Preventing Adverse Childhood Experiences (ACEs):

Leveraging the Best Available Evidence

National Center for Injury Prevention and Control
Division of Violence Prevention

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2019

Division of Violence Prevention
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention
Atlanta, Georgia

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Suggested citation:

Centers for Disease Control and Prevention (2019). *Preventing Adverse Childhood Experiences: Leveraging the Best Available Evidence*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

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Acknowledgements

We would like to acknowledge the following individuals who contributed to the development, review and support of this publication. First, we give special thanks to Linda Dahlberg for leading the development of this document. Second, we extend our gratitude to the many staff involved in the development of the *CDC Technical Packages to Prevent Violence*. These packages provided the foundation for this document. In particular, we thank the leads of the technical packages to prevent child abuse and neglect (Beverly Fortson, Joanne Klevens, and Melissa Merrick), sexual violence (Kathleen Basile and Sarah DeGue), intimate partner violence (Phyllis Niolon and Megan Kearns), youth violence (Corinne David-Ferdon), and suicide (Deborah Stone and Kristin Holland) for their insights, review, and contributions to this document. We also thank Kathyrn Ports, Christopher Jones, Marilyn Metzler and Tamara Haegerich for generating ideas and offering many useful suggestions. Finally, we thank Alida Knuth for her assistance with graphics and layout and extend our gratitude to Division and Center leadership for their helpful feedback and support.

What are Adverse Childhood Experiences?

Adverse Childhood Experiences, or ACEs, are potentially traumatic events that occur in childhood (0-17 years) such as experiencing violence, abuse, or neglect; witnessing violence in the home; and having a family member attempt or die by suicide.[1,2] Also included are aspects of the child's environment that can undermine their sense of safety, stability, and bonding such as growing up in a household with substance misuse, mental health problems, or instability due to parental separation or incarceration of a parent, sibling or other member of the household.[1,2]

Traumatic events in childhood can be emotionally painful or distressing and can have effects that persist for years.[2] Factors such as the nature, frequency and seriousness of the traumatic event, prior history of trauma, and available family and community supports can shape a child's response to trauma.[2]

Preventing ACEs is a priority for CDC

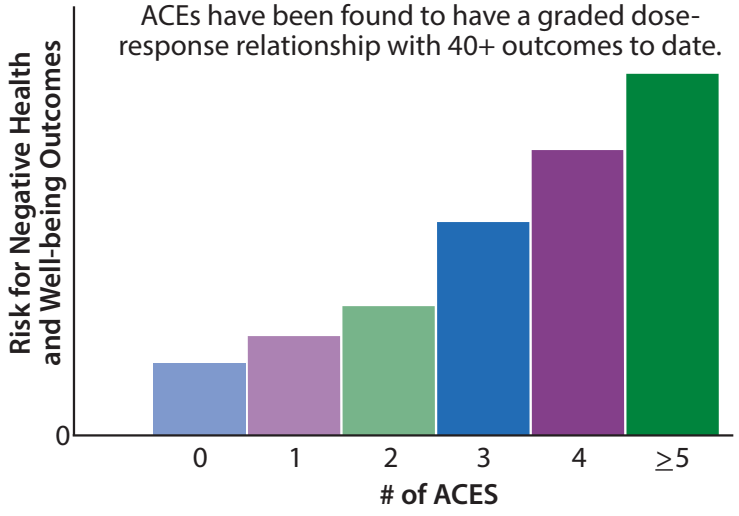
An estimated 62% of adults surveyed across 23 states reported that they had experienced one ACE during childhood and nearly one-quarter reported that they had experienced three or more ACEs.[3] ACEs can have negative, lasting effects on health, wellbeing, and opportunity. These exposures can disrupt healthy brain development, affect social development, compromise immune systems, and can lead to substance misuse and other unhealthy coping behaviors.[4-9] The evidence confirms that these exposures increase the risks of injury, sexually transmitted infections, including HIV, mental health problems, maternal and child health problems, teen pregnancy, involvement in sex trafficking, a wide range of chronic diseases and the leading causes of death such as cancer, diabetes, heart disease, and suicide.[1,10-16] ACEs can also negatively impact education, employment, and earnings potential.[17] The total economic and social costs to families, communities, and society is in the hundreds of billions of dollars each year.[18-21]

ACEs can have lasting effects on...

