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Introduction

The Health and Social Consequences of Adverse Childhood Experiences (ACE) Across the Lifespan: An Introduction to Prevention and Intervention in the Community

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This introduction to the themed issue overviews the Adverse Childhood Experiences (ACE) Study and discusses prevention and intervention with ACE and their consequences in communities. A commentary by Dr. Robert Anda, an ACE Study Co-Principal Investigator, is incorporated within this introduction. Implications of articles within the issue are addressed, and next steps are explored.

KEYWORDS The Adverse Childhood Experiences (ACE) Study, ACE Response, public health, professions, integration

In the early 1990s medical researchers from the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente partnered to explore the childhood precursors of health risk behaviors, disability, disease, and premature

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mortality. Building on social science research examining single types of abuse (especially sexual and physical abuse) and their relationship to emotional and mental health outcomes, researchers at the CDC saw an opportunity to consider the role that a wide array of "adverse childhood experiences" (ACE) play in the origins of high priority health, behavioral, and social problems (Anda et al., 2006; Felitti et al., 1998; Larkin, Felitti, & Anda, in press).

The study that emerged from this perspective—the Adverse Childhood Experiences (ACE) Study—combines retrospective reports of ACE in a cohort of 17,337 adult members of the Kaiser Health Plan at baseline with extensive data on health and social well-being; prospective follow-up of the cohort is ongoing to assess the relationship of ACE to incidence of diseases, use of prescription pharmaceuticals, healthcare costs, premature mortality, and causes of death (Anda et al., 2006; Felitti et al., 1998; Larkin, Felitti, et al., in press). The 10 ACE categories used in the Study were identified through a review of the literature and discussions with experienced researchers in the field, and the ACE measures have good test–retest reliability (Dube, Williamson, Thompson, Felitti, & Anda, 2004).

The ACE Score is calculated from the number of "yes" responses to questions about each of ten ACE categories (not incidents) that include: emotional, physical, and sexual abuse, emotional and physical neglect, witnessing domestic violence, growing up with mentally ill or substance abusing household members, loss of a parent, or having a household member incarcerated. Similarly, measures of health and social outcomes were gathered from numerous public health survey instruments to cast a "wide net" of potential outcomes (Anda et al., 2006; Anda, Butchart, Felitti, & Brown, 2010; Dube et al., 2004; Felitti et al., 1998). The ACE Study demonstrated that the 10 ACE often co-occur. Moreover, an extensive body of peer-reviewed research generated from the Study demonstrates powerful "dose–response" relationships between the ACE Score and a wide array of health and social problems throughout the lifespan (Anda et al., 2006; Dong, Anda, Dube, Giles, & Felitti, 2003; Felitti et al., 1998; www.cdc.gov/ace).

Table 1 summarizes the breadth of the published ACE Study findings. It is now clearly evident that ACE are common, highly interrelated, and exert a powerful cumulative impact on human development that becomes evident in problems across the lifespan (Anda et al., 2010; Dong et al., 2003; Felitti et al., 1998; Larkin, Felitti, et al., in press). The findings from the prospective phase of the study about disease incidence using hospital discharge records, prescription rates for pharmaceuticals, and premature mortality using National Death Index records provide the most powerful evidence of long-term costs—both human and economic—of the lasting biologic impact of ACE. Furthermore, the data presented in these prospective studies are not limited by cross-sectional analyses nor by self-reported outcomes (Anda et al., 2006, 2007, 2009, 2010).

As the results from the original ACE Study repeatedly demonstrated this cumulative stressor phenomenon, researchers in neurosciences were

TABLE 1 Summary of CDC-Kaiser ACE Study Findings

	Outcomes associated with the ACE Score
Prevalent diseases	Ischemic heart disease, cancer, chronic lung disease, skeletal fractures, sexually transmitted diseases, liver disease
Risk factors for common diseases/poor health	Smoking, alcohol abuse, promiscuity, obesity, illicit drug use, injection drug use, multiple somatic symptoms, poor self-rated health, high perceived risk of AIDS
Mental health	Depressive disorders, anxiety, hallucinations, panic reactions, sleep disturbances, memory disturbances, poor anger control
Sexual and reproductive health	Early age at first intercourse, sexual dissatisfaction, teen pregnancy, unintended pregnancy, teen paternity, fetal death
General health and social problems	High perceived stress, headaches, impaired job performance, relationship problems, marriage to an alcoholic, risk of perpetrating or being a victim of domestic violence, premature mortality in family members
Problems from the longitudinal follow-up of the study cohort	
Prescribed medications	Total prescriptions, prescribed multiple classes of drugs, psychotropics, bronchodilators
Diseases	Chronic obstructive pulmonary, autoimmune, lung cancer
Mortality	Premature mortality, lung cancer

Note. A complete bibliography of ACE Study publications listed by topic area is available at http://www.cdc.gov/ace/

simultaneously showing how childhood stressors, such as abuse, affect the structure and function of the brain. Thus, the sciences of neurobiology and epidemiology have converged (Anda et al., 2006). Viewing child maltreatment and related adverse experiences as a set of exposures that have broad implications for the biology of human sequential neurodevelopment using a life course perspective is a new concept and paradigm that can transform approaches used to prevent a variety of health and social problems (Anda et al., 2006; Larkin, Felitti, et al., in press; www.cdc.gov/ace).

Because the ACE Study was designed to provide a sweeping public health perspective on the prevalence and interrelatedness of ACE and their relationship to later life consequences, the data generated is relevant and influential across professions (Larkin, Felitti, et al., in press). The ACE Study concepts and terminology create a shared language and develop a perspective that unites many fields of health, mental health, substance abuse, and social and human services, as well as research communities (Larkin & Records, 2007). The articles in this issue reflect many ways that social researchers, policy makers, and providers seek to better understand ACE and develop ACE responses within communities, as well as suggesting next steps.

As a result of the science base from the ACE Study (Table 1), in 2008 the CDC adapted the questions from the ACE Study for incorporation into the Behavioral Risk Factor Surveillance System (BRFSS) (Anda et al., 2010). The BRFSS is the largest ongoing health survey in the world and has proved useful in defining the prevalence of health behaviors and other determinants of health in the United States (http://www.cdc.gov/brfss/). By the end of 2011, more than 18 U.S. states will have collected their own population-based BRFSS data on the prevalence of ACE and the cumulative and graded relationship of the ACE Score to health and social problems. This enthusiasm is spreading as other states will be collecting ACE data in 2012, using existing state government resources and funding from foundations and philanthropy to extend this effort for their populations. The population-based ACE surveillance report documents the "Chronic Public Health Disaster" that ACE and their consequences represent for the people of the State of Washington (Anda & Brown, 2010).

With the peer-reviewed science of the ACE Study as the backdrop, local ACE/BRFSS data will raise awareness among human service providers, policy makers, and the general public of the importance of ACE in relation to the health and well-being of entire communities. The CDC recently released findings about the prevalence of ACE, and ACE Score, using data from five states. Among the demographically representative samples collected, close to 9% of participants had five or more ACE, and over half (59%) reported one or more ACE (Bynum et al., 2010). Policy makers considering this public health information and the human, social, and financial costs of ACE and their consequences will promote new thinking in research, policy, and practice at the local, state, and national levels. This response will engage professionals across fields *and the general public* to find new ways to prevent or intervene with specific ACE or ACE consequences (Larkin, Felitti, et al., in press; Larkin & Records, 2007).

Simultaneously, there is a rapidly emerging movement to provide ACE-informed programs in schools, corrections/juvenile justice, substance abuse and mental health, medicine, and other venues (www.aceresponse.org). This involves the conceptualization and application of a comprehensive ACE Response that unifies prevention and intervention activities that currently address aspects of ACE consequences within communities (Larkin & Records, 2007). Recognizing an association between ACE and job performance, the corporate world also has an important stake in this movement (Anda et al., 2004). The science and emerging practices informed by ACE findings call for public policy that employs the resources and knowledge in existing "silo-ed," or separated, programs and their categorical funding (for each of the individual ACE as well as their many consequences across the lifespan) in a more integrated and cost-effective fashion (Larkin & Records, 2007). This approach is especially timely given the current economic realities.

The World Health Organization (WHO) called policy makers to address ACE to improve public health and promoted pilot ACE Studies that are underway in multiple countries (WHO, 2009). The BRFSS ACE data and emerging data from the WHO international studies identifies ACE and their consequences as a global health issue. The application of BRFSS ACE data in the United States will likely serve as a frame of reference for addressing these issues in other countries. Informed by ACE Study findings and local BRFSS ACE data, Washington is the first State to enact an ACE reduction law. The new legislation (SHB 1965) from the State of Washington is an innovative example of a bold and dramatic shift in thinking being adopted by legislators and policy makers. SHB 1965 and the thinking that surrounded it are well described by legislators Kagi and Regala in the current issue. In addition to sharing the data that informed decision making in Washington State, the legislators pose questions to researchers, whom they seek to engage to advance next steps.

The articles in the current issue begin to address how ACE findings can inform programs that support community members with the most need. This extension from middle class and demographically representative samples to more vulnerable populations is important and likely to be of major interest to policy makers seeking to invest resources to reduce the highest ACE costs while improving overall community health. Two strong empirical articles further clarify ACE prevalence and explore ACE interactions in disadvantaged and vulnerable groups, while considering implications related to mental health assessment and practice. Another builds an ACE prevention science model. A community violence intervention is studied and proposed for inclusion within ACE-informed programs while a secondary analysis of data sheds light on the potential of community capacity development toward ACE reduction. Finally, an empirical case study defines and presents an example of ACE-informed programming.

The article by Nurius and colleagues serves as an example of how the academic community will likely use public health information on ACE generated by the BRFSS. They consider ACE in concert with social disadvantage as another form of adversity while also including the role of personal resources in moderating ACE consequences. The findings increase understanding of the compounding influence of ACE and other forms of social disadvantage on mental health, while also demonstrating the value of present day resources and supports to off-set the influence of ACE. These powerful findings will aid in developing ACE-informed community mental health programs and practice.

Among the vulnerable and *previously hidden* population of male sexual abuse survivors, Easton finds multiple ACE as well as severe forms of child sexual abuse, which are associated with *current life stressors*. The research suggests that later life interpersonal challenges can be another consequence of ACE. In addition to improving access to counseling services, Easton

recommends use of the media as a public education intervention to raise awareness and advancement of assessments that include ACE questions and use behavioral definitions of child sexual abuse to elicit history.

ACE-related mental health, behavioral, and social problems among parents become ACE for the next generation. This intergenerational cycle and the high costs (both in human suffering and economic) speak to the value of preventing the transmission of ACE wherever possible. These insights call for a multifaceted intergenerational prevention approach using a variety of interventions. Mayer and Thursby have built a prevention science model in direct response to recognition that ACE prevention for children of teenage parents involves simultaneously employing services to address ACE in teenage parents. They present a multidimensional, interdisciplinary prevention model that mobilizes schools and early childhood programs to combine individual and community prevention strategies.

Allen and Solomon integrate ACE knowledge with research demonstrating the long-term effects of community violence and examine educational entertainment (edutainment) as an intervention for Black adolescents exposed to community violence. While findings were limited, those who received the edutainment intervention showed higher coping, violence avoidance self-efficacy, and reduced anxiety over time. The authors recommend development and inclusion of edutainment within ACE-informed programs, emphasizing the use of peers to deliver messages.

Hall and colleagues present their secondary analysis of data, which suggest that community capacity development has a role in the reduction of ACE and their consequences. Community networks were designed to bring together public officials, providers, and community members to enhance resources and cross-system coordination to create community capacity for ACE reduction. Two studies suggest that the highest capacity community networks improved health and safety and may have reduced ACE in young adults. These authors suggest inclusion of ACE knowledge within national healthcare, education, workforce, and economic agendas. They point out the economic utility of a community capacity approach that coordinates and mobilizes existing services, supports, and resources toward ACE Response.

The Restorative Integral Support (RIS) model, developed at the Committee on the Shelterless (COTS) for social service agencies helping multiproblem high ACE Score populations, designs ACE-informed programming that mobilizes resilience and recovery. Emerging from a meta-theoretical perspective, RIS integrates research knowledge to implement a comprehensive ACE Response (Larkin & Records, 2007). RIS connects the variety of evidence-supported interventions (ESI) and research-informed emerging practices that are offered through programs that include the ACE Study framework. The programs are then unified within a culture of recovery using a whole person approach. Leadership and policies are keys to the development of social networks that empower people and facilitate

recovery. Resources are expanded through a mutually beneficial relationship with the community. For example, services are brought on-site through interagency relationships and a strong volunteer base, while community service both responds to local needs and increases skills and efficacy among program participants. Practical steps are set forth, and RIS replication is proposed for settings serving high ACE Score groups.

In sum, the vast amount of ACE research has begun to spread rapidly, and by so doing, is bringing together perspectives toward an ACE Response that transcends and includes current partial approaches (Larkin & Records, 2007). ACE research has grown into a framework for the primary prevention of public health problems and converged with insights from neurobiology that explain ACE effects on brain structure and function, which provided biologic plausibility for the vast array of documented health and social problems related to ACE (Anda et al., 2006). By raising awareness of the effect of childhood stressors on sequential neurodevelopment, this research dovetails with the life course perspective models. The articles in the current issue represent early steps in the extension of ACE research and formulation of ACE Response. Currently, professions and service systems continue to operate independently as ACE consequences are addressed in a piecemeal fashion. A fragmented service system poses a challenge to the most disadvantaged, high ACE Score groups experiencing multiple problems.

The ACE research reveals conceptual weaknesses behind "silo-ed" funding and interventions, calling for a more complete and inclusive response (Larkin & Records, 2007). Anda et al. (2004) point out that ACE Response requires the biopsychosocial method presented by WHO. A biopsychosocial practice calls for a coherent conceptual framework that integrates these key elements of overall health to support and articulate ACE Response across multiple professions (Larkin & Records, 2007). As ACE assessments and responses unfold, there will be a need for further research and evaluation. Team-based research, including multiple professional perspectives, is an appropriate complement to comprehensive ACE Response (Larkin, Beckos, & Martin, in press). Finally, partnerships with economists can help to evaluate intergenerational cost-savings associated with effective ACE Response (Larkin, Felitti, et al., in press).

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Translating the Adverse Childhood Experiences (ACE) Study Into Public Policy: Progress and Possibility in Washington State

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On June 15, 2011, Washington became the first state in the United States to enact legislation aimed at preventing adverse childhood experiences (ACE), reducing their prevalence, and mitigating their effects. House Bill 1965 (HB 1965) was established on the understanding among legislators and Washington communities of the need for policies aimed at preventing child abuse, promoting healthy development of children, and building community capacity to improve public health. Empirical examples of integrating ACE-related research with public policy and programmatic design are chronicled. The legislators who developed HB 1965 lay out questions that, if answered, would further improve policymakers' ability to craft public policy and programs that prevent ACE, reduce their effects, and promote a healthier, safer future.

KEYWORDS adverse childhood experiences (ACE), legislation, policy, ACE response, public health

The Adverse Childhood Experiences (ACE) Study found powerful relationships between life stressors during the first 18 years and physical, emotional, and behavioral health across the life span. ACE-related health outcomes with substantial public costs include: depression, chronic illness, substance abuse, and teen pregnancy (Anda et al., 2006). The potential for savings and

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improvements in the public's health led Washington State legislators to pass ACE reduction legislation, leverage and expand existing efforts to prevent ACE and mitigate their effects, and consider the role of ACE when assessing the effectiveness of services for vulnerable people. The current article addresses how Washington State legislators translated ACE and related data into relevant policy, describes the State's investments based on this data, and seeks to engage researchers to answer questions that will inform next steps in ACE reduction.

ACE REDUCTION LAW IN WASHINGTON STATE

With the signing of House Bill 1965 (HB 1965) on June 15, 2011, Washington became the first state to establish public policy specifically aimed at reducing ACE. The law recognizes that co-occurring child abuse and neglect, parental substance abuse, parental mental illness (MI), divorce or separation, incarceration of a family member, and/or witnessing intimate partner violence constitute "a powerful common determinant of a child's ability to be successful at school and, as an adult, to be successful at work, to avoid behavioral and chronic physical health conditions, and to build healthy relationships," and creates a private–public partnership to prevent ACE, reduce their prevalence, and mitigate their effects (C32, L11, E2, Sec. 1, 2011). This legislation requires a diverse group, including community organizations, philanthropy and state agencies to "coordinate and assemble the strongest components" (C32, L11, E2, Sec. 1, 2011) of Washington's ACE reduction efforts to date.

