Globally, the WHO (2009) called for policymakers to address ACEs and for researchers to implement pilot studies in different countries, helping to conceptualize ACEs as a universal issue (WHO, 2009).

The Restorative Integral Support (RIS) Model: An ACE Response Framework

In order to guide and usefully articulate efforts to mitigate the risks associated with accumulated adversity, the restorative integral support (RIS) model was developed to address the multidimensionality of ACEs and their impact. An application of integral theory (Wilber, 2000) for a whole person perspective and response to ACEs and trauma, the RIS model integrates the science behind ACEs, resilience, and recovery. The RIS model emerges from the idea that people develop within the context of social networks and systems (Larkin & Records, 2007). Thus, the RIS model uses four quadrants that conceptualize subjective and objective dimensions of individuals and communities (Larkin & Records, 2007). Specifically, the “I” dimension focuses on the interior and what cannot be seen, and the “We” dimension represents shared values, cultural interactions, and mutual understanding; the “IT/S” quadrants portray observable individual behaviors and systemic interactions (Wilber, 2000). The RIS model reveals how individual and community dimensions all play a role in the adoption of health risk behaviors after ACEs, helps to understand when an ACE or ACEs might become a trauma, and demonstrates the way in which an ACE prevention or intervention activity in one quadrant will be reflected by changes in the other quadrants (Larkin & Records, 2007).

Therefore, interventions with ACEs using the RIS framework can provide a whole person/whole system/whole community view of a presenting issue and then focus on specific “hotspots” that are the most pertinent and can be incorporated within the practitioner’s scope (see Figure 1). Furthermore, RIS distinguishes between objective adverse events and trauma,

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which emerges from all four of the RIS quadrants and includes one's subjective capacity to handle the adverse event or accumulation of adverse events. The RIS model guides program and community leaders to foster recovery and resilience by allocating resources to each of the quadrants. This includes community-wide development of resources to respond to ACEs and promote a culture of resilience (Larkin & Records, 2007). In these ways, the RIS framework helps to address the concerns raised (Cronholm et al., 2015; Finkelhor et al., 2013) regarding the disproportionate prevalence and impact of conventional and expanded ACEs on certain marginalized groups by incorporating collective experiences. Furthermore, it provides an integrative perspective that unifies systems to develop and strengthen community networks (Larkin & Records, 2007).

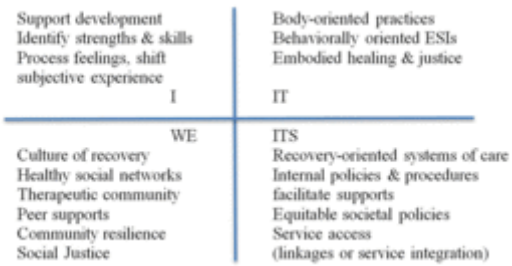


Figure 1. RIS for ACE Response

ACE Response: Emerging Movement and Examples

The RIS model has been applied to and used to articulate comprehensive programs that have integrated services within intentionally developed contexts to foster resilience and recovery after ACEs. This model was specifically developed for a comprehensive ACE response, which includes and transcends trauma-informed care. This aligns with the biopsychosocial perspective, in that it addresses biological, psychological, and collective dimensions. In each dimension, the biopsychosocial impact of ACEs is translated into practices and policies that aim to mitigate their effects.

Implications for Community Practice

The "We" dimensions of the RIS model points to the value of healthy social networks to address ACEs and their impact (Larkin & Records, 2007). From an integrative lens, there has been a recent focus on building resilient communities, which in turn can foster individual resilience and recovery. One initiative, Mobilizing Action for Resilient Communities (MARC), was created to translate the empirical evidence behind the impact of ACEs into community-wide practices that promote resilience. MARC encourages trauma-informed care and change throughout the community and seeks to engage a multitude of networks including educators, physicians, social service providers, researchers, elected officials, first responders, and families (https://marc.healthfederation.org/ *<https://marc.healthfederation.org/>*.). The sites that comprise MARC seek to engage communities and promote system-wide change to identify and address trauma, buffering its impact on individuals. Another is Change in Mind,

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which applies brain science, toxic stress, and resilience research in an effort to revitalize communities, including the prevention of ACEs and their consequences (https://alliance1.org/change-in-mind *<https://alliance1.org/change-in-mind>*).

For example, the Healthy Environments and Relationships That Support (HEARTS) initiative for ACE Response in the Capital Region of New York is both a MARC and Change in Mind community. The RIS model has been applied for a multidimensional approach that engages policymakers, program leaders, and community residents in the development of practical resources such as toolkits and training materials for anyone working with people who have experienced trauma across sectors (see MARC *<http://marc.healthfederation.org/communities/albanycapital-region-ny>*, n.d.).