Health (obesity, diabetes, depression, suicide attempts, STDs, heart disease, cancer, stroke, COPD, broken bones)

Behaviors (smoking, alcoholism, drug use)

Life Potential (graduation rates, academic achievement, lost time from work)

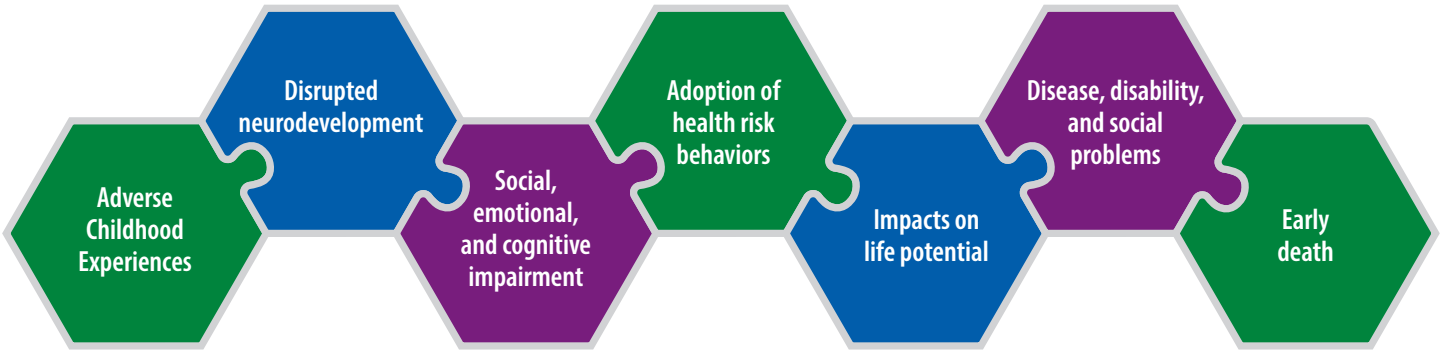


*This pattern holds for the 40+ outcomes, but the exact risk values vary depending on the outcome.

How ACEs influence health and opportunity

The childhood years, from the prenatal period to late adolescence, are the "building block" years that help set the stage for adult relationships, behaviors, health, and social outcomes. ACEs and associated conditions such as living in under-resourced or racially segregated neighborhoods, frequently moving, experiencing food insecurity, and other instability can cause toxic stress (i.e., prolonged activation of the stress-response system[4]). Some children may face further exposure to toxic stress from historical and ongoing traumas due to systemic racism or the impacts of multigenerational poverty resulting from limited educational and economic opportunities.

A large and growing body of research indicates that toxic stress during childhood can harm the most basic levels of the nervous, endocrine, and immune systems, and that such exposures can even alter the physical structure of DNA (epigenetic effects).[4,5] Changes to the brain from toxic stress can affect such things as attention, impulsive behavior, decision-making, learning, emotion, and response to stress.[5] Absent factors that can prevent or reduce toxic stress, children growing up under these conditions often struggle to learn and complete schooling.[5,22] They are at increased risk of becoming involved in crime and violence,[23,24] using alcohol or drugs,[6,7] and engaging in other health-risk behaviors (e.g., early initiation of sexual activity; unprotected sex; and suicide attempts).[9,13,16,23] They are susceptible to disease, illness, and mental health challenges over their lifetime.[5,14,15] Children growing up with toxic stress may have difficulty forming healthy and stable relationships. They may also have unstable work histories as adults and struggle with finances, family, jobs, and depression throughout life—the effects of which can be passed on to their own children.[5,12,17]



What can be done to prevent ACEs?