Washington legislators began to understand the impact of ACE on healthy development from researchers, the Institute on Learning and Brain Science, and the National Center on the Developing Child. Robert Anda, MD and Vincent Felitti, MD, co-principal investigators of the ACE Study (Anda et al., 2006), and a cadre of neurodevelopment researchers, including Martin Teicher, MD, PhD (Andersen & Teicher, 2008), provided extensive education across the state as part of a broader strategy to engage the public. As a result, although HB 1965 was introduced late in the 2011 legislative session, it passed with extensive bipartisan support.

For Washington legislators, HB 1965 represents advancement in two areas: primary prevention of child maltreatment and community engagement to improve public health. The Council for Children and Families (CCF), established in 1982, successfully created a network of evidence based home visiting programs, which will be consolidated with the Department of Early Learning (DEL) under HB 1965. The Family Policy Council (FPC), established in 1992 to reduce rates of multiple forms of violence and substance abuse (and the state's major provider of ACE-related education from 2002–2011), is eliminated while authorization of FPC's local affiliates, Community Public Health and Safety Networks, continues under HB 1965.

PRIMARY PREVENTION OF CHILD MALTREATMENT

Learning about healthy child development has pushed ACE prevention to the top of Washington's legislative agenda, and helped to guide investments. For example, the legislature developed a dedicated fund for evidence-based home visiting programs and protected it from significant cuts during recent budget balancing exercises, in large part due to its cost effectiveness (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004). Additionally, Washington's Children's Trust Fund has led the way to prevent and reduce maternal depression (RCW 43.121.060). Together with philanthropic organizations, the state built a private–public entity, Thrive by Five, to maximize quality childcare and learning opportunities in early developmental years. As veteran lawmakers, we know that prevention, while preferable, is not always possible. Even with good initiatives, we are unable to reach everyone in need. Further, only 35% of adults living in Washington are lifelong residents. Therefore, we must also concern ourselves with secondary prevention and mitigation of the effects of ACE that have already occurred.

COMMUNITY ENGAGEMENT TO IMPROVE PUBLIC HEALTH

Washington's Community Public Health and Safety Networks engage residents in reviewing data and taking action to reduce population rates of child-abuse and neglect, youth violence and substance abuse, teen pregnancy, teen suicide, school dropouts, and domestic violence. The ACE framework usefully galvanized this public health approach and resulted in multiple community initiatives to change policy. "The legislature recognizes that many community public health and safety networks across the state have knowledge and expertise regarding the reduction of adverse childhood experiences and can provide leadership on this initiative in their communities" (C32, L11, E2, Sec. 1, 2011). In one case, Tacoma Urban Network and Pierce County Juvenile Court used existing tools to measure ACE prevalence among juvenile offenders and the effectiveness of interventions with high-ACE youth. They found that juvenile offenders have approximately three times the number of ACE documented in the ACE Study and those with the most ACE categories struggle with school failure, multiple suspensions, substance abuse, and suicidal behaviors (Grevstad, 2010). Based on these findings, the Legislature increased flexibility to juvenile courts. In Pierce County, for example, probation officers prioritize high-ACE offenders into programs such as functional family therapy. As more citizens became engaged in community education and efforts to address ACE, a critical mass formed to advocate for preserving ACE reduction efforts despite unprecedented budget constraints. Thus, both data and community voices helped move HB 1965 forward.

ADDRESSING THE ROLE OF ACE IN PROGRAM EFFECTIVENESS: THE CASE OF PUBLIC ASSISTANCE

Between 1997 and 2008, demand for the program commonly known as "welfare," Temporary Assistance to Needy Families (TANF), fell by 47% (Senate Ways and Means, 2011). However, the "great recession" that began in 2007 has nearly reversed those gains. Facing a caseload of over 70,000 families and a $5 billion budget shortfall, the 2011 Legislature had no choice but to reform public assistance without shifting costs to other systems, such as emergency medical care or child welfare. As lawmakers began analyzing data on TANF recipients and their service use, we noticed ACE indicators within these vulnerable families (Table 1). "Children's Administration involvement" means the provision of state services due to one or more reports of child abuse or neglect, indicating physical or sexual abuse or child neglect in the home. Parental drug/alcohol treatment and mental health services were determined from medical records indicating diagnosis and/or intervention. One-parent family status is based on household data provided to TANF to determine eligibility. Domestic violence (DV) is viewed as a barrier to work in today's welfare-to-work system; therefore, recipients reporting or fleeing from DV receive specialized services. Completion of DV services indicates resolution of the barrier. Arrest data are based on available records for one or both parents. The distribution of these indicators varies by length of time on public assistance. Leavers, who exit within 12 months and do not return to the caseload within three years, are less likely than others to receive services for child abuse or neglect, substance abuse, mental health and domestic violence. Cyclers enter, exit and re-enter the

TABLE 1 Parental Behaviors and Eligibility for Services Indicating ACE for Children in TANF Families

	Leavers		Cyclers		
Indicator of ACE	Quick $n = 36{,}025$	Slow $n = 4{,}062$	Low intensity $n = 15{,}890$	High intensity $n = 14{,}349$	Stayers $n = 3{,}595$
Children's Administration involvement	16%	20%	20%	25%	25%
Alcohol/drug treatment	7%	12%	8%	10%	11%
Mental health services	12%	25%	10%	13%	21%
One-parent family	67%	80%	68%	76%	82%
Family violence intervention	4%	8%	5%	7%	10%
Arrest	12%	12%	15%	17%	12%

Note. Source: Washington State Department of Social and Health Services, Research and Data Analysis Division, Integrated Database.

program, but do not use services over 36 months. Stayers receive TANF continuously for 36 months or more (Mancuso et al., 2010a).

Due to the nature of this data, it is not possible to calculate the numbers of ACE categories within families. However, the prevalence of ACE indicators prompted us to inquire if health outcomes documented in the ACE Study were present in the younger generation. For policymakers, this suggests a need to pay attention to ACE when working with this population and ask if ACE influence program outcomes. Based on data from available medical records, TANF children experience high levels of mental health and substance abuse need as measured by diagnosis code, prescription or provision of treatment (Table 2)

Need is more pronounced among children living with relatives ("Kinship") and in court-ordered placements ("Legal Guardian") compared to children living with one or both of their legal parents ("Others") (Mancuso et al., 2010b). For public policy and budgeting reasons, these findings are striking, as about half of adults suffering from MI report symptoms by age 14 and three-quarters report symptoms by age 20 (O'Connell, Boat, & Warner, 2009). Looking through the ACE lens, legislators recognized the need to improve healthy development among TANF children. In the face of declining revenues, poor economic conditions, and a constitutional requirement for a balanced budget, there was no opportunity for program enhancements. Therefore, the adopted TANF reform measure included several low- and no-cost strategies that, based on our current understanding and experience, have the potential to mitigate ACE. In addition to more comprehensive assessment intended to identify and direct services to the most vulnerable

TABLE 2 Health-Related Indicators of ACE Exposure Among Children Receiving TANF

	Child only cases				Others	
	Kinship		Legal guardian		All other TANF children	
SFY 2005–2009	Age 6–11 $n = 4{,}782$	Age 12–18 $n = 5{,}295$	Age 6–11 $n = 279$	Age 12–18 $n = 523$	Age 6–11 $n = 14{,}666$	Age 12–18 $n = 11{,}462$
Overall mental health need	44%	48%	49%	48%	29%	35%
ADHD	15%	13%	19%	10%	10%	8%
Adjustment disorder	12%	11%	17%	10%	6%	7%
Anxiety disorder	19%	19%	16%	20%	11%	14%
Bipolar/mania disorder	4%	6%	4%	5%	2%	4%
Depression	9%	23%	8%	22%	6%	16%
Alcohol or drug treatment need	1%	16%	1%	17%	1%	13%

Note. Source: Washington State Department of Social and Health Services, Research and Data Analysis Division, Integrated Database.

families, we authorized parent engagement in home visiting, Head Start or other parent development activities, and volunteering at a child's day care, preschool, or school to count as "work participation" (C43, L11, E1). For us, the 2011 reform of TANF provides a crystalline example of how ACE science and public policy must interact to improve health and development and reduce the prevalence of high-cost social problems. But there is much work left to do.

POLICYMAKERS' QUESTIONS FOR RESEARCHERS

Tremendous progress is being made to inform community action and policy decisions. Yet to move forward, policymakers still need to know:

- Are our current efforts working? If so, are some more cost effective than others?
- Whom should we serve and under what conditions? How might sensitive developmental periods help prioritize public investments?
- Is there a predictable life course for high-ACE individuals that can help funders plan for, preempt, or interrupt the need for future services?
- Can we identify who is headed for ACE-related trouble so that effective assistance can be provided at the most strategic time?
- Why do some high-ACE families need government services while others do not? Is there a way to predict which individual or family will show up in which helping system?
- How can we build resilience and protective factors?

Answering these questions will help policymakers develop effective strategies to prevent and reduce the effects of ACE while promoting a healthier, safer future.

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Adverse Childhood Experiences (ACE) Within a Social Disadvantage Framework: Distinguishing Unique, Cumulative, and Moderated Contributions to Adult Mental Health

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*The deleterious impact of adverse childhood experiences (ACE) may be confounded with frequently co-occurring social disadvantage. In this analysis we test the effects of ACE on adult mental health within a social disadvantage framework, using a population-based survey (*n = *7,444; mean age = 55.2 years) from Washington State. We also examined the protective effects of socio-emotional support, and the distinct and combined contribution of the measured ACE factors. Results demonstrated sustained impact of ACE on mental health many decades later, even net of social disadvantage and demographic contributors. Protective factors provided both direct and moderating influences, potentially masking the elevated effects of ACE for those with few resources. Toxicity examination of ACE items evinced differential effects of ACE experiences on mental health. These results demonstrate that interventions ameliorating the effects of ACE and bolstering protective*

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resources such as socioemotional support may be effective toward augmenting mental health even late in life.

KEYWORDS adverse childhood experiences (ACE), mental health, poverty, victimization

Although adversities in childhood have long been recognized as concerns for later life development, recent advances have refocused this line of inquiry. Increased exposure to adverse childhood experiences (ACE) has demonstrated a dose–response relationship to a host of behavioral, health, and mental health problems (e.g., Edwards, Holden, Felitti, & Anda, 2003; Lu, Mueser, Rosenberg, & Jankowski, 2008). This body of research lays the foundation for "next horizon" questions, such as disentangling the cumulative versus distinctive contributions of varying forms of childhood adversity relative to later psychopathology and testing the robustness of ACE effects beyond correlated factors also known to affect psychological health (Benjet, Borges, & Medina-Mora, 2010; Schilling, Aseltine, & Gore, 2008). This article contributes to the evolving understanding of ACE—focusing on their utility for predicting adult mental health within a risk and protective factor multivariate analytic context.

Advances in developmental biology provide a theoretical framework for linking early life adversity exposure with neurobiological as well as psychosocial development that, in turn, cascade through the life course, serving as carriers of stress to later pathology (Anda et al., 2006; Juster, McEwen, & Lupien, 2010). At the same time, research is also demonstrating graded relationships between socioeconomic status and health, targeting social disadvantage (such as lower levels of education, income, and resource access) as another related but distinct social determinant of later life physical and mental health (Adler & Stewart, 2010). Integrative theorizing points to multiple risk factor exposure associated with social disadvantage (Evans & Kim, 2010) and to psychosocial factors that bridge social disadvantage and differential health outcomes (Matthews, Gallo, & Taylor, 2010).

While protective factors offset the effects of stress, these measures have not yet been well integrated into analysis of ACE effects on later life health, although initial findings in relation to mental health are promising (Hill, Kaplan, French, & Johnson, 2010; Rosenthal, Wilson, & Futch, 2009). An additional gap in the functioning of ACE is whether specific experiences have differential effects on adulthood outcomes. The ACE literature represents an advance in research by incorporating multiple types of adversity within the same measure, as opposed to historical "silos" of research, such as for childhood sexual abuse or parental divorce alone (Turner, Finkelhor, & Ormrod, 2006). While incorporating a multidimensional assessment within the same line of inquiry highlights the need to consider accumulating stress

through childhood, whether these different types of adversities are equally "toxic" for later outcomes remains an open empirical question that few studies have considered (Schilling et al., 2008).

Responding to "next step" priorities within a population-based survey, we test the predictive utility of ACE for adult mental health in a multivariate framework, assessing (a) the contribution of ACE both cumulative with and distinctive from demographic and proximal social disadvantage factors; (b) evidence of stress amelioration effects of a key psychosocial protective factor–socioemotional support; and (c) the potentially differential toxicity of specific ACE forms for mental health in addition to a dose–response aggregate assessment.

METHODS

Sample

Data were obtained from the 2009 Behavioral Risk Factor Surveillance System (BRFSS) for Washington State—a cross-sectional, random-digit-dialed telephone survey conducted by health departments in all 50 states and U.S. protectorates in collaboration with the Centers for Disease Control (CDC, 2011). Participants are English and Spanish speaking adults aged 18 years or older, who are non-institutionalized, and live in a household with a working landline telephone. Washington State uses a disproportionate stratified random sampling method with one adult per household randomly selected to participate in the survey (WA Dept. of Health, 2010).

The study sample ($N = 7{,}444$) consisted of 59.9% females and the following racial/ethnic composition: 89.8% Caucasian, 1.5% African American, 2.6% Asian, 0.5% Hawaiian/Pacific Islander, 1.3% Native American, and 4.3% Other or mixed race. Of the sample, 4.8% was Hispanic. Average age was 55.2 years ($SD = 16.6$), with approximately 17% age 65 or older and 25% age 44 or younger. Approximately one-third the sample's household income was $25,000 or less, and a third was $75,000 or more. Not quite 6% of the sample never received a high school diploma, 21.3% had a high school education only, 32.6% attended some college, and 40.5% had a college degree and/or advanced training.

Measures

For the current study, demographics consisted of age, sex, and race/ethnicity (seven categories). Social disadvantage was based on education (4-level categorical scale), income (8-level categorical scale), medical cost barriers (did not receive treatment for a medical condition due to lack of healthcare access), and disability (health problems that require use of special equipment). Responses to 11 ACE questions yielded 8 categories: childhood

household mental illness, household substance abuse (alcoholic or illicit drugs), incarcerated family member, parental divorce, witnessing domestic violence, physical abuse, sexual abuse (sexual touching or forced sex), and verbal abuse (CDC, 2010). The aggregate ACE score is calculated as the sum of dichotomized "yes" responses across the 8 categories. Socioemotional support is a single item of how often participants get the emotional and social support they need measured on a five-point Likert scale. The moderator term is the multiplicative of socioemotional support with the ACE aggregate. Mentally healthy days is a continuous variable representing the number of days out of the last 30 that the respondent reported good mental health (e.g., no depression, stress, or emotional problems). Mental health symptomology is a mean of six symptoms of mental health problems (feeling nervous, hopeless, restless, depressed, everything an effort, worthless) assessed on a five-point Likert scale (Kessler et al., 2002; $\alpha = 0.80$). Life satisfaction is assessed with a four-point Likert scale asking participants how satisfied they are with their lives. The mental health symptom composite was scored such that higher values represent better mental health. Thus, higher values for all dependent variables reflect positive mental health statuses.

Analysis Plan

We followed the BRFSS recommendations in using sampling weights to match the age, sex, and race distribution of Washington State according to estimates from the U.S. Census Bureau. After preliminary analysis of the bivariate relationships among the study variables, we undertook three sets of hierarchical regressions. Mentally healthy days and mental health symptoms were examined with weighted linear regression techniques using the Stata survey commands. The ordinal distribution of life satisfaction necessitated the use of ordered logistic regression. The inclusion of three related yet importantly distinct features of adult mental health allows assessment of the stability of findings and their interpretation.

In the first set of regressions, we sequentially regressed the three measures of mental health on four blocks of explanatory variables, controlling for demographics (age, sex, race/ethnicity): (a) social disadvantage (education, income, medical care access, disability), (b) aggregate ACE score, (c) socioemotional support, and (d) interaction term of support with ACE score. This procedure tests cumulative effects as well as the unique explanatory utility of each predictor set. Thus, in addition to the overall F test and R^2 for each complete regression model, each step was tested for significance on the basis of the R^2 change statistic.

Additionally, relative toxicity of ACE items on mental health was investigated. The second set of regressions examined the cumulative effects of the eight ACE items entered simultaneously, controlling for demographics and social disadvantage and revealing which ACE items affected mental health

net of other experiences. The third set of regressions examined the contribution of each individual ACE item alone on mental health outcomes, again controlling for demographics and social disadvantage. The relative path coefficients of these two sets of regressions were then examined as a basis for the relative toxicity or stress load of that ACE on the three mental health outcomes.