In the Capital Region, for example, a group of social service agencies along with a state agency collaborative have spearheaded change in policy and practice in their own systems and in other arenas. This includes training and capacity building in such systems as law enforcement and related first responders, education (including early childhood education and universities), and health care. In all, it is estimated that well over 2,000 persons have received training. Some who have been trained have gone on to advance organizational change, infusing new practices and policies into their service setting. Others are engaged in learning communities in their agencies or through the HEARTS group. Indigenous leaders are also being trained as ACE/resilience outreach workers. They convene meetings of diverse community residents to address their own trauma and resilience. The goal is to create a trauma-informed and more resilient Capital Region.

All of the communities participating in the MARC project nationally seek to foster interdisciplinary collaboration and community engagement to educate the public and address ACEs across sectors (see MARC, n.d.). The RIS model articulates the way in which psychological, behavioral, social, and structural dimensions are addressed holistically to promote a culture of health and resilience (see Larkin & MacFarland, 2012; Larkin & Records, 2007). The overarching goal of these initiatives is to drive data-driven leadership and systemic change within and across communities.

Contribution

Research over the past two decades has shed light on the long-term impact of exposure to adverse childhood experiences. Given the negative outcomes associated with physical and mental health, behavioral, and social issues after ACEs, several initiatives have emerged to prevent and provide early intervention to mitigate the impact of these experiences. In parallel to research on correlates of ACEs, developments in neuroscience—including toxic stress and allostatic load—strengthen the understanding of how ACEs can result in risky health behaviors and other social issues. This theoretical framework allows us to reconceptualize risk behaviors and focus on protective factors and resilience.

Prior research has provided a good base to understanding the multitude of ways ACEs impact a person’s trajectory—from risky behaviors to physical and mental health outcomes. More recently, the focus has shifted to include building resilient communities and combating ACEs. However, while initiatives such as the MARC Federation, Change in Mind, ACE Connection, and NCTIC are a promising start, these efforts need to be expanded. To translate the science

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of ACEs into trauma-informed practices and policies implies coordinating multiple systems and educating practitioners. The ultimate goal of the RIS model and the response to ACEs is to promote a culture of health and wellness.

There are several chronicled approaches to addressing ACEs for which social workers are uniquely equipped to lead. Prevention efforts such as the implementation of broader screening practices and the facilitation of treatment for impacted individuals (Cambron et al., 2014) fall within social workers' scope of practice, as does harnessing the capacity for neighborhood and community organizations to preempt the negative impact of social and health problems such as ACEs (Hall et al., 2012; Madigan et al., 2016). Existing policy solutions for which social workers advocate similarly support primary prevention strategies to reduce adverse childhood experiences during early developmental years, a public health approach to community engagement on the subject of ACEs, and incorporating ACE awareness into the administration of existing public resources such as Temporary Assistance for Needy Families (TANF) (Kagi & Regala, 2012).

For social work practitioners, understanding the long-term impact of ACEs is important to better engage, assess, and intervene with clients who may have their own histories with adversity and trauma. From a person-in-environment perspective, social work is uniquely positioned to tackle the multidimensionality of adverse experiences by addressing both the individual and the collective. In fact, social work has recognized the impact of social, political, cultural, historical, and family dimensions, among others, on an individual's development (Kondrat, 2013). From this framework the RIS model emerges, examining individual, family, and community factors to fully address the impact of ACEs. Fostering resilience can help prevent ACEs, mitigate risk from ACEs, and enhance the healing and recovery process.

In addition to providing a person-in-environment framework that responds to ACEs, social work has also pioneered interdisciplinary efforts in the response to ACEs, and social work has led the effort to translate the science behind adverse experiences into grounded practices and policies (Larkin et al., 2014). As evidenced by the RIS model, cross-sector, community-engaged collaborative teams can create community-wide change across educational, criminal justice, child welfare, health care, and mental health systems, among others. While social work has made several advances and developed promising practices and policies, more transdisciplinary participation and collaboration is needed. A better understanding of the impact of ACEs calls for the kind of larger-scale preventive measures and interventions that could be implemented based on the RIS model to create a culture of resilience, recovery, and health.

Links to Digital Materials

ACE Response *<http://www.aceresponse.org/>*

ACEs Connection *<http://www.acesconnection.com/>*

Mobilizing Action for Resilient Communities (MARC) (n.d.). *About MARC*. *<http://marc.healthfederation.org/about>*

Prevention Institute *<https://www.preventioninstitute.org/publications/adverse-community-experiences-and-resilience-framework-addressing-and-preventing>*

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