ACEs and their associated harms are preventable. Creating and sustaining safe, stable, nurturing relationships and environments for all children and families can prevent ACEs and help all children reach their full health and life potential. CDC has produced a suite of technical packages to help states and communities take advantage of the best available evidence to prevent violence, including the many types of violence and social, economic, and other exposures in the home and community that adversely affect children.[25-29]

A "technical package" is a select group of strategies to achieve and sustain substantial reductions in a specific risk factor or outcome.[30] Technical packages help communities and states prioritize prevention activities with the greatest potential for impact. A technical package has three parts. The first component is the strategy or the preventive direction or actions to achieve the goal of preventing ACEs. The second component is the approach. The approach includes the specific ways to advance the strategy. This can be accomplished through programs, practices, and policies. The third component is the evidence for each of the approaches in preventing ACEs or its associated risk factors.

Across the CDC Technical Packages there are several strategies that can prevent ACEs from happening in the first place as well as strategies to mitigate the harms of ACEs. The evidence tells us that ACEs can be prevented by:

- Strengthening economic supports for families
- Promoting social norms that protect against violence and adversity
- Ensuring a strong start for children and paving the way for them to reach their full potential
- Teaching skills to help parents and youth handle stress, manage emotions, and tackle everyday challenges
- Connecting youth to caring adults and activities
- Intervening to lessen immediate and long-term harms

Preventing ACEs

Strategy	Approach
Strengthen economic supports to families	• Strengthening household financial security • Family-friendly work policies
Promote social norms that protect against violence and adversity	• Public education campaigns • Legislative approaches to reduce corporal punishment • Bystander approaches • Men and boys as allies in prevention
Ensure a strong start for children	• Early childhood home visitation • High-quality child care • Preschool enrichment with family engagement
Teach skills	• Social-emotional learning • Safe dating and healthy relationship skill programs • Parenting skills and family relationship approaches
Connect youth to caring adults and activities	• Mentoring programs • After-school programs
Intervene to lessen immediate and long-term harms	• Enhanced primary care • Victim-centered services • Treatment to lessen the harms of ACEs • Treatment to prevent problem behavior and future involvement in violence • Family-centered treatment for substance use disorders

These strategies focus on changing norms, environments, and behaviors in ways that can prevent ACEs from happening in the first place. The last strategy focuses on mitigating the immediate and long-term physical, mental, and behavioral consequences of ACEs. By addressing the conditions that give rise to ACEs and simultaneously addressing the needs of children and parents, these strategies take a multi-generation approach to prevent ACEs and ensure safe, stable, nurturing relationships and environments. Together, these strategies are intended to work in combination and reinforce each other to prevent ACEs and achieve synergistic impact.

Strengthen Economic Supports for Families

Research shows that parents facing financial hardship are more likely to experience stress, depression, and conflict in their relationships and family, all of which compromise parenting and increase the risk for violence and other ACEs.[31,32] Parents facing financial hardship also have fewer resources to invest in their children and face difficult choices when trying to balance work and family responsibilities. About 4 in 10 children under the age of 18 in the United States live in a low-income household* including more than half of African American and Hispanic children.[33] Nearly 1 in 10 children in the U.S. live in deep poverty.[33] Strong evidence consistently links low income to ACE exposures and children's long-term health, educational, and social outcomes.[5,34] Addressing the social and economic underpinnings of ACEs is critical to achieving lasting and sustainable effects.

Policies that **strengthen household financial security** (e.g., tax credits, childcare subsidies, and other forms of temporary assistance) and **family-friendly work policies,** such as paid leave and flexible and consistent work schedules, can prevent ACEs by increasing economic stability and family income, increasing maternal employment, and improving parents' ability to meet children's basic needs and obtain high-quality childcare.[27,28] These types of policies can also prevent ACEs by reducing parental stress and depression and by protecting families from losing income to care for a sick child or family member.[27,28] Strengthening economic supports for families is a multi-generation strategy that addresses the needs of parents and children so that both can succeed and achieve lifelong health and well-being.