RESULTS

The full regression model for each of the three mental health outcomes achieved significance (see Table 1). In addition, each of the five steps contributed significant explanation of each of the mental health indictors. Among demographics, only age was consistently contributive, with older age associated with more positive mental health. There were virtually no race/ethnicity effects and sex was weakly contributive for mentally healthy days, with males slightly more favorable. In the interest of brevity, the demographic step was retained in the analyses but not reported in Table 1. All social disadvantage indicators contributed significantly to explanation of variance (although education was not significant beyond the first step), with coefficients in the expected directions. Central to this study, higher ACE scores were negatively associated with positive mental health outcomes, controlling for all other variables.

Socioemotional support, as expected, was positively associated with mental health, net of other contributors. Finally, socioemotional support consistently moderated the effect of ACE's explanation of adult mental health variation. Moreover, the addition of the moderator resulted in substantial increases of the ACE score path coefficient for mental health in the linear regressions relative to the prior steps, and an odds ratio shift from 31% to 66% of respondents with higher ACE who are likely to have lower current life satisfaction.

Results of the toxicity analyses of the ACE categories are shown in Table 2. When regression analyses included all eight ACE categories simultaneously—thereby controlling for their shared variance (in addition to demographics and social disadvantage)—parental mental disorder, physical abuse, and verbal abuse were uniquely significant as separate ACE predictors for all three mental health outcomes. Sexual abuse, witnessing violence, and parental divorce achieved significance on one or two but not all outcomes.

When each ACE category was examined in separate regression equations, controlling for demographics and social disadvantage, significantly negative effects on all three mental health outcomes were demonstrated. Most ACE categories achieved significant effects on mental health when examined this way; parental divorce and imprisonment were significant only for one outcome. The magnitudes of the effects were highest with parental mental illness, physical abuse, and emotional abuse.

TABLE 1 Regressions Examining the Contribution of Social Disadvantage, ACE Score, Socioemotional Support, and Moderating Effects on Mentally Healthy Days, Mental Health Symptoms and Life Satisfaction

	Mentally healthy days (βs)				Mental health symptoms (βs)				Life satisfaction (ORs)[a]			
	Linear regression				Linear regression				Logistic regression			
	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4
F	16.65***	19.91***	24.73***	24.19***	25.17***	33.17***	48.91***	49.26***	31.83***	39.52***	51.87***	49.48***
$R^2\Delta$		0.03***	0.04***	0.01***		0.05***	0.08***	0.02***				
R^2	0.07***	0.10***	0.14***	0.15***	0.13***	0.18***	0.26***	0.28***				
Income	0.09***	0.10***	0.08***	0.07***	0.18***	0.18***	0.15***	0.15***	1.31***	1.32***	1.28***	1.27***
Education	0.06***	0.04*	0.04	0.03	0.05**	0.03	0.02	0.02	1.05	1.02	1.01	1.00
Medical cost barriers	–0.12***	–0.09***	–0.07***	–0.07***	–0.15***	–0.12***	–0.10	–0.11***	0.75***	0.80***	0.81***	0.81***
Disability	–0.13***	–0.11***	–0.11***	–0.10***	–0.16***	–0.14***	–0.13***	–0.13***	0.76***	0.78***	0.80***	0.79***
ACE score		–0.19***	–0.16***	–0.62***		–0.23***	–0.20***	–0.78***		0.67***	0.69***	0.34***
Support			0.20***	0.10***			0.29***	0.16***			1.82***	1.56***
Support*ACE				0.47***				0.59***				2.07***

Note. All models control for demographics (age, sex, race, ethnicity). β = standardized betas; OR = odds ratios.

[a] R^2 equivalents are not available.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

TABLE 2 Toxicity of ACE: Comparing Regression Coefficients of ACE Items Added Simultaneously Versus Separately Into Regression Equations

	All ACE entered simultaneously			Independent regression effects[a]		
	Mentally healthy days (βs)	MH symptoms (βs)	Life satisfaction (ORs)	Mentally healthy days (βs)	MH symptoms (βs)	Life satisfaction (ORs)
F	16.56***	25.76***	17.51***			
R^2	0.12	0.21	N/A			
Parent MH	–0.11***	–0.13***	0.87***	–0.15***	–0.19***	0.60***
Substances	–0.02	–0.02	1.03	–0.08***	–0.10***	0.82*
Prison	0.01	–0.01	0.98	–0.04	–0.07***	0.72
Divorce	0.04	0.01	1.13**	–0.02	–0.05**	1.06
Witnessing	0.00	0.05*	0.99	–0.09***	–0.08***	0.67***
Physical abuse	–0.07**	–0.09***	0.88**	–0.15***	–0.18***	0.52***
Emotional abuse	–0.10***	–0.14***	0.80***	–0.16***	–0.21***	0.53***
Sexual abuse	–0.04*	–0.05*	0.98	–0.09***	–0.11***	0.73***

Note. All models control for demographic and social disadvantage variables. β = standardized betas in linear regressions; ORs = odds ratio in logistic regression.
[a]For sake of parsimony, the F and R^2 of each separate ACE item regression is not reported.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

DISCUSSION

This study contributes to the investigation of ACE consequences in multiple ways. Early ACE research provided the critical finding that elevated ACE exposure is associated in a dose–response fashion to a wide range of impaired health outcomes (Anda et al., 2006; Dube et al., 2003). The current approach allowed testing for unique contributions of ACE net of proximal predictors often associated with erosion of adult mental health, such as poverty, disability, and inability to obtain needed medical care. The findings that ACE were significantly predictive of all adult mental health outcomes beyond demographic and socioeconomic characteristics and that social disadvantage was also uniquely contributive argues for continued examination of ACE integrated within a social disadvantage framework.

Results indicated that in addition to unique positive effects as a direct predictor, socioemotional support also served to moderate the effects of ACE on adult mental health. Whereas respondents with higher support reported slightly more mentally healthy days among adults with low ACE scores, respondents with high levels of ACE exposure showed a substantial gap. The absence of support was associated with significantly fewer mentally healthy days among adults relative to respondents with comparably higher ACE exposure, but who did have current socioemotional support. This buttresses our hypothesis that personal and social resources are beneficial to all (are health promotive), but are likely to be particularly important to higher risk people through ameliorating the impact of risk (are health protective).

Observed suppression effects sharpen the interpretation. Specifically, once moderation was accounted for, the direct negative effect of the ACE coefficients increased substantially, reinforcing the premise that individuals without protective resources are at risk of disproportionally higher impact from ACE, even when at the same general level of exposure. In short, the relative dearth of resources such as social and emotional support carry important information about a hidden disproportionate effect of ACE on subpopulations that are more bereft of protective buffers. Thus, both to fully assess ACE effects (direct and indirect) and to identify factors that demonstrate power in curbing ACE effects, more theorized multivariate analysis inclusive of protective factors is needed.

The toxicity analysis also provides insight into the functioning of specific ACE. We found that not all ACE are equally detrimental when nested with one another and other adversity contributors. When all ACE were entered simultaneously, only a handful of items—parental mental health problems, physical abuse, emotional abuse, and sexual abuse—contributed independently to mental health outcomes. When examined separately, some experiences had comparatively limited effect on adult mental health, specifically parental imprisonment and divorce. These findings are similar to a small number of studies that have examined the combined and separate

effects of ACE on adult outcomes (Bruffaerts et al., 2010; Schilling, Aseltine, & Gore, 2007).

Based on the results from a survey of young adults, Schilling and colleagues (2008) argued that the additive impact of ACE found in many studies was likely due to the increased probability of experiencing the subset of more damaging ACE items. They further argued that examining ACE aggregate scores instead of items could mislead researchers and misdirect interventive efforts, which should be focused on the more toxic experiences. Our results suggest "both/and" impact. That is, the aggregate ACE score was an effective explanatory variable—robust within a fairly conservative test of its unique contribution to later life outcomes. In addition, however, the extent to which specific ACE categories stand out among the controlled share variance suggests unique residuals of effect that may hold implications for tailoring interventions. Factors such as parental psychopathology and histories of physical abuse, for example, may carry deeply engrained strain or disrupt sensitive periods of earlier development that insinuate into psychosocial and neurobiological processes and are carried forward. Since parental imprisonment and sexual abuse have comparatively lower base rates, these may require subsample analysis.

Implications for Practice, Policy, and Research

This BRFSS sample includes more mature respondents than is typically captured in ACE research, showing how the impact of childhood exposure carries forward, even into later-stage adulthood. These findings underscore previous calls to prevent the occurrence of and protect children and adolescents from adverse experiences (e.g., Shonkoff, Boyce, & McEwen, 2009). Additionally, they support the delivery of preventive intervention and remedial treatment to reduce potential negative mental and physical health consequences in adulthood. We can interpret the presented findings as also suggesting that "it's never too late" to improve adult functioning relative to ACE impact. ACE effects have staying power, theorized through neurophysiological as well as psychosocial mechanisms (Anda et al., 2006; Teicher, Andersen, Polcari, Anderson, & Navalta, 2002). At the same time, these effects are being offset by current life resources—emotional support in addition to income and ability to access medical care. Whereas health disparities have at least partial roots in childhood exposures to adversities, these findings argue for the value of a life course approach to assessing and buffering ACE effects.

The first priority is to reduce or eliminate childhood exposure to adversity such as maltreatment and significant loss, in addition to poverty. However, there will always be the need to mitigate effects of early life adversity exposure. Although the available BRFSS data did not include information about childhood resources (e.g., supportive adults or family socioeconomics), such data would be valuable in assessing earlier life protective effects

and offsetting the effect of ACE on development. Moreover, the inclusion of protective factors is pivotal to translating findings into targeted resource- and strengths-based programming. Such community investments are especially important for vulnerable and socially disadvantaged children, families, and adults for whom selective and indicated prevention as well as remedial interventions hold particular value. We now need testing of mutable factors across multiple levels—individual, parenting, family, culture, community—and across life stages to hone our understanding of the strongest pathways to fostering resilience.

The findings presented in this article also suggest advantages to integrating social disadvantage and early life adversity perspectives in gauging ACE effects on later adult functioning. Childhood poverty, for example, is associated with greater likelihood of exposure to a range of risk conditions (Evans & Kim, 2010). Bivariate correlations among the current study variables show that the number of ACE is inversely correlated with adult income, education, and medical care attainment. These findings are consistent with related research indicating vicious cycles between childhood adverse exposures and a slippery slope of impaired educational and adult role success (Wickrama, Conger, Lorenz, & Jung, 2008), losses that create secondary mechanisms through which undermining effects on healthy development are added to those stemming from early life.

Of note is the finding that race and ethnicity were not significant in this analysis. This is in contrast to other findings that race is an important component in elucidating stress and social disadvantage effects, related to yet also distinct from socioeconomic status (e.g., Goodman, McEwen, Dolan, Schafer-Kalkhoff, & Adler, 2005). One reason may be that assessment of other aspects of demography and social disadvantage often interrelated with race, such as educational differences and income deficits, are accounting for much of the shared contribution of race to later life mental health. Another possible explanation is that the BRFSS sampling for Washington State resulted in a largely Caucasian sample, reflective of state demographics, making sample proportions for respondents of color too small to detect race/ethnicity effects independent of other demographic and social demographic contributors. As with most ACE research, an additional study limitation is the cross-sectional nature of the data. Although consistent with prior findings, caution is merited in drawing conclusions of causality.

In sum, our findings argue that attention to socioeconomic and psychosocial resources are crucial to estimating differential impacts of ACE (physical and mental health disparities) on more vulnerable populations as well as to setting intervention priorities. Individuals who may seek out social services, for example, for basic needs like housing, employment, welfare assistance, healthcare, and who may be characterized as socially disadvantaged, may also be contending with higher ACE scores and lower social and emotional support, all of which compounds poor mental health and psychosocial

functioning. Whereas individuals may leave the social services office with a housing voucher and food stamps, they may not leave with a needs assessment that has taken into account the ACE that may still be affecting their current well-being. Furthermore, steps may not have been taken to foster resilience and build strengths within and surrounding this individual, so that they return to their daily lives with structures in place that might support positive functioning and improved mental health.

CONCLUSION

These findings outline a range of community-based prevention and intervention opportunities. The conceptual lens argues for consideration of ACE effects to include socioeconomic disadvantage as an additional form of adversity. In tandem, it also demonstrates the explanatory advantages of accounting for personal resources, or the lack thereof. Advances in developmental biology support the premise that early life experiences not only undermine healthy early development, but may also serve as the childhood roots of later life health disparities (Shonkoff et al., 2009). The current findings are highly consistent with this psychobiological embedding of ACE effects cascading through life course development. The results argue a "both/and" recognition of the reinforcing, additional erosion of psychological health by social disadvantage—yet also the benefit of investing in social and personal resources. Attention to ACE is critical in childhood for prevention, but it is never too late for community practitioners to improve the well-being of ACE-affected members of their communities.

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Understanding Adverse Childhood Experiences (ACE) and Their Relationship to Adult Stress Among Male Survivors of Childhood Sexual Abuse

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*Men who were sexually abused during childhood represent a highly stigmatized, marginalized, and under-researched population at risk for a variety of problems across the lifespan. The purpose of the current study was to (a) describe characteristics of child sexual abuse (CSA) and adverse child experiences (ACE), and (b) examine the relationships among CSA characteristics, ACE, and stressors in adulthood. Using a cross-sectional design, the researcher collected data on 487 adult men through an anonymous, online survey. Bivariate analyses revealed that five CSA characteristics—age at first abuse (*r = *–.164), number of abusers (*r = *.231), use of physical force, penetration, and physical injury—were related to the number of ACE. Three CSA characteristics (use of physical force, penetration, and physical injury) and the number of ACE (*r = *.162) were positively related to the number of stressors in adulthood. Preliminary recommendations for prevention, intervention, and future research are provided.*

KEYWORDS adverse childhood experiences (ACE), child sexual abuse, male survivors, stressors

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In the last two decades, scholars have accumulated considerable evidence of the pernicious effects of childhood sexual abuse (CSA). Although prevalence rates vary depending on the definition and measurement of CSA, approximately 25% of women and 16% of men report that they experienced contact sexual abuse during childhood (Dube et al., 2005). The negative short-term effects of CSA are well documented (for reviews, see Beitchman, Zucker, Hood, DaCosta, & Akman, 1991; Kendall-Tackett, Williams & Finkelhor, 1993). Researchers have also demonstrated a relationship between CSA and various long-term psychological illnesses during adulthood (for reviews, see Hunter, 2006; Jumper, 1995; Putnam, 2003) with negative effects continuing into old age for many survivors (Draper et al., 2008; Talbott et al., 2009). Although not all adults with histories of CSA develop psychopathology (Hunter, 2006; Putnam, 2003), evidence suggests that CSA increases the risk for problems across the lifespan.

Because CSA often does not occur as a separate, isolated event (Finkelhor, 1998), scholars have begun to examine other adverse childhood experiences (ACE) that may compound the negative long-term effects (Edwards, Holden, Felitti, & Anda, 2003; Felitti et al., 1998). While knowledge of co-occurring conditions that may exacerbate the effects of CSA is developing, men who were sexually abused during childhood (MSAC) remain a marginalized, stigmatized, and under-researched population (Banyard, Williams, & Siegel, 2004; Spataro, Moss, & Wells, 2001). Thus, the purpose of this exploratory study is to describe and examine the relationships among CSA severity, ACE, and stressors in adulthood.

LITERATURE REVIEW

CSA Severity

Research increasingly demonstrates the relationships between CSA and mental health problems in adulthood for MSAC. Qualitative research with clergy abuse survivors, for example, has found that some survivors struggle with an ongoing deep-seated rage and spiritual distress that interferes with their well-being (Fater & Mullaney, 2000). Lisak (1994) identified psychological themes related to the sexual abuse, including negative affective states (e.g., anger, fear, loss, guilt, and shame) and cognitive effects (e.g., negative schemas, and self-blame). Quantitative research has found that MSAC are at higher risk for problems such as substance abuse, high-risk sexual activities, relationship problems, re-victimization, and sexual dysfunction (Hunter, 2006; Loeb et al., 2002). MSAC are also at higher risk for specific psychological problems such as major depressive disorder, posttraumatic stress disorder, personality disorders, and suicidal ideation (Holmes & Slap, 1998; O'Leary & Gould, 2009; Putnam, 2003; Spataro et al., 2001).

Researchers have identified specific characteristics of sexual abuse that contribute to problems in adulthood for survivors. Some of those characteristics include severity indicators such as close relationship to the abuser (Molnar, Buka, & Kessler, 2001; O'Leary, Coohey, & Easton, 2010), number of abusers (Heath, Bean, & Feinauer, 1996; Molnar et al., 2001; O'Leary et al., 2010), penetration (Dube et al., 2005), frequency (Banyard et al., 2004), physical force (Boudewyn & Liem, 1995), physical injury (O'Leary et al., 2010), and chronicity of the abuse (Molnar et al., 2001). However, not all of the evidence is supportive of the association between abuse severity and long-term problems (Kendall-Tackett et al., 1993). Furthermore, most of the research on the long-term effects of CSA has focused on female survivors, and few studies have examined the relationship between sexual abuse characteristics and stressors in adulthood.

Adverse Childhood Experiences (ACE)

Researchers have begun to examine whether environmental factors during childhood are related to long-term problems for adults with histories of CSA. Finkelhor, Omrod, Turner, and Holt (2009) proposed the term *poly-victimization*, which encompasses multiple forms of child maltreatment and victimization, and developed a conceptual model with four pathways: residing in a dangerous community; living in a dangerous family; having a chaotic, multiproblem family environment; and having emotional problems that compromise self-protective capacities. Using a large nationally representative sample of children and youth ($N = 2{,}030$), Finkelhor, Omrod, and Turner (2007) found that 71% of children had experienced (or witnessed) at least one type of victimization in the past year, 20% had been exposed to five or more victimization types, and 7% had been exposed to seven or more victimizations. Finkelhor et al. (2007) also found that poly-victimization (i.e., four or more victimizations) was highly predictive of trauma symptoms.

In another pioneering study, Felitti et al. (1998) examined a broad range of negative childhood experiences (e.g., emotional, physical, and sexual abuse, household dysfunction) among adult patients in a California primary care setting ($N = 9{,}508$). The researchers found that more than 50% of participants reported at least one category of ACE and one-fourth of participants reported two or more categories of ACE. Furthermore, Felitti et al. (1998) found a graded relationship between the number of categories of ACE and a litany of adult health risk behaviors and diseases (e.g., alcoholism, depression, suicide, severe obesity, cancer). Specific forms of child maltreatment such as physical abuse commonly co-occur with CSA for boys and negatively influence mental health outcomes (Edwards et al., 2003; Holmes & Slap, 1998; MacMillan et al., 2001). Other contextual variables that are highly associated with CSA include a one-parent family structure, parental substance abuse, parental unemployment, parental criminal behavior, domestic

violence, and injury by a caretaker (Banyard et al., 2004; Horwitz, Widom, McLaughlin, & White, 2001; Hunter, 2006; Molnar et al., 2001).

Because some ACE may represent more serious threats to adult functioning than others, it is important to understand severity indicators of CSA and their relationship to ACE. Furthermore, stressors in adulthood may be related to worse mental health among CSA survivors (Boudewyn & Liem, 1995; Horwitz et al., 2001). The bivariate analyses in the current study will provide direction for future studies on mental health for this population that control for ACE, CSA characteristics, and current stressors.

METHODS

Participants

This study used a cross-sectional survey design with purposive sampling from three national survivor organizations (Survivors Network of those Abused by Priests [SNAP], MaleSurvivor, 1in6.org) to collect data from adult men with CSA histories. The organizations posted a study announcement on their home pages; SNAP also sent recruitment emails to its members. Participants were eligible if they were: male, 18 years of age or older, and sexually abused before the age of 18. After reading the Institutional Review Board (IRB)–approved consent letter, participants completed an anonymous, Internet-based survey during an 8-week period in the summer of 2010. The final sample consisted of 487 men ranging in age from 19 to 84 years with a mean age of 50 ($SD = 10.82$). Most participants were Caucasian (90.9%), living with a spouse/partner (69.9%), and members of a survivor organization (81.8%). Fifty-eight percent (58.1%) held a bachelor's degree or higher; the mean income level was $60,000–$69,000.

Measures

Sexual abuse severity

Sexual abuse characteristics were measured with nine items that focused on indicators of CSA severity: biological abuser, clergy abuser, use of force, penetration, physical injury, age at first abuse, frequency, duration, and number of abusers. The first five items were measured at the nominal level (no = 0; yes = 1). Age at the time of the first sexual abuse was measured by asking: "About how old were you when you were first sexually abused?" The response choices for frequency of the abuse were: once, 2–5 times, 6–10 times, 11–20 times, and more than 20 times. The item measuring duration consisted of six response choices: one time, less than 1 month, 1 month to less than 6 months, 6 months to less than 1 year, 1–3 years, and more than

3 years. The number of abusers item contained four response choices: one person, two people, three people, or more than three people.

Adverse childhood experiences

A standardized index was adapted to measure childhood adversity: the Child and Adult Stressors Index (Statistics Canada, 2002). Participants were asked "Did any of the following things happen to you while you were a child or teenager (under the age of 18)?": physical abuse, parental substance abuse, parental mental illness, parental criminal activity, divorce, witnessing domestic violence, extended hospitalization, and parental unemployment (yes = 1; no = 0). This list of childhood adversities was similar to the one used in the original ACE study (Felitti et al., 1998), but included two new adversities (i.e., extended hospitalization, parental unemployment) and omitted others (i.e., emotional abuse, household dysfunction). In the current study, the variable Adverse Childhood Experiences was created by adding the number of endorsed events (theoretical range = 0–8) with higher scores indicating a greater number of ACE. Reliability for the index as measured by Cronbach's alpha was .635.

Current stressors

Recent life stressors were measured with an adaptation of The List of Threatening Events Questionnaire (LTEQ) (Brugha & Cragg, 1990). The LTEQ was shown to have high test–retest reliability, good agreement with informant information, and concurrent validity with high specificity and sensitivity (Brugha & Cragg, 1990). Participants were asked "Have any of the following life events or problems happened to you during the past 12 months?": serious illness, injury or assault (self); serious illness, injury or assault (close relative); death of parent, child, or spouse; death of family friend or another relative; separation due to marital difficulties; termination of a steady relationship; serious problem with a close friend, neighbor, or relative; unemployment; fired from job; major financial crisis; problems with the police or a court appearance; theft of a valued possession. An additional stressor—problems due to a natural disaster—was added. Response choices for each event were yes (1) and no (0). The number of stressors were then added with higher scores indicating more current stressors (theoretical range = 0–13). Reliability for the index as measured by Cronbach's alpha was .631.

Data Analysis

Data were cleaned and imported into a data file in SPSS 17.0. There were very little missing data in this study (< 3%). Diagnostic tests conducted prior

to inferential testing found that assumptions were met for statistical tests. After univariate analyses, bivariate correlations (Pearson's *r* or independent sample *t* tests) were conducted.

RESULTS

Univariate results indicated that the mean age at first abuse was 10.26 years ($SD = 3.81$) and the mean number of abusers was 1.85 ($SD = 1.07$). Eleven percent (11.4%) of participants reported that they were abused by a family member who was biologically related. The majority of participants reported that they were abused by a clergy member (61.5%). The mean for CSA frequency was 3.18 (range = 1–5). Although 45.9% of participants reported that the abuse occurred five times or less, 38.5% of participants reported that the abuse occurred more than 20 times. The mean for duration was 4.21 (range = 1–6). Approximately one-third of participants (31.4%) indicated that the abuse lasted more than three years. The majority of participants reported that the abuse involved penetration (61.0%); many participants indicated that the abuse involved physical force (40.6%) and physical injury (23.8%).

The mean number of ACE for study participants was 1.87 ($SD = 1.77$). The most commonly reported ACE was physical abuse (45.4%). However, approximately one-third of participants reported parental substance abuse (32.6%) and one-fourth of participants reported parental mental illness (23.2%) and domestic violence (22.4%). The remaining ACE and their respective percentages were: divorce (18.3%), extended hospitalization (16.8%), parental unemployment (14.4%), and parental criminal involvement (4.3%). The mean number of current stressors in the past year was 2.27 ($SD = 2.05$). One-third of participants (33.5%) experienced a major financial crisis. The other commonly reported stressors were: death of a close family member or friend (28.1%), serious problem with a close friend, neighbor or relative (27.5%), serious injury or illness (26.7), unemployment (25.7%), and serious injury, illness, or assault for a relative (23.0%). The remaining current stressors and their respective percentages were: theft or loss of personal property (14.2%), fired from a job (10.5%), death of a parent, child, or spouse (9.9%), legal problem (9.2%), relationship dissolution (9.0%), and marital separation (6.6%).

Table 1 presents the correlations between CSA characteristics and the number of ACE. Five of the nine characteristics were related to the number of ACE: age at first abuse ($r = -.164$; $p < .001$), use of physical force ($t = -2.356$; $p < .01$), penetration ($t = -3.554$; $p < .01$), physical injury ($t = -4.999$; $p < .01$), and number of abusers ($r = .231$, $p < .001$). Table 2 presents the correlations between CSA characteristics, the number of ACE, and the number of current

TABLE 1 Relationships Between CSA Severity and ACE

CSA characteristic	Mean	Pearson's *r*
Age at first abuse		–.164***
Biological abuser		
Yes	2.26	
No	1.83	
Clergy abuser		
Yes	2.02	
No	1.80	
Frequency		.029
Duration		.034
Force		
Yes	2.15**	
No	1.75	
Penetration		
Yes	2.11**	
No	1.50	
Physical injury		
Yes	2.62**	
No	1.55	
Number of abusers		.231***

Note. **$p < .01$. ***$p < .001$.

TABLE 2 Relationships Between CSA Severity, ACE, and Stressors in Adulthood

CSA characteristic or ACE	Mean	Pearson's *r*
Age at first abuse		
Biological abuser		–.055
Yes	1.86	
No	2.32	
Clergy abuser		
Yes	2.29	
No	2.22	
Frequency		.018
Duration		.050
Force		
Yes	2.61**	
No	1.95	
Penetration		
Yes	2.49**	
No	1.83	
Physical injury		
Yes	2.88***	
No	1.96	
Number of abusers		.072
Number of ACE		.162***

Note. **$p < .01$. ***$p < .001$.

stressors. Three abuse characteristics—use of physical force ($t = -3.372$; $p < .01$), penetration ($t = -3.466$; $p < .01$) and physical injury ($t = -3.629$; $p < .001$)—and the number of ACE ($r = .162$, $p < .001$) were related to the number of current stressors.

DISCUSSION

The results suggest that many MSAC experience severe forms of CSA and multiple ACE. More than one-half of the participants in this study were sexually abused more than five times (54.2%) and for more than one year in duration (56.9%). Furthermore, many of the participants reported that the sexual abuse involved penetration (61.0%) and the use of force (40.6%). These findings were similar to a study with a nationally representative sample (Finkelhor et al., 1990) on several CSA severity variables (e.g., incest, age at first abuse, penetration). However, the percentage of participants reporting penetration was higher than in another study based on the data from the original ACE study (Dube et al., 2005).

Consistent with the poly-victimization perspective (Finkelhor et al., 2009), almost half of the participants reported that they were physically abused during childhood (45.4%). This rate is higher than in previous studies (Dube et al., 2005; Felitti et al., 1998). However, parental problems such as substance abuse, mental illness, and domestic violence were common in the current study and similar to the rates in Felitti et al.'s study (1998). Because the number of ACE was correlated with five CSA severity indicators, it is likely that MSAC who survived severe forms of CSA grew up in problem-saturated households during childhood. These results support two poly-victimization pathways in Finkelhor et al.'s (2009) conceptual model: having a multiproblem family environment and living in a dangerous family. In these environments, the participants may have had limited resource to address and end the sexual abuse.

The number of ACE and three characteristics of CSA—the use of force, penetration, and physical injury—were related to the number of current stressors. Many of the current stressors (e.g., serious problem with a close friend, neighbor, or relative; separation due to marital difficulties; termination of a steady relationship; problems with the police or a court appearance) suggest problems in interpersonal relationships. These findings are consistent with previous research indicating that MSAC often have difficulty developing and maintaining relationships (Hunter, 2006; Loeb et al., 2002) and managing strong emotions such as anger or rage (Fater & Mullaney, 2000; Lisak, 1994). It is possible that these results are due to unresolved feelings (e.g., betrayal, mistrust) related to the CSA that may be magnified for survivors of severe CSA.

LIMITATIONS

Several limitations should be mentioned in interpreting the results of this exploratory, cross-sectional study. Because the bivariate analyses assessed correlations between key variables, causality could not be established. Future research can build on these results and use multivariate models to control for demographic characteristics and other variables that potentially affect the number of stressors during adulthood. The current study collected data through retrospective, self-report measures using purposive sampling through three national organizations. This recruitment strategy was useful in reaching a stigmatized, hidden population, but researchers could reduce selection bias by using probability sampling to collect data from a large, nationally representative sample. Also, many participants reported on events that occurred decades earlier. Future research could use multiple sources (e.g., family members, spouse/partner, administrative records) to independently verify the accuracy of the data. Finally, the measure of childhood adversities in this study was an adapted instrument that did not include some adversities (e.g., emotional abuse) from previous ACE studies (Felitti et al., 1998). Using the original ACE measure in future studies could enhance comparisons of results.

IMPLICATIONS

The results have potential implications for practice. The many popular misconceptions about MSAC provide the rationale for a public education campaign to raise community awareness about the sexual abuse of boys. For example, some service providers believe that the sexual abuse of boys is rare and not associated with detrimental effects such as long-term stressors (Holmes & Offen, 1996; Holmes, Offen, & Waller, 1997; Lab, Feigenbaum, & De Silva, 2000; Spataro et al., 2001). Special attention should be given to teachers who are often the first ones to notice symptoms in children. The results of this study indicate that many MSAC endure severe sexual abuse that is related to both the number of ACE and stressors in adulthood. The campaign could challenge misinformation about CSA and increase public awareness of the recovery resources for MSAC (e.g., self-help groups, therapist locators, survivor organizations).

It is likely that participants who experienced severe CSA, multiple ACE, and/or multiple current stressors could benefit from mental health services. Thus, it is important for agency directors and practitioners to develop outreach efforts that target MSAC and improve access to counseling services. Because of the barriers to help-seeking among men in general, and MSAC in particular (Holmes et al., 1997), the emerging movement to develop culturally competent services for men (Liu, 2005) should be supported and expanded.

Many men seeking mental health treatment are reluctant to disclose sensitive topics such as CSA (O'Leary & Barber, 2008). To better serve MSAC, practitioners could revise assessment procedures to include multiple questions for eliciting a history of CSA, use behavioral definitions of CSA, and inquire about other childhood adversities (e.g., Dube et al., 2005; Felitti et al., 1998). Beyond assessment, it may be beneficial for clinicians to help MSAC review and disentangle other distal events (e.g., physical abuse) that potentially influence current stressors.

Although this study examined current stressors as the primary outcome, a history of CSA and ACE have been related to problems in mental health functioning during adulthood (Banyard et al., 2004; Dube et al., 2005; Edwards et al., 2003; Felliti et al., 1998; Molnar et al., 2001). Furthermore, many of the current stressors (e.g., marital problems, unemployment, and serious illness) may themselves represent challenges to mental health. Future research should use standardized, validated psychological measures to examine the relationships between mental health and sexual abuse severity, ACE, and current stressors. Use of CSA severity measures could enhance our understanding of long-term outcomes as well. Longitudinal studies that incorporate a lifespan or cumulative disadvantage perspective (e.g., Ferraro, Thorpe, McCabe, Kelley-Moore, & Jiang, 2006) could explicate the potentially detrimental long-term consequences of ACE for MSAC and improve our understanding of the aging process for this population. Because some researchers have demonstrated that disclosure (and the social response) affect the health of survivors (O'Leary et al., 2010), future studies with MSAC could explore the history of disclosure as well as other protective factors. Finally, the many quantitative research designs with CSA survivors could be complimented by qualitative studies that amplify the voices of MSAC and explore the meaning of adverse events.

CONCLUSION

By describing CSA characteristics and ACE and their inter-relationships, this study advanced our understanding of the nature of sexual abuse and childhood events for MSAC. The results support the perspective that CSA often occurs in chaotic, multiproblem family environments. Furthermore, it appears that more severe forms of CSA and the number of ACE are related to the number of stressors in adulthood. These findings extend ongoing research on ACE and provide direction for future research, public education, and intervention with this vulnerable, hidden population.

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Adolescent Parents and Their Children: A Multifaceted Approach to Prevention of Adverse Childhood Experiences (ACE)

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Childhood experiences can have long-term effects. Research shows that children who undergo adverse childhood experiences (ACE) often have negative health and mental health outcomes later in life. Children of adolescent parents with high ACE Scores are at greater risk of ACE. As such, an intergenerational approach to preventing ACE is proposed in this article, addressing the needs of both the adolescent parent and their children. A review of the literature indicates that a public health perspective can guide the development of a prevention model aimed at reducing the effects of ACE. The current article proposes a universal, multifaceted, and interdisciplinary prevention science model that has two targets: adolescent parents and their children. Schools and early childhood programs can be mobilized to offer community prevention strategies across realms to include the individual, community, provider, coalitions/networks, organizational practices, and policy/legislation.