Evidence

Tax credits, such as the *Earned Income Tax Credit (EITC)* and *Child Tax Credit (CTC*) help increase income for working families while offsetting the costs of childcare. The *EITC* has been shown to lift families out of poverty[35,36] and has demonstrated impacts on infant mortality, health insurance coverage,[37] school performance,[38,39] maternal stress, and mental health problems.[40] *CTC's* have also been shown to reduce child behavioral problems (e.g., physical aggression, anxiety, and hyperactivity)[41]—factors that are linked to later perpetration of violence toward peers and intimate partners.[26,28]

Parents who receive childcare subsidies tend to access higher quality childcare,[42] which increases the likelihood that children will experience safe, stable, nurturing relationships and environments. Access to affordable childcare also reduces parental stress[43] and maternal depression,[44] which are risk factors for child abuse and neglect[31] and other risk behaviors associated with ACEs.[45]

Research suggests that women who receive paid maternity leave are more likely to maintain their current employment[46] and that access to paid leave may be protective against depression[47] and pediatric abusive head trauma.[48] Paid maternity leave also may be protective against intimate partner violence (IPV),[49] which is another ACE exposure. Apart from the trauma of witnessing IPV, children growing up in homes with IPV are at increased risk for experiencing violence themselves and at increased risk for later involvement in crime and violence.[26,27]

Flexible and consistent work schedules provide parents with a predictable pattern of work (e.g., consistent beginning/ending times to the workday; flexibility in the number of hours worked or location) which makes it easier for parents to access quality childcare. Children whose parents work unpredictable schedules have more cognitive deficits (e.g., with memory, learning, and problem-solving) than children whose parents have more predictable schedules.[50-52] Parents who work irregular shift times are also more prone to work-family conflict and stress,[53] which are risk factors for multiple forms of violence.

*The low-income category includes both the poor and the near poor. Poor is defined as income below 100% of the Federal Poverty Threshold (FPT), and near poor is between 100% and 199% of the FPT. Deep poverty is below 50% of the FPT.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Promote Social Norms that Protect Against Violence and Adversity

Norms are group-level beliefs and expectations about how members of the group should behave.[25,27] Changing social norms that accept or allow indifference to violence and adversity is important in the prevention of ACEs.[25-29] There are a number of norms that can protect against violence and adversity, including those that:

- Promote community norms around a shared responsibility for the health and well-being of all children[27]
- Support parents and positive parenting, including norms around safe and effective discipline;[27]
- Foster healthy and positive norms around gender, masculinity, and violence to protect against violence towards intimate partners, children, and peers;[25,26,28]
- Reduce stigma around help-seeking;[29] and
- Enhance connectedness to build resiliency in the face of adversity.[29]

Public education campaigns are one way to shift social norms and reframe the way people think and talk about ACEs, and who is responsible for preventing them.[27] They can help shift the narrative away from individual responsibility to one that engages the community and draws upon multiple solutions to promote safe, stable, nurturing relationships and environments for all children.[27] Such a narrative can also normalize protective factors by enhancing connectedness and reducing the stigma around seeking help with parenting or for substance misuse, depression, or suicidal thoughts.[27,29] **Legislative approaches to reduce corporal punishment** can help establish norms around safer, more effective discipline strategies to reduce the harms of harsh physical punishment, particularly if paired with public education campaigns.[27] **Bystander approaches** and efforts to **mobilize men and boys as allies in prevention** can be used to change social norms in ways that support healthy relationship behaviors.[25,28] Such approaches work by fostering healthy norms around gender, masculinity, and violence with the goal of spreading these social norms through peer networks.[25,28] They also work by teaching young people skills to safely intervene when they see behavior that puts others at risk and reinforcing social norms that reduce their own risk for future perpetration.[25,28]