KEYWORDS adverse childhood experiences, prevention, adolescent parents

Childhood experiences have a significant impact later in life. Recent research defines Adverse Childhood Experiences (ACE) as abuse (emotional, physical, and sexual), neglect (emotional and physical), and household dysfunction (mother treated violently, household substance abuse, household mental

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illness, parent separation/divorce, and incarcerated household member) (Middlebrooks & Audage, 2008). ACE Scores are calculated by assigning a value of one for each "yes" response to 10 possible ACE categories and range from 0 (no exposure) to 10 (exposure to all categories). The National Survey of Children's Exposure to Violence demonstrates that more than 60% of children have been exposed to violence (Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009). Notably, research indicates that ACE are surprisingly common, co-occur, and are associated with adult health, mental health, suicide, and substance abuse (Anda et al., 2006; Chapman, Dube, & Anda, 2007; Greenfield & Marks, 2010). This conceptual article proposes a multifaceted ACE prevention model with two targets: adolescent parents and their children.

ADOLESCENT PARENTS AND THEIR CHILDREN

The adolescent birth rate in the United States (39.1 live births per 1,000 girls 15 to 19 years of age) is of concern as it is among the highest of industrialized countries (Child Trends, 2011). Adolescent parents and their children are vulnerable to toxic stress, chronic poverty, and low maternal education while also being at risk to experience and perpetuate abuse and neglect (Carothers, Borkowski, & Whitman, 2006; Centers for Disease Control [CDC], 2011; DeVooght, McCoy-Roth, & Freunlich, 2011). While the focus is often on the well-being of the children in these young families, it is also important to consider the adolescent parent. As Kazdin (1993) notes, "given the scope of mental health problems among adolescents and the magnitude of effort required once the problems have crystallized, prevention is a critical priority" (p. 131). Adolescent behavior, including sexual behavior and pregnancy, is shaped by the social contexts of family and school (Resnick et al., 1997). High ACE Scores are associated with early initiation of sexual activity and adolescent pregnancy (Hillis et al., 2004). Preventing ACE transmission from one generation to the next calls on prevention to acknowledge that adolescents themselves may have high ACE Scores (Lesesne & Kennedy, 2005; Schilling, Aseltine, & Gore, 2007).

A MULTIFACETED ACE PREVENTION MODEL

ACE research brings an intergenerational perspective into focus. Felitti et al. (1998) indicate that personal solutions to overwhelming emotions associated with ACE can take the form of health risk behaviors that then become public health problems. As a result, approaches that only change behaviors, without addressing underlying causes of ACE, often fall short in effectiveness (Felitti et al., 1998). For this reason, we propose a multifaceted, interdisciplinary, public health model that includes universal strategies and targets both adolescent parents and their children in multiple settings. It is not enough to

assume one model, one target, or one provider will suffice given ACE complexities and the range of possible outcomes (Koss, White, & Kazdin, 2011; Waite, Gerrity, & Arango, 2010). As such, this model addresses six realms: individual, community, providers, coalitions/networks, organizational practices, and policy/legislation (Cohen & Swift, 1999). The public health perspective, which emphasizes populations, prevention, and competencies, also informs this model (Leavell & Clark, 1958; Miller, 2011). Primary prevention strengthens protective factors while reducing risk (Lynch, Geller, & Schmidt, 2004; Pollard, Hawkins, & Arthur, 1999). Secondary prevention includes ACE screening (Chapman et al., 2007; Waite et al., 2010). Tertiary prevention specifically targets those who are already experiencing ACE.

Individual

Research has demonstrated the effectiveness of universal, primary prevention in schools, which reaches all students and has an impact across grade levels and populations, to reduce exposure to risk and enhance resilience (Hahn et al., 2007; Seccombe, 2002; Task Force on Community Prevention Services, 2007). A developmental approach, considering cognitive and emotional capacity, has been found effective (Williams, Holmbeck, & Greenley, 2002). ACE prevention can build on the public health and universal models used in schools to reduce substance abuse and violent/disruptive behavior (CDC, 2007; Greenberg, 2004; Merrell & Buchanan, 2006; Wilson & Lipsey, 2007). Secondary prevention, incorporating early detection and ACE screening in schools, identifies individuals in need of more directed services and can be combined with universal prevention (Wilson & Lipsey, 2007). Children who have experienced abuse and/or neglect are at risk of experiencing negative educational outcomes, school problems, and teenage pregnancy (Chapple & Vaske, 2010).

Early childhood programs are natural tertiary ACE prevention settings as they serve children at risk for maltreatment (DeVooght et al., 2011; Gray & McCormick, 2005). The long-range effects of early childhood programs are attributed to support in three areas: school, cognitive development, and family (Reynolds, Ou, & Topitzes, 2004). While acknowledging that one strategy is not likely to completely protect a child from ACE exposure, Anderson and colleagues (2003) note that the benefits found from their effectiveness review of early childhood programs are “encouraging” (p. 39). Intergenerational prevention can occur when both the child and adolescent parent are targets. For example, while a developmentally appropriate early learning experience for the child is primary, this intervention also serves the adolescent parent who is able to return to high school, thereby preventing school drop-out.

Additionally, interventions to ameliorate ACE effects are provided for both adolescent parents and their children. Intervention promotes ACE

recovery in the parent, including the restoration of healthy development, while preventing ACE (and fostering healthy development) for the child. It is important to consider that no two children respond to the same stressor in the same way, even within one family (Jenkins & Bisceglia, 2011). One's subjective experience, including developmental capacity, plays a role in ACE impact (Larkin & Records, 2007). As such, intervention needs to be developmentally appropriate (Patel, Flisher, Hetrick, & McGorry, 2007). For example, intervention can specifically target adolescent parents by focusing on parenting styles and practices through group classes and individual counseling. While the colloquial narrative of adolescent parents is that they have a child to be loved, the reality is that becoming a parent at a young age, often with a history of maltreatment and a high ACE Score, leaves the parent–child attachment vulnerable. As such, the coercive parenting style common to adolescent mothers and their associated CPS involvement (DeVooght et al., 2011) can be a direct intervention focus for the adolescent, while mitigating the impact of coercive parenting on the child. Intervention can also directly target child behaviors, such as the aggressive behavior often found in children of adolescent mothers (Tremblay, 2011). Cognitive-behavioral interventions can be effective in reducing childhood aggression (Friedburg & McClure, 2002).

Community

Community prevention is comprised of three types: community level, research based, and community driven (Wandersman & Florin, 2003). All three types can contribute to ACE prevention. Primary, universal prevention calls on communities to examine the quantity and quality of childhood programs available (Anderson et al., 2003). Building on the public health perspective, relationships are fostered between schools and communities and between early childhood programs and communities to enhance collaboration (Miller, 2011). For example, to target both adolescent parents and their children, systems need to be in place to facilitate communication and planning between the two primary settings of school and early education. Advocacy for developmentally appropriate mental health services that address the unique needs of both adolescents and children can help with ACE prevention (Patel et al., 2007). Research partnerships can be developed to assess the quality and effectiveness of supports available to adolescent parents and their children across settings.

Providers

The workforce development literature delineates the importance of the provider in public health movements, including monitoring composition and projecting needs, developing curriculum and competencies, integrating

learning, using incentives, conducting evaluation, and providing financial support (Lichtveld & Cioffi, 2003). Agency leaders and policy makers facilitate primary, universal prevention by offering opportunities for providers (who may have their own ACE Scores) to practice self-care to prevent vicarious trauma and burnout. Trippany, Kress, and Wilcoxon (2004) report that it is useful to help providers meet the following needs: safety, trust, esteem, intimacy, and control, while addressing caseload, supervision, agency responsibility, education/training, personal coping, and spirituality. This focus includes both early childhood caregivers and individuals working with adolescent parents.

Coalitions/Networks

Coalitions and networks are recognized as an integral primary prevention component, involving public education campaigns to raise awareness of ACE and their consequences. Public awareness campaigns can be effective using a variety of media (Middlebrooks & Audage, 2008). Coalitions can advocate on behalf of adolescent parents and their children to reduce access barriers to health care, nutrition services, and mental health interventions. Economic research can be used to reveal cost savings of earlier interventions to address the effects of ACE (Larkin & Records, 2007). To support coalitions and networks, Wandersman and Florin (2003) suggest promoting accountability and offering technical assistance. Coalitions can be useful in raising awareness of the importance of maintaining a two-target focus in the prevention of ACE.

Organizational Practices

Large institutions or organizations have a major impact on service delivery. The prevention of adolescent pregnancy and the enhancement of adolescent parenting skills are critical and complicated, involving major systems. Communities, schools, and agencies can carefully establish ACE policies and guidelines for screening, referral, and intervention that follow best practices. ACE organizational guidelines targeting adolescent parents and their children for secondary and tertiary prevention could be adapted from the minimal school recommendations for responding to suicide (Miller, 2011).

Policy/Legislation

Policy is an area of ACE primary prevention. There are multiple programs providing early childhood learning experiences that can also focus on adolescent parents, including Head Start/Early Head Start, Child Care Development Fund, and Even Start. Yet, funding for early childhood on the federal and state levels is not sufficient to reach all at-risk children (Anderson et al.,

2003). Per child spending in early childhood education declined in 2010 to about the funding level of 2002 (Barnett et al., 2010). Infant and toddler care is even more problematic as demand has increased, but availability has not kept pace (Ackerman & Barnett, 2009). Additionally, the cost of providing infant care is often higher than preschool, leaving the quality of infant and toddler education questionable (Ackerman & Barnett, 2009). Economic research can serve as a tool in policy advocacy by pointing to the cost savings associated with multifaceted prevention of ACE and their consequences (Larkin & Records, 2007).

IMPLICATIONS/CONCLUSIONS

As the number of children experiencing ACE increases (Finkelhor et al., 2009), ACE prevention models that look beyond one target to address both adolescent parents and their children become critical. A review of the literature leads to the recommended ACE prevention model that incorporates a public health perspective and employs universal, multifaceted, interdisciplinary methods across settings to two, related targets: adolescents and their children. The model proposed begins to explore the dynamic interaction necessary for ACE prevention. ACE prevention for both targets mobilizes existing systems, such as schools and early childhood programs (natural settings for adolescents and young children), to be actively engaged in primary, secondary, and tertiary prevention. Universal, primary prevention is recommended to increase resources available to adolescent parents and their children, support workforce development, and raise awareness of ACE and the need to enhance resources. Additionally, ACE research supports the need for policies that direct resources toward schools and early childhood programs to help mitigate risk. Secondary and tertiary prevention prompts ACE identification and intervention for adolescent parents and their children. Tertiary prevention that includes a focus on parenting practices and returning to school, while also engaging in primary and secondary prevention efforts with children, is proposed to reduce ACE effects and promote healthy development.

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Educational-Entertainment as an Intervention With Black Adolescents Exposed to Community Violence

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Witnessing violence is one adverse childhood experience (ACE) associated with living in impoverished Black urban communities. Youth with higher violence avoidance self-efficacy and positive coping are more likely to avoid violence. This study evaluates educational entertainment (edutainment) as an intervention with Black adolescents exposed to community violence. Edutainment has shown success in increasing self-efficacy and positive coping skills in other domains. Self-administered scales were used to measure stress, anxiety, violence avoidance self-efficacy, and coping strategies. Data were collected pre- and nine days post-interventions/no intervention from 20 subjects receiving the edutainment intervention, 19 subjects participating in a group discussion about violence, and 21 subjects receiving no intervention (N = 60). Edutainment and no intervention were more effective than group discussion alone in increasing violence avoidance self-efficacy. Violence avoidance self-efficacy was found to have an intervening relationship between edutainment and the outcome of stress. This study indicates limited but positive effects for edutainment.

KEYWORDS Black urban youth, violence prevention, educational-entertainment, violence avoidance self-efficacy, theater

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For urban Black adolescents, the trauma of violence exposure is an adverse childhood experience (ACE) that is all too often a part of everyday living. The original ACE study focused on violence in the household but did not extend to violence in the community, which is known to have long-term consequences (Council on Children & Families, 2010). Exposure to community violence, even as witnesses, has been linked to a number of internalized symptoms such as posttraumatic stress disorder (PTSD) symptomology, cognitive delays (Osofsky, Wewers, Hann, & Fick, 1993), and heightened anxiety and depression (Acosta, Albus, Reynolds, Spriggs, & Weist, 2001) as well as externalized symptoms including aggressive and delinquent behavior (Gorman-Smith & Tolan, 2003), experimentation with drugs and alcohol, carrying weapons (Cooley-Quille, Boyd, Frantz, & Walsh, 2001), and increased recklessness in play (Schwab-Stone et al., 1999). Given these negative sequelae, ACE researchers should consider extending risks factors to community violence exposure.

Developing effective interventions for adolescents exposed to community violence is important for families, schools, and the community at large, as research indicates that this adverse childhood experience has long term consequences associated with increased levels of violence towards self and others (McGee & Baker, 2002). Studies are needed to determine effective preventive programs. This study, conducted in neighborhoods of Philadelphia that experienced between 1,284 and 2,494 violent crimes per 100,000 residents (Baseden & Duchneskie, 2008), sought to add to the social work knowledge base about an evidenced-based intervention. It tested the following hypotheses:

1. Edutainment followed by group discussion of issues related to violence will be more effective than group discussion about issues related to violence alone or no intervention in increasing violence avoidance self-efficacy and levels of active coping strategies and decreasing stress and anxiety levels in adolescents exposed to community violence.
2. The effect of edutainment/group discussion about gun violence/no intervention on stress, anxiety, and active coping strategies will be mediated by violence avoidance self-efficacy.

EDUCATIONAL ENTERTAINMENT (EDUTAINMENT) AS AN INTERVENTION

The use of live theater, and particularly dramatic arts, has a long history as a means to educate the public, foster social change, and influence the knowledge and behaviors of targeted populations (Glik, Nowak, Valente, Sapsis, & Martin, 2002). Unlike pure entertainment, edutainment seeks to bring about "functional" learning that relates to situations in the audience members' lives. Like performances designed for entertainment, edutainment programs use

dramatic arts to "engage the attention, interest, and curiosity of audience members. Education entertainment involves presentations that purposely seek to explain, demonstrate, define, and/or compare consequences of different life choices" (Glik et al., 2002, p. 40).

This method of education has been successful with the adolescent population generally and with minorities in particular. Stephenson and Iannone (2006) used an interactive play to teach middle school students the dangers of using drugs and alcohol. Edutainment formats have been an effective approach to reduce bullying behaviors in sixth-grade students (Belliveau, 2005) and was influential in teaching HIV prevention to young people ages 14–24 (Glik et al., 2002). These researchers found that participants valued live edutainment interventions and that it was an attractive alternative for teaching youth about protective health behaviors.

The Centers for Disease Control (CDC) published a report of best practices for youth violence prevention programs and most of the components identified are incorporated in edutainment presentations. The relevant best practices included (a) methods of instilling knowledge and awareness, (b) role playing and small group exercises, (c) opportunities to practice and receive feedback, and (d) active participation in story based or narrative learning (Thorton et al., 2002). One commonality of prior edutainment programs is group discussion following the presentations. The discussion gives the audience participants an opportunity to relate what they have seen in the presentation to their own lives, to discuss and gain an understanding of the feelings the presentation evoked, and to practice skills they may have witnessed and learned through the presentation.

This study used the edutainment presentation of *Journey of a Gun* by Gail Leslie (2002) as an intervention with adolescents exposed to community violence. In this play, a straw purchase is made and a gun begins its journey. The play tracks that gun through multiple hands and multiple crimes. Several characters have tough choices to make, and the play shows the consequences of these choices. The characters in the play are neighborhood school children, young people who have died by violence, and youth who are living in the midst of violent situations. One of the lines in the play, spoken by a middle school student that always gets reactions is, "Oh well, people get shot every day." This play is their reality.

THEORETICAL FRAMEWORK OF EDUTAINMENT INTERVENTION

One thing that might impact adolescent's ability to avoid violent situations as well as to intervene productively on their own behalf is their level of self-efficacy. According to Bandura's (1994) self-efficacy theory, one's confidence in her ability to be successful in a specific area affects whether she will

perform in that area. Self-efficacy can be seen as the link between having and using knowledge or skills to engage in appropriate behavior. Peoples' belief about their efficacy can be developed by four sources of influence: mastery experiences, vicarious experiences, social persuasion, and increased positive mood (Bandura, 1994). Edutainment followed by group discussion offers three of Bandura's four sources of influence on self-efficacy. By participating in the edutainment presentation, the audience is able to vicariously experience the threatening situations and learn strategies that worked for others. In *Journey of a Gun*, the cast was made up of area school children, many of whom lived in the same neighborhoods as the audience. The audience was able to see their peers making positive choices and experiencing success in those decisions. The discussion following the show, though facilitated by a social worker, was held between the audience and the cast. The audience and cast role play excuses youth can give to extract themselves from situations without looking afraid.

The encouragement to young audience members to make good and responsible choices by parents and caregivers is a form of social persuasion. During the discussion following the presentation, the praise and reactions they receive from others for responsible decision making increases the youths' confidence and decreases doubt about their ability to avoid violence. While the presentation does not offer mastery experiences, it does impact on thought control efficacy and coping efficacy. During the discussion, the youth can role play what may happen and by experiencing success in the role plays, their levels of confidence to cope with threats is increased. With increased confidence, they can enhance their control over their thoughts about what can happen, which then improves coping efficacy (Caprara, Regalia, & Bandura, 2002).

METHODS

Sample

With Institutional Review Board (IRB) approval, this study employed a quasi-experimental design in which three community centers participated in the edutainment ($n = 20$) or group discussion ($n = 19$) interventions or the control group receiving no intervention ($n = 21$), for a total of 60 participants.

Recruitment and Intervention Sites

The community centers used in this study are often the one place where neighborhood children and teens find recreation, companionship, and safety from their neighborhood streets. All three centers offer after school programs, summer camps, sports, performing arts, arts and crafts, homework assistance, tutoring, cultural trips, and computer labs. The centers have staff trained in youth development and education who serve as positive role

models and mentors. The center that received edutainment is operated by a nationally based community organization while the one that received the group discussion is operated by the Philadelphia School Board and a community board of leaders. The center that received the edutainment was selected for this condition as it was the only center recruited that was attending the available show. The group that received no intervention is operated by the Philadelphia Department of Recreation. These centers were recruited because they served neighborhoods with high crime rates.

The intervention site, Freedom Theatre, which produced *Journey of a Gun*, has been a part of the Philadelphia community since 1966 and is rooted in African American tradition. As an institution, it is dedicated to achieving artistic excellence in professional theater and performing arts training for the enrichment of the community (www.Freedomtheatre.org).

INTERVENTIONS

Edutainment

Subjects who received the edutainment completed pretest questionnaires and attended the play followed by group discussion about issues related to violence and violence prevention. The play ran for one hour followed by a 20–30-minute facilitated discussion between audience members and the cast, who act as peer leaders. An MSW facilitated the discussion. Nine days following the edutainment, subjects completed posttest questionnaires.

Group Discussion

The subjects who participated in group discussion completed pretest questionnaires and had a discussion focusing on issues related to violence and violence prevention facilitated by the same Social Worker who facilitated the edutainment discussion along with a center identified youth peer leader. The same format and agenda was used for this group session as was employed for the edutainment discussion. Nine days after completion of the discussion, these subjects completed the posttests.

Control

The control group completed pre- and posttests 9 days apart without any intervention.

MEASURES

The pretest and posttest questionnaires included the following measures, which, with the exception of the anxiety scale, have all been previously used

with Black adolescents: Anxiety was assessed using the Spence Children's Anxiety Scale (SCAS). The SCAS has six subscales of which one was used: the generalized anxiety/overanxious disorder, comprised of 12 items. This self-report measure has been significantly correlated with the Revised Children's Manifest Anxiety Scale and has been shown to have satisfactory test–retest reliability and good internal consistency (Muris, Schmidt, & Merckelbach, 2000). It has been used with youth between 7–19 years of age. Cronbach's alpha for the present study was .54.

Stress levels were assessed using the Multicultural Events Schedule for Adolescents (MESA), which has good reported reliability and validity (Program for Prevention Research, 1996). Two of the eight subscales, Peer Hassles and Conflict and Violence/Personal Victimization (comprised of 31 items), were combined to form one measure of stress for the present study. Chronbach's alpha for the present study was .80.

Youth coping with stressors was measured by the Children's Coping Strategies Checklist (comprised of 51 items) which has good test–retest reliability and internal consistency (Program for Prevention Research, 1999). Chronbach's alpha for the present study was .96.

The Penn Violence Avoidance Self-Efficacy Scale (Penn Vases) was based on items from the Kid-SAVE violence exposure scale (Flowers, Hastings, & Kelley, 2000). Four experts in measurement and/or adolescent development gave input for scale modifications. It was piloted on 13 Black adolescents, ages 8–16, and was found to positively correlate with the KID-SAVE. In the present study, the Penn Vases scale had good internal consistency (Chronbach's alpha = .91) and significantly correlated with the Kid-SAVE ($r = .28$, $p = .046$).

ANALYSIS

ANOVAs were conducted to determine differences in outcomes as well as the time effect for stress, anxiety, coping strategies, and violence avoidance self-efficacy by interventions/no intervention. To test for mediation of self-efficacy between the interventions and the outcomes, a series of multiple regressions were undertaken, following the method established by Baron and Kenny (1986).

RESULTS

Sample Description and Comparability of Groups

The sample was comprised of 60 Black adolescents between the ages of 9 and 15 with a mean age of 12.41. Over half were female (58.33 %), almost two-thirds lived in households without their fathers (63.3 %) and 11.7% lived in households without their mothers. There were five (8%) who lived with

neither parent; all but one of these five were being raised by one or more grandparents. Twenty-five percent lived in multigenerational households with a parent and a grandparent. A majority of the participants reported being exposed to violent behaviors. Sixty percent reported seeing someone carry a gun, 95% having seen the police arrest someone, 81.7% hearing gunshots in their neighborhood, 80% having heard about someone getting killed, and 50% hearing about a family member getting shot. The three groups were compared on demographic characteristics, exposure to violence, and on baseline outcome measures and were found not to statistically differ on any of these variables.

Results of Hypotheses Testing

Among interventions and the no-intervention group, the outcomes did not statistically differ except for violence avoidance self-efficacy. Subjects who participated in the edutainment intervention had significantly higher self-efficacy scores than the no-intervention group, who in turn had higher self-efficacy than those who participated in group discussion alone. A time effect for edutainment with significantly different pre and post scores for anxiety ($p = .008$), coping strategies ($p = .019$), and self-efficacy ($p < .001$), but not for stress ($p = .934$), was found. There was no significant time effect for group discussion or the control group (see Table 1).

Given the results, mediation analysis employed the independent variable of edutainment versus the combined no-intervention and group discussion. First, a regression was run to assess the relationship among the edutainment intervention and the outcome variables of stress, anxiety, and

TABLE 1 ANOVA Comparison of Posttest Outcomes by Intervention

Between	Edutainment *M (SD)*	Group discussion *M (SD)*	Control *M (SD)*	*F*	*p*
Anxiety	32.75 (3.64)	32.11 (4.40)	33.57 (4.85)	.58	.565
Stress	48.16 (6.19)	45.38 (6.16)	46.10 (6.62)	.94	.399
Coping strategies	143.89 (30.15)	128.67 (21.84)	136.79 (27.99)	1.44	.246
Self-efficacy	108.35 (12.05)	72.84 (42.72)	96.81 (16.11)	8.90	< .001**
Within	*F (p)*	*F (p)*	*F (p)*		
Anxiety	7.98 (.008)**	2.46 (.126)	.05 (.822)		
Stress	.01 (.934)	.51 (.479)	.01 (.965)		
Coping strategies	6.04 (.019)**	.23 (.638)	.44 (.511)		
Self-efficacy	13.53 (< .001)**	.18 (.676)	.01 (.978)		

Note. Tukey analysis indicates statistically significant difference between outcomes of edutainment and group discussion ($p < .001$) and between outcomes of no intervention and group discussion ($p = .017$).
**Denotes a significant difference at the < .001 level.

coping strategies. Edutainment was not predictive of outcome scores. Thus, the traditional criteria for mediation as described by Baron and Kenny (1986) were not met, but this did not preclude testing of indirect effects (Mathieu & Taylor, 2006). A regression was conducted to test the relationship between edutainment and self-efficacy. Edutainment was associated with a nearly 23 point increase in self-efficacy scores: $B = 22.93$, $t(58) = 2.956$, $p = .005$. Regressions were then conducted for each outcome measure with edutainment and self-efficacy as predictors. This allowed for examination of the relationship among self-efficacy and outcome variables while controlling for the effect of the intervention. Self-efficacy was not significantly related to anxiety ($p = .699$) or coping strategies ($p = .368$). However, there was a significant relationship between self-efficacy and stress ($p = .048$) (see Table 2). Self-efficacy and the intervention together explained nearly 7% of the variation in stress.

DISCUSSION

This study examined the effectiveness of edutainment as compared to group discussion and a no-intervention group for adolescents exposed to community violence. This sample from neighborhoods in Philadelphia had similar rates of violence exposure reported for other urban, African-American populations (Flowers et al., 2000). There was no statistically significant difference in outcome levels of stress, anxiety, or coping strategies for those who received the edutainment, the group discussion, or the no intervention. However, there was a significant difference for violence avoidance self-efficacy, with the edutainment participants and the no intervention participants scoring higher levels of violence avoidance self-efficacy than the group discussion participants. Consistent with literature on the effectiveness of edutainment (Stephenson & Ioannone, 2006), this study's edutainment produced significantly higher coping strategies and violence avoidance

TABLE 2 Regression Analysis to Assess Relationship Between Interventions (Edutainment and Group Discussion/No Intervention) and Self-Efficacy Against Outcomes

Independent variables	Anxiety		Stress		Coping	
	B	SE	B	SE	B	SE
Edutainment vs. others	–1.25	1.19	2.37	1.78	11.05	7.72
Self-efficacy	–0.01	0.02	0.06*	0.03	7.56	8.32
Intercept	33.06	1.80	41.54	2.66	0.19	0.12
R2	.003		.125		.066	

Note. * Denotes a significant difference at the < .05 level.

self-efficacy levels and significantly reduced anxiety levels than the other interventions over time.

It was expected that the edutainment participants would have higher outcomes for violence avoidance self-efficacy than the group discussion participants, but the control group's higher scores were unexpected. The reason for this is unclear but could be attributed to the group discussion making participants more aware of their vulnerability to possible victimization and exposure without sufficient follow-up to help them identify ways to stay safe. Education, which occurred in the group discussion, was only one of the four significant practices noted by the CDC. If the group discussion had included storytelling, role-playing, or opportunities to practice safety and coping skills, there may have been a different result.

The CDC best practices for violence prevention are ones that promote a sense of capability and mastery. These practices also help to develop a sense of self-efficacy (Bandura, 1994). Greater self-efficacy and a belief in personal control are protective factors which contribute to resilience in children (Meichenbaum, 2008). Hence sense of self-efficacy should be considered when carrying out research on ACE response strategies.

One of the potential drawbacks of the use of edutainment is the possibility of the audience getting over involved with the story and missing the pertinent message. The group discussion immediately following the presentation should reduce this risk. However, the discussion may have happened too close to the end of the play and therefore may not have offered enough time for the audience to digest what they had just seen. Also, the discussion immediately following the show was only 20–30 minutes in length, which does not allow sufficient time for processing all of the relevant themes from the show and practicing skills. It may be beneficial to have a longer discussion a few days after the audience has had some time to think about what they have seen. Moreover, the discussion a few days later in a different setting would allow for smaller groups and more time allocation, giving increased opportunity for participants to engage with the skills being discussed.

IMPLICATIONS FOR PRACTICE

The effects of edutainment, although limited, give credence to the continued development of these types of interventions and could be considered in the development of ACE-informed programs. Social workers and other human service providers are well equipped and trained in facilitation techniques such that they are appropriate professionals to lead the discussions following these presentations. In alignment with the CDC's best practices for violence prevention/intervention programs, interventions need to include opportunities for role playing, narrative/storytelling and chances for the young people

to practice skills that are being taught (Thornton et al., 2002). Using peers to deliver positive messages has been successful in influencing positive choices (Crosnoe & McNeely, 2008). Those employing edutainment formats should involve adults who serve as role models and caregivers as well as positive peer leaders to lead or be involved in group discussions as *Journey of a Gun* uses actors from the same peer group in the play. Observing the young people in the play make choices and experience the consequences or benefits of those choices enables the audience to confront topics that may be uncomfortable or too painful to talk about on a personal level (Stephenson & Ioannone, 2006). Being able to talk about what happened to a character in a show seems to be safer for the young people than talking about themselves. One of the benefits of using Freedom Theatre and *Journey of a Gun* was that the cast reflected the culture, race, and demographics of the population studied. Others employing edutainment should attempt to find presentations that involve actors who demographically reflect the population with whom they are working.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

While the groups were equal on measured characteristics, they may have been unequal on non-measured characteristics. A larger sample coupled with a randomized design may ensure more equality of the groups and the possibility that a stronger effect may be found from the edutainment intervention. Furthermore, reliance on self-reported data can lend itself to results that may be intentionally biased or unreliable (Guterman, Cameron, & Staller, 2000). Yet, self-report may be preferred as it is considered an accurate method to assess youth violence exposure and its impact (Flowers et al., 2000). In future research, collecting information from parents or teachers would enhance validity. Another limitation was the short time between the pre- and posttesting (9 days). Even with these limitations, edutainment showed promise in its ability to give educational messages about violence prevention with African American youth (Glik et al., 2002; Stephenson & Ioannone, 2006).

CONCLUSION

While exposure to community violence was not included in the original ACE categories, the Council on Children & Families (2010) found this to be the "most commonly reported event" (p. 9) of the ACE. The ACE study found traumatic stressors in adolescence to be a predictor of long-term behavioral, health, and social problems (Larkin & Records, 2007). Previous research has examined the effects of exposure to community violence on adolescents but there are few empirically tested interventions for addressing

these experiences (Acosta et al., 2001). Increased levels of self-efficacy is a protective factor associated with resilience (Meichenbaum, 2008), and is predictive of the ability to walk away from violence. Edutainment is one intervention that has promise in its ability to enhance self-efficacy and to give various educational messages to adolescents, including violence prevention (Glik et al., 2002; Stephenson & Ioannone, 2006).

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Reducing Adverse Childhood Experiences (ACE) by Building Community Capacity: A Summary of Washington Family Policy Council Research Findings

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Community capacity for organization and collaboration has been shown to be a powerful tool for improving the health and well-being of communities. Since 1994 the Washington State Family Policy Council has supported the development of community capacity in 42 community public health and safety networks. Community networks bring local communities together to restructure natural supports and local resources to meet the needs of families and children, and increase cross-system coordination and flexible funding streams to improve local services and policy. In this study, researchers sought to demonstrate the strong impact of the community networks' capacity to interrupt health and social problems. Findings suggest that community networks reduce health and safety problems for the entire community population. Further, community networks with high community capacity reduced adverse childhood experiences (ACE) in young adults ages 18–34.

KEYWORDS adverse childhood experiences (ACE), community capacity, cost savings, health, social services

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Communities vary greatly in the number and severity of health and safety problems they face and the resources available to solve these problems (Longhi & Porter, 2009). Inter-related problems, such as domestic violence, infant mortality, child abuse, out-of-home placement, youth substance abuse, youth suicide, and school drop-out, are difficult for communities to address because of the complexity of funding streams and programs (Kania & Kramer, 2011), multigenerational transmission (Anda & Brown, 2010), and limited capacity to implement comprehensive solutions (Schorr & Farrow, 2011).

Research shows a strong relationship between adverse childhood experiences (ACE) and high-risk behaviors, diseases, disabilities, and workforce issues (Felitti et al., 1998). Studies demonstrated that stressful or traumatic childhood experiences such as abuse, neglect, witnessing domestic violence, or growing up with alcohol/substance abuse, mental illness, parental discord, or crime in the home are a common pathway to social, emotional, and cognitive impairments that lead to increased risk of unhealthy behaviors, violence or re-victimization, disease, disability, and premature mortality. ACE tend to co-occur or cluster. As an individual's ACE accumulate, their risk of numerous health and social problems increases exponentially (Felitti et al., 1998). Breakthrough research in neurobiology has shown that ACE disrupt neurodevelopment and can have lasting effects on brain structure and function (Anda & Brown, 2010).

The accumulation of ACE appears to be higher in those seeking social services. Between 21% and 67% of behavioral and physical health problems that cause people to seek social services are attributable to ACE (Chapman, Dube, & Anda, 2007). ACE attributable problems cross generational, agency and service sector boundaries. Because ACE have multidimensional origins and effects, we proposed an integrated, holistic, and long-range population-focused strategy to effect change. Reducing ACE has the potential to decrease the prevalence of many health, disability, education, and employment problems, resulting in significant cost savings for government, private, and public sectors (Anda & Brown, 2010). This article proposes that the development of community capacity is a potential intervention for reducing ACE and subsequent needs for social and health services.

COMMUNITY CAPACITY

Community capacity (CC) is described as the empowerment of communities to come together, share responsibility for alleviating crises, improve services, and build healthy environments for families and children (Chaskin, 1999). Local communities appear able to develop the cross-system infrastructure, integrated service delivery system and protective community living environments that may reduce health and safety problems, and the prevalence and impact of ACE (Lavarack, 2006; Porter, 2010). Research conducted by the

Family Policy Council (FPC) in Washington State suggests that strong self-directed community networks have the potential to bring together government, private and public agencies, citizens, and resources to build supports for families and communities (Porter, 2010). Building CC may be an effective strategy to reduce the prevalence of ACE and related risk behaviors (Laverack, 2006). Key dimensions of the Family Policy Council's model for CC include the development of a shared focus, collaborative leadership, continuous learning and improvement, and a system-wide focus on results (Porter, 2010). Each of these dimensions is described below:

- FOCUS: Strategic, shared, result-based focus on inter-related child and family problems
- LEADERSHIP: Collaborative leadership with whole community, leveraged resources, and sustainable efforts
- LEARNING: Innovation and learning from changing conditions and experiences
- RESULTS: Careful attention to measured outcomes and results-based decision making

Comparing the dimensions with other CC research (Flaspohler, Duffy, Wandersman, Stillman, & Maras, 2008; Smith, 2003; Public Health Agency of Canada, 2011; Laverack, 2006; Lempa, Goodman, Rice, & Becker, 2008) shows alignment with key CC aspects emerging from the latest quantitative and qualitative research (Longhi & Porter, 2009).

Community networks convene and empower the local citizenry to work together to solve the communities problems. They do not run programs, nor directly deliver services, rather they create collaboratives among local service providers from multiple disciplines to best align resources and services to meet local community needs. Thus, we view this intervention as an element of a larger complex system of relationships, processes, and events, rather than simply the implementation of specific programs within communities. Tracking and disseminating outcomes of local interventions is crucial for community networks to build and sustain CC. Local participation in outcome research and reporting motivates communities to change actions based on results—building rapid improvement cycles (Schorr & Farrow, 2011; Anderson-Lewis et al., 2011)—and improves the network's CC. Increasing CC is intended to reduce health issues and service needs, and subsequent service costs (Trickett et al., 2011).

Researchers have long recognized that the evaluation of community-level intervention is complicated. Randomized procedures are difficult to apply to complex, multicausal community interventions including embedded variables of local culture, knowledge and involvement (Trickett et al., 2011). However, over 12 years, the FPC has worked with local community networks on participatory action research and learning to define both quantitative and

qualitative variables and measures for developmental evaluations that assess local effectiveness and results. The research described in this article uses this developmental approach (Patton, 2011).

PRESENT STUDIES

The current article describes two Washington State studies looking at the relationship of CC, problem behaviors, and ACE. Both studies were designed to assess the effectiveness of the community networks in reducing chronic social problems over time. Study one looked at county level changes in community health and safety problems over a 10-year period. The hypothesis was that communities with funded community networks would show greater reductions in community health and safety problems than unfunded networks. Communities with funded networks were rated as having higher CC than were communities with unfunded networks, and thus changes in health and safety problems in those networks was seen as a proxy for the effects of CC on reducing health and safety problems. Study two directly assessed the impact of high CC networks on community ACE prevalence. The hypothesis was that strong self-directed communities, high in CC, would show reduced ACE prevalence in their young-adult population, ages 18–34. This age group was chosen because they were the first generation exposed during childhood to the full impact of community network efforts. Therefore, changes in ACE in this population may be due to the presence of high CC community networks.

METHODS

Study 1 Research Design

Participants

In this study, 29 funded and 10 unfunded networks were compared. In 2001, due to state funding cuts, the FPC defunded some of the existing community networks. Networks were defunded based on evaluation that they had not yet built a minimum level of CC. As a result, the defunded networks provided a comparison group for the analyses.

Measures

Severity index. The FPC studies trends in outcomes across community networks using a set of 15 key standard social and health indicators (i.e., out-of-home placements; loss of parental rights; child hospitalization rates for accident and injury; high school dropout; juvenile suicide attempts; juvenile arrests for alcohol, drugs, and violent crime; juvenile offenders; teen births;

low birth weights, no third trimester maternity care, infant mortality; and fourth grade performance on standardized testing). The data used to calculate these indicators is uniformly collected and used by state and federal government agencies. A statewide database was created that combined these indicators from 1997 to 2007, and county-level rates were calculated for each indicator. For this study, a severity index was created by comparing these county rates and calculating quartiles for each indicator. A rating of 1 was given to each county for each of the fifteen indicators that fell in the worst quartile of the statewide distribution. The severity index can range from 0–15 for each county and represents the "pile-up" of problems within the county. It is used as a measure of the effectiveness of community networks in reducing multiple inter-related health and safety problems. Because county rates fluctuate dramatically from year to year, for this study three year averages were calculated at the beginning and end of the evaluation period in order to create stable baseline and end of period rates. For baseline, rates were averaged across 1997, 1998, and 1999. For the end of the period, rates were averaged across 2004, 2005, and 2006.

Procedures. *T* tests were run comparing the two groups of counties on changes in the Severity Index. Additional analysis looked at possible confounding socioeconomic differences between counties, such as changes in the rates of food stamp and welfare use, unemployment, racial/ethnic composition, population size, adult crime, and divorce.

Study 2 Research Design

Participants

In this study, Behavioral Risk Factor Surveillance System (BRFSS) survey data from 4,585 respondents was analyzed to compare county differences in ACE rates. Analyses included the 2,109 respondents living in 10 counties with high CC networks and 2,476 respondents living in 28 low CC network counties.

Measures

Community capacity index. CC is rated by external reviewers based on biannual reports submitted by community networks to the FPC. Reviewers are state agency staff and contractors who are independent of community networks and county government. Reviewers use a standard method to rate community networks. The method uses a 5-point Likert scale to rate four dimensions of CC: focus on inter-related problems, learning, community strategic leadership, results-based decision making. The CC Index is computed by adding scores across each dimension for each rater and then averaging the ratings across reviewers. A 10-year CC average score was calculated for each network by averaging the 5 CC scores within the 10-year period.

Inter-rater reliability was calculated by correlating scores between individual raters with the average score of that rater group. An analysis of ratings showed good inter-rater reliability among the reviewer (the mean correlation for each possible group of raters averaged between $r = 0.70$ and $r = 0.80$). The distribution of the 10-year average CC score across networks was broken into quartiles. Networks in the top quartile were designated as "high CC" networks, and the networks in the lowest three quartiles were designated as "low CC" networks.

Adverse childhood experiences. In 2009, ACE questions were added to the Centers for Disease Control and Prevention (CDC)–funded BRFSS in Washington State. The BRFSS is a state-based survey system collecting data on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. A disproportionate stratified random sampling (DSS) method is used. Once a household is selected, one adult (aged 18 or older) is randomly selected to be interviewed. The questionnaire is asked in either English or Spanish. Starting in 2008, the land-line sample was supplemented by a smaller cell phone only sample. The ACE questions in the BRFSS module were based on the methods of the original Kaiser–CDC ACE Study and pertained to the respondents' first 18 years of life (Felliti et al., 1998). The few differences from the original ACE Study were determined from cognitive testing, focus groups, and field testing to tailor the questions for telephone survey use (Anda & Brown, 2010). ACE scores are calculated by summing all of the ACE questions that are endorsed by a respondent (1 = yes, 0 = no).

Procedures. Adult ACE prevalence was compared in communities with higher and lower CC (measured by CC ratings). Linear regression was used to look at the effects of age and CC on community ACE prevalence, and at the effects of CC on ACE prevalence in 18–34-year-olds. Additional logistical regression analyses looked at community prevalence of high ACE scores (3 and above).

RESULTS

Study 1

Community networks lowered trends of social and health problems. *T* tests showed a significant difference in the severity index between funded and unfunded networks, $T = 2.51$, $p < .02$. Table 1 shows that funded community networks showed greater improvements in problem rates over time than did unfunded networks. To explore whether these differences were due to underlying socioeconomic differences in communities, a series of *t* tests was run. Table 1 also shows that differences between the two community groups on changes in food stamp and welfare use, unemployment, adult arrests, divorce, population size, and race/ethnicity were not significant.

TABLE 1 *T* tests for Differences Between Funded and Unfunded Counties Between 1997 and 2006

County variables	Mean for funded counties	Mean for unfunded counties	*t*
Change in severity index	–0.41	1.00	2.51*
Change in food stamps	26.57	21.07	–0.72
Change in welfare grants	–22.02	–41.65	–1.90
Change in unemployment	0.25	–0.42	–1.28
Change in race/ethnicity	5.30	2.77	–1.72
Change in population	–3.61	–1.70	0.55
Change in adult crime	–0.16	–0.11	0.23
Change in divorce rates	–0.87	–0.90	–0.17

Note. *Significance level $p < .05$.

Study 2

Community networks with high CC showed ACE reduction in the youngest generation. We explored the main effects of CC and age on ACE prevalence. ACE were higher in younger adults, B = –.03, $p < .00$, and higher overall in communities with high CC, B = .16, $p < .02$. However, for young adults (age 18–34) ACE prevalence was significantly lower in higher capacity communities, B = –.53, $p < .00$. Looking specifically at comparisons of the prevalence of high ACE individuals (three or more ACE) and age the findings showed a significant effect for age. The number of individuals with three or more ACE was higher in younger adults, B = –.028, $p < .00$, and in high CC communities, B = .24, $p < .00$. For young adults, the number of individuals with three or more ACE was significantly lower in higher capacity communities, B = –.64, $p < .00$.

DISCUSSION

The findings of this secondary data analysis demonstrate that building CC had a positive impact on reducing multiple child and family problems and on reducing ACE prevalence. In Study 1, counties with funded community networks showed significant improvement in the Severity Index. Rates of major social problems improved over time. The same level of improvement was not seen in counties where the community network lost funding. Further, these improvements were not related to county level differences in socioeconomic factors. This suggests that the work of funded community networks had a positive effect in reducing county level health and safety problems, and that CC development processes led by funded community networks was a key to success.

This was tested directly in Study 2, where analysis compared networks on CC. The ACE prevalence of young adults (age 18–34) was lower in communities with a high rating of CC. During the last 16 years, the FPC and community networks have been building CC to connect and align prevention resources in communities. The cohort of young adults was the first generation

exposed during childhood to the full impact of these community network efforts. Therefore, changes in ACE in this population may be due to the presence of high CC community networks in these areas. Further, the prevalence of high (three or more) ACE scores was lower among young adults in high capacity communities when compared with low capacity communities. Not only do high CC networks appear to reduce ACE prevalence for young adults overall, they appear to specifically reduce the number of young adults with high multiple ACE.

There are limitations to these findings. The unit of analysis in these studies is county-level data. Direct measures of individual change are not possible, and it may be that additional factors contributed to changes in community rates. The ACE questions are being asked annually, and we expect within the next year to have a large enough sample size to begin studying ACE rates in sub-county areas, such as school districts and locales. We believe this will allow us to include additional community characteristics in future analyses. ACE are also measured using retrospective questionnaires. Adults may have incomplete memories of ACE that happened in early childhood and underreport ACE events. However, one would expect that this would affect the ACE rates overall and not differentially based on CC. Finally, we are not yet able to describe what mechanism is involved in CC that decreases health and safety problems and ACE prevalence. Networks are unique in their locations, participants, and problem-solving approaches. We are working on a theoretical framework and series of case studies to describe the common core attributes of networks with high CC.

IMPLICATIONS FOR POLICY, PRACTICE, AND RESEARCH

Washington State is moving forward to capitalize on the infrastructure created by the FPC and the community networks. Work is currently underway to create a public–private partnership focused on ACE-reduction, develop and facilitate a research consortium, conduct an actuary study of generated savings, and influence national policy through the results that have been demonstrated in Washington State. Moving this work forward calls for a network of research partnerships. This network would help inform and shape a comprehensive research approach to study and document the development of CC across networks and network interventions to reduce ACE. In addition, the cumulative cost reductions of the community networks have not been well studied and documented. Preliminary analysis showed significant cost savings in deep-end social and health services caseloads, warranting more rigorous study. The associated costs to social, health, and educational service organizations are astronomical—as are potential savings. Preventing just 244 foster placements in Washington can save over 7 million dollars, and documented reductions in only a few ACE-related problems (teen births, school dropout, juvenile offenders, out of home placements) has been estimated to save over

27 million dollars a year (Schueler, Goldstine-Cole, & Longhi, 2009). However, a more robust and actuarially driven evaluation model is needed to fully understand financial impacts of the various strategies on numerous systems (i.e., child welfare, juvenile justice, jails and corrections, mental health, chemical dependency, health, etc.) over time (Schueler et al., 2009).

CONCLUSION

The effects of ACE are firmly supported by the literature (Anda & Brown, 2010). This study highlights one potential solution, building community capacity (CC), to reduce the impact of ACE in the current generation and the number of ACE experienced by the next. Further evidence needs to be gathered and shared about the strength of CC in reducing ACE, as well as other interventions. It is becoming clear that "silo-ed" interventions, focused on a specific problem or set of problems, will not result in the kinds of impacts we want for our communities. Interventions focused on ACE reduction will need to be multidisciplinary, multilevel, and multiyear. Communities are serving as laboratories in ACE-reduction efforts, and should be studied to identify practice-based interventions (Schorr & Farrow, 2011). Reducing ACE has the potential to significantly bend the cost curve of health care and social services. FPC research suggests that the intersection and alignment of all formal and informal services and resources lying within self-directed communities is a powerful intervention to reduce ACE prevalence (Porter, 2010). In these difficult economic times, when programs are being reduced and eliminated at an alarming rate, a focus on building CC to reduce, prevent and mitigate ACE effects and prevent the need for more expensive interventions may be the only sustainable financial path. Currently, ACE are primarily mentioned in national prevention strategies tied to family violence and injury. While extremely important concerns, ACE are also powerful determinants of health, education, employment, and economic well-being. The broader impact of ACE should also be part of the national agenda regarding healthcare reform, education reform, the productivity of the workforce, and economic well-being and recovery.

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Mobilizing Resilience and Recovery in Response to Adverse Childhood Experiences (ACE): A Restorative Integral Support (RIS) Case Study

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The Restorative Integral Support (RIS) model is a comprehensive, whole person approach to addressing adversity and trauma. The Adverse Childhood Experiences (ACE) Study conducted by the Centers for Disease Control (CDC) and Kaiser Permanente reveals a relationship between childhood trauma and adult health and social problems. The current empirical case study presents the Committee on the Shelterless (COTS), in Petaluma, CA, as an example of one social service agency employing RIS to break cycles of homelessness. By applying RIS, research-based programming is offered within a culture of recovery that mobilizes resilience through social affiliations. The authors recommend RIS model implementation and research in programs serving populations with ACE backgrounds.

KEYWORDS ACE-informed programming, adverse childhood experiences (ACE), culture of recovery, homelessness, Restorative Integral Support (RIS), resilience, social affiliations

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Homelessness is increasing along with growing poverty and a shortage of affordable housing (National Coalition for the Homeless, 2009). Multiple problems associated with earlier adversity can make people more vulnerable to social conditions contributing to homelessness (Burt, 2001; Larkin & Park, 2012). The Centers for Disease Control (CDC) and Kaiser Permanente conducted a large scale epidemiologic study examining the relationship between adverse childhood experiences (ACE) and later-life health. ACE Scores, based on the number of "yes" responses to 10 ACE categories, were strongly correlated with health risk behaviors and serious health problems (Anda et al., 2006; Felitti et al., 1998). Homeless service providers are challenged to facilitate healing social conditions that take adversity into account when helping people who are experiencing multiple problems, such as co-occurring mental health and health risk behaviors. In an effort to improve outcomes for those served, movements toward both evidence-based practice and recovery orientations have gained momentum among human service providers (Bledsoe, Lukens, Onken, Bellamy, & Cardillo-Geller, 2008; Starnino, 2009).

Bledsoe et al. (2008) call for policies that promote recovery-facilitating evidence supported interventions (ESI) and the integration of recovery supporting systems within ESI. The Substance Abuse and Mental Health Services Administration (SAMHSA) has placed a priority on developing "recovery-oriented systems of care" (Sheedy & Whitter, 2009). Sheedy and Whitter (2009) define recovery-oriented systems of care in the substance abuse treatment field as "networks of organizations, agencies, and community members that coordinate a wide spectrum of services to prevent, intervene in, and treat substance use problems and disorders" (p. 3). Jacobson and Greenley (2001) argue that recovery-oriented systems of mental health care include " … services directed at symptom relief, crisis intervention, case management, rehabilitation, enrichment, rights protection, basic support, and self-help" (p. 484).

We present the Committee on the Shelterless (COTS), a homeless services agency in Petaluma, California, as a case example of one organization using the Restorative Integral Support (RIS) model to integrate research knowledge for a comprehensive, whole person approach to recovery from ACE consequences. Following a brief overview of the RIS model, this article will describe how COTS employs RIS to integrate best practices within ACE-informed programs to break cycles of homelessness.

RESTORATIVE INTEGRAL SUPPORT

The RIS model was developed for social service agencies helping high ACE Score populations experiencing multiple problems. RIS acknowledges the role of earlier adversity, including developmental impact, to mobilize

resilience and recovery (Larkin & Records, 2007). Leadership and policies work together to develop a culture of recovery that fosters social affiliations among those served. A culture of recovery builds on individual strength and resilience, empowering people and supporting self-determination, autonomy, and healing through community integration (Jacobson & Greenley 2001). Social affiliation shapes healthy interdependence within a person's community and culture, strengthening individuals through inclusion and group connectedness. Within social affiliations, people gain resources and opportunities for personal efficacy (Zlotnick, Tam, & Robertson, 2003).

RIS engages staff to integrate ESI and research-informed emerging practices addressing client needs within this context. Consistent with an evidence-based behavioral practice (EBBP) process described by the National Institutes of Health (NIH, 2008), decision making is made in light of resources, including practitioner skills, within the local culture. While the emphasis on research supports provider competence in ESI, the recovery focus on social connectedness, hope, and self-efficacy emphasize empowerment and attention to human relationships and the social context (Carpenter, 2002). To combine these elements, agency leaders employ the following practical steps to implement the RIS model:

- Raise staff awareness of ACE Score characteristics among those served
- Draw on knowledge of resilience and recovery to inform ACE response
- Set a compassionate example and offer self-care support for staff who provide relationship-building and role modeling for clients to create a culture of recovery
- Involve staff to clarify the values and principles behind ACE-informed programs
- Implement policies that facilitate a recovery-oriented system and culture
- Bring ESI and emerging practices on-site to address challenges faced by clients
- Engage the community, tapping local resources while addressing local needs
- Build partnerships for comprehensive research of whole person service delivery (see also Larkin & Park, 2012)

COTS began RIS implementation as staff persons made connections between ACE research and the substance abuse and other health risk behaviors of those served. Through this process, COTS programs became ACE-informed and intentionally focused on mobilizing resilience and recovery. Because awareness of this research was key to RIS implementation at COTS, an overview of ACE, resilience, and recovery is presented next. We will then describe the history and background of COTS, followed by the next steps in RIS implementation.

ADVERSITY, RESILIENCE, AND RECOVERY

The ACE Study, which began in 1994, collected two waves of data that resulted in a sample of 17,337 (response rate 68%). ACE were defined as experiencing any of the following events prior to age eighteen: physical or emotional abuse by a parent, sexual abuse by anyone, domestic violence, living with a substance abusing household member, living with a mentally ill or suicidal household member, incarceration of a household member, loss of a parent, and emotional or physical neglect by a parent. Respondents were given a score of one for each category they experienced. The ACE Score, ranging from 0–10, was analyzed in relationship to a number of adult risks (Felitti et al., 1998; Anda et al., 2006).

Felitti et al. (1998) pointed out that people often employ health risk behaviors, such as overeating, smoking, and alcohol or other drug abuse, as coping strategies for short-term relief from the emotional distress created by ACE. Higher ACE Scores were associated with leading causes of death, such as heart and lung disease (Anda et al., 2006; Dong et al., 2004; Felitti et al., 1998). A vast amount of research shows that a direct link exists between ACE and smoking, alcoholism, other addictions (Felitti et al., 1998), and mental health problems (Edwards, Holden, Felitti, & Anda, 2003). ACE also represent a high risk for impaired job functioning (Anda et al., 2004), homelessness (Burt, 2001; Larkin & Park, 2012), and criminal justice involvement (Messina & Grella, 2006).

Given the many human, social, and economic costs of ACE, an understanding of how to interrupt these pathways is extremely important (Larkin & Records, 2007; Larkin, Felitti, & Anda, in press). Research on resilience, for example, has focused on human strengths and resources that help fend off depression, substance use, and other health- and mental health–related problems. This knowledge demonstrates that individual and community qualities work together to empower a person to move forward in life with a sense of hope, capability, mastery, and expectation. Resilient individuals accept reality, believe that life is meaningful and worth living, manage adversity, and push through hardship to overcome obstacles (Goldstein & Brooks, 2005; Henderson, 2003; Smith & Carlson, 1997). Emerging from hope, and supported by peers, communities, and the larger society, the recovery process involves healing and a new sense of self, attitude, values, and goals (Gardner, Lehman, Brown, & Brooks, 2000; Starnino, 2009).

THE COMMITTEE ON THE SHELTERLESS (COTS)

COTS was founded in 1988 when two local women, alarmed to find both adults and children sleeping in outdoor dumpsters and drains, raised awareness and sought private donor funding to develop homeless services in the town of Petaluma, CA. COTS began by providing safe shelter in a bookstore

basement, two local churches, and one house. While educating the community and monitoring local temporary shelters, ongoing city council support was established and led to the development of reliable local and county funding sources. COTS's leadership sought to expand from temporary shelter services to develop programs that could help people with challenges that contributed to homelessness and reasonably offer people hope for a more stable life. Over time, COTS has developed into a multi-service, recovery-oriented agency.

In 2002, COTS secured private donor funding for a Program Development, Evaluation, Training and Export (PDETE) project. COTS leadership drew staff together to reflect on organizational values and program offerings. Each staff person investigated a best practice developed to address one or more of the multiple problems associated with homelessness (i.e., substance abuse, trauma, coping skills, etc.) and considered ways to expand research-informed services to help homeless people. Today, the multiple services offered by COTS include:

- The Petaluma Kitchen, offering food and outreach services
- Case management, a core element serving people across programs
- The Mary Isaak Center emergency shelter and transformative programming
- Transitional Housing modeled after Oxford House
- Skill-building programs and specialized support services (such as Rent Right, Work Right, Kids First)
- On-site health, dental care, and mental health/crisis consultation
- A Somatic Experiencing (SE) clinic
- At Home Within programming (includes yoga, Qi Gung, mindfulness meditation, drumming, visualization, and integrative restoration/iREST)
- The Family Connection Program—teams of volunteers support families exiting homeless situations to establish healthy social affiliations in the community
- Permanent housing (www.cots-homeless.org)

Consistent with research demonstrating the effectiveness of therapeutic communities (NIDA, 2002), COTS includes staff and recovering community members as change agents within social networks mobilizing peer influence in the development of social and recovery skills. Clients begin with an action plan and immediately join a culture of positive change. Greater degrees of personal and social responsibility are developed as those served graduate from one COTS program to the next. For example, COTS's programming leads into transitional housing modeled after the self-run, democratic recovery homes known as Oxford House, which have been found to promote adjustment through community-based social support (Ferrari, Jason, Sasser, Davis, & Olson, 2006). Within this therapeutic community context, COTS

combines elements of emergency shelter, continuum of care, housing, service integration, and outreach in a way that is informed by an understanding of the developmental impact of early adversity as well as resiliency and the potential for recovery. The response focuses on breaking the cycle of risk behaviors associated with homelessness by helping people to recover and transform their lives, saving the cost of future ACE consequences for the next generation. This recovery approach could be overlaid on other service models (Larkin & Records, 2007; Larkin, Beckos, & Martin, in press).

ACE-Informed Programming

The ACE Study, introduced to COTS by the United Way in 2004, helped explain what COTS staff saw in the shattered lives of people served. Many homeless people had survived significant past adversity, in addition to the stressful experience of homelessness. Risk behaviors, such as substance abuse, seemed to contribute to people's homeless situation. ACE were recognized as underlying many of the multiple problems with which homeless people presented. Employing RIS, COTS's leadership facilitated an organizational development process in which staff learned about ACE research and considered ways to integrate this knowledge through RIS.

The integration of ACE research provided a foundation from which programs at COTS have become ACE-informed. This process began by building ACE awareness among staff. ACE knowledge was incorporated to enhance existing programs such as Kids First, Support Groups, Case Management, Anger Management, and the Four Agreements Seminars. Other programs and classes were initiated as ACE research was included in program design: ACE Awareness Education Presentations, Emotional Hijacking Coping Strategies Seminars, Somatic Experiencing (SE), At Home Within, Stress and Coping classes, Relationship Skills classes, and Domestic Violence awareness classes were introduced to further support people recovering from ACE consequences. All program staff received education on ACE findings, and staff specified how each program intervention sought to prevent and address ACE or ACE consequences within logic models. RIS usefully articulates how programs were unified so that all services work together for a comprehensive, whole person response that takes underlying ACE into account to enhance resilience and support recovery.

Developing a Culture of Recovery

Researchers recognize that agency goals and processes are crucial to the way service providers within organizations carry out their work (Rosenheck, 2001). Within the RIS model, the self-care and workforce development of agency leadership and staff members is included as an aspect of intentionally developed social networks that create a therapeutic community. The

organizational development process, which engages organizational members, is therefore an important element of RIS implementation.

With the mission of breaking the cycle of homelessness, COTS's executive director engaged staff in reviewing best practices in light of ACE research and, in this context, articulating the values and principles guiding agency culture and program design. Identifying organizational values and principles is an aspect of implementing the RIS model because this helps to create the culture that intentionally shapes social networks for a therapeutic community supportive of resilience and recovery. It is within this context that ESI and emerging practices are incorporated, with individual and community interventions working together to facilitate an ACE response that is comprehensive and serves the whole person. At COTS, the Four Pillars of Success were developed by staff and considered important principles for effective service. Staff persons also adopted the Four Agreements, developed by Ruiz (2001), as guidelines for conduct. This process involved regular meetings with staff and volunteers. The Four Pillars of Success and the Four Agreements, along with ACE information, now pervade agency culture and influence programmatic decisions.

The Four Pillars of Success, as developed by COTS, are Connection, Hope, Commitment, and Integrity (CHCI). Consistent with knowledge of resilience and protective factors (Smith & Carlson, 1997), the connection of a supportive and healthy relationship provides the basis from which hope can emerge. In order to develop such a relationship and gain the credibility needed to help people, COTS staff demonstrate that they are trustworthy and reliable. Hope becomes realistic through small life changes and can help people develop the commitment to bigger changes, and then set personal goals to improve their circumstances. CHCI represents how staff orient around the mission and serves as a basic framework for any program. COTS staff describe the culture as flowing from these values and the Code of Conduct based on Ruiz's (2001) Four Agreements. These Four Agreements include:

(1) Be Impeccable with Your Word,
(2) Don't Take Anything Personally,
(3) Don't Make Assumptions, and
(4) Always Do Your Best.

These values and principles have guided the intentional development of a recovery-oriented culture that fosters resilience. This culture facilitates the personal development of staff, many of whom have identified their own ACE Scores, who then support the development of healing social networks for those served. Thus, the self-care of agency leadership and staff persons is actually an aspect of RIS. For example, the case management group conducts meetings on self-care, which is recognized as key to accomplishing relationship-building and role modeling. Somatic Experiencing (SE) volunteers

worked with staff on secondary trauma and self-regulation for a full year. Rest, renewal, and development are viewed as crucial to meeting the demands of a life of service—working with traumatized people, sticking to principles, completing administrative tasks, combining disparate fields to serve people comprehensively, and operating as a leader in the community. This is in keeping with literature highlighting the importance of preventing vicarious traumatization (Badger, Royse, & Craig, 2008) and addressing self-care among helping professionals (Christopher, Christopher, Dunnagen, & Schure, 2006).

Within a culture of recovery, ACE research information plays an important role to help people discover how they have been able to survive and explore their own resiliency and supports. People served at COTS are viewed as heroes who have pulled through adversity and are still willing to open themselves up to relationships with staff and volunteers because they want to better their lives and their children's lives. At COTS, people experience a healthy relationship and see someone believing they can succeed. For example, when COTS helps a parent with an ACE Score of 8 along with their child who has an ACE Score of 4, it is crucial that the parent experience themselves as connected to reliable staff who offer hope and mobilize the parent's resiliency and recovery while teaching them new parenting skills and encouraging them to continue providing their children healthier experiences. This also helps to empower parents to utilize services available within the agency and community.

The culture created at COTS extends into the community. COTS involves the community in an ongoing series of programs designed to lift people up and give them hope for a better life. Community volunteers become invested in the success of the participants. COTS has relationships with town businesses and community organizations, viewing the support of the community as imperative in accomplishing the mission. COTS staff also organize volunteer and internship experiences for clients within the community, and organizations will sometimes call for help. The relationship with the community is mutually beneficial, as people think of COTS when they want to provide service, creating a strong volunteer base. New interventions to address client needs are brought on-site through relationships with other service providers. Examples include professional mental health consultation and the Somatic Experiencing (SE) clinic, as well as health and dental care. People who have received help from COTS refer friends who are still on the streets, and other nonprofits often refer to COTS.

The Role of Organizational Policy

Policies help to create an environment of health and safety while supporting the culture of recovery. One of COTS's foundational policies is "no substance use." While meals and outreach services are provided to chronically homeless people, many of whom actively use substances, engagement in COTS's

programming requires a decision to stop using, with program participants agreeing to drug-testing. The decision is often an indicator of movement from contemplation to determination along the continuum of change (Prochaska & DiClimente, 2005). COTS's no use policy, combined with the cultural emphasis on social affiliations, is also supported by Zlotnick et al.'s (2003) discovery that social affiliation is connected to the ability of those not currently using substances to exit homelessness and their suggestion to first address substance abuse problems in order to help people exit homelessness. Policies, procedures, and the interaction of staff and client culture have helped develop a cohort of people with reasonably good attitudes and habits, which research demonstrates are "contagious" (Christakis & Fowler, 2007). This brings in respect and communication styles that are conducive to life success.

Research-Practice Integration

COTS provides an example for social service agencies exploring ways to integrate research to effectively serve the whole person and support recovery through a range of services. RIS implementation has led to a dramatic increase in COTS's ability to house homeless and chronically homeless adults. In 2004–2005, COTS housed 8 of 646 clients with conventional case management techniques, fewer programs, and the same number of full-time program staff. In 2008–2009, 283 of 590 unduplicated individuals were successfully housed in transitional or permanent housing. COTS was awarded the Van Loben Sels Foundation's designation as a Model Practices Agency and received three recent awards from the United Way. Representatives from homeless service organizations in Albany, Cleveland, Boise, and Sacramento have traveled to COTS to learn about COTS's leading edge ACE-informed programming.

By implementing RIS, COTS brought ACE research together with knowledge of resilience and recovery to inform the integration of locally available ESI and research-based emerging practices within programming. Already built upon existing research, evaluation for effectiveness can easily flow from the RIS model. Duffee (2010) describes a comprehensive approach to research on service outcomes, known as Service Outcomes Action Research (SOAR), which is proposed as a way to determine the efficacy of COTS's research-based programs and assess a wide range of outcomes (Larkin et al., 2012). Similar methods of inquiry and action inform a University partnership with Oxford House (Davis, Olson, Jason, Alvarez, & Ferrari, 2006).

IMPLICATIONS FOR HUMAN SERVICE PROVIDERS

The RIS model demonstrates how social networks can be intentionally developed to help people transform their lives, bringing research-informed practices together within a recovery-oriented culture to break the ACE trajectory.

RIS replication by other social service agencies allows room to include a variety of locally available best practices within the culture of recovery. Based on this case study, the following RIS implementation steps are recommended to agency leaders: (a) Develop programs that take client ACE Scores into account and engage a whole person approach to promote resilience and recovery, (b) Carefully attend to the roles of leadership and policy to create a culture of recovery, (c) Engage staff to articulate programming values and principles that will pervade agency culture and support the mission, (d) Support self-care of the workforce that provides the role modeling and relationship building necessary for a therapeutic community, (e) Engage staff in identifying locally available best practices that can be incorporated into recovery-oriented programs, (f) Provide community leadership, including service to the community, as well as incorporating volunteers and locally available services into programs, and (g) Carry out RIS model implementation and research in diverse settings.

CONCLUSION

ACE are linked to high cost later in life health risks (Felitti et al., 1998) that may increase vulnerability to homelessness (Burt, 2001; Larkin & Park, 2012). COTS provides safe, sober, supportive shelter with research-informed programs carried out through community engagement. Employing the RIS model, COTS's programs emphasize personal responsibility, social affiliations, and skill-building to promote resilience and recovery from ACE consequences, including substance abuse. COTS's mission to break the cycle of homelessness is achieved when people's lives are transformed through this recovery process. RIS implementation has led to cost-effective recovery-oriented integrated programming. COTS serves as an example for social service agencies interested in employing RIS to provide a comprehensive, whole person approach to mobilize resilience and recovery. RIS implementation and research is recommended in programs serving high ACE Score groups.

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