Evidence

Research suggests that public education campaigns to help parents understand the cycle of abuse and campaigns specifically targeting child physical abuse positively impact parenting practices, reduce children's exposure to parental anger and conflict, reduce child behavior problems, and improve parental self-efficacy and knowledge of actions to prevent child abuse.[54]

Legislative approaches to reducing corporal punishment are associated with decreases in support of and use of harsh physical punishment as a child discipline technique.[55,56] Experiencing harsh physical punishment as a child increases the risk for involvement in crime and violence in adolescence[57] and later perpetration of violence toward a partner and one's own children.[32] Experiencing harsh physical punishment as a child is also associated with mental health problems, lower academic performance, and lower self-esteem.[58,59]

Bystander approaches and efforts to mobilize men and boys as allies in prevention change the social context for violent and abusive behavior.[25,28] Programs such as *Green Dot* and *Coaching Boys into Men*®, for instance, have been shown to reduce violence against dating partners, negative bystander behaviors (such as laughing at sexist jokes or encouraging abusive behaviors), as well as sexual violence perpetration and victimization.[60-62]

Ensure a Strong Start for Children

A child's relationship with others inside and outside the family plays a role in healthy brain development, as well as in the development of physical, emotional, social, behavioral, and intellectual capacities.[26,27] Parents may struggle to provide the care and nurturing necessary for children to develop these capacities and thrive for a number of reasons, including health, substance misuse, mental health, financial issues, or access to resources or support. **Early childhood home visitation** can prevent ACEs by providing information, caregiver support, and training about child health, development, and care to families in their homes to build a safe, stable, nurturing and supportive home environment.[26-28] **High-quality childcare** and **preschool enrichment programs with family engagement**[26-28] help children build a strong foundation for future learning and opportunity by improving their physical, social, emotional and cognitive development, language and literacy skills, and school readiness. These approaches also help by strengthening connections between home and school environments, and can be especially beneficial to economically disadvantaged children who may not have educational resources at home or the support to help them learn and thrive.[26-28]

Evidence

Effective home visiting models,[63] such as the *Nurse Family Partnership Program® (NFP)*, have demonstrated many benefits for children and parents. *NFP* is associated with a 48% relative reduction in rates of child abuse and neglect.[64] Children participating in the program have better cognitive and language development, better academic achievement, fewer behavioral problems, lower rates of substance use, and fewer arrests, convictions, and parole violations by age 19.[65-67] For mothers, *NFP* is associated with better pregnancy outcomes, improved parenting practices, reductions in the use of welfare and other government assistance, greater employment, lower rates of substance use, and reduced exposure to intimate partner violence.[64,65,68,69]

Research suggests that access to affordable, high-quality childcare can buffer against a lower quality home environment and reduce child behavior problems, parental stress and depression, and rates of child abuse and neglect.[27] Difficulties finding quality childcare, for instance, have been linked to self-reported child neglect among mothers with substance use problems.[70] Access to affordable, high-quality childcare may also reduce child abuse deaths associated with having to leave children at home in the care of unrelated adults.[71]

Children enrolled in preschool enrichment programs that actively involve and support parents have better math, language, and social skills as they enter school; require less special education services as they grow older; are less likely to be held back a grade in school; are more likely to graduate high-school and attend college; and are more likely to be employed and have higher earnings as adults.[72-75] In addition to these documented benefits, programs such as *Child Parent Centers* are also associated with lower rates of substantiated reports of child abuse and neglect and out-of-home placements; youth depression and substance use; and arrests for violent and nonviolent offenses, convictions, and incarceration well into adulthood.[73-76]

Teach Skills

Skill-based learning is an important part of a comprehensive approach to prevent ACEs. Decades of research shows that teaching children and youth skills to handle stress, resolve conflicts, and manage their emotions and behaviors can prevent violence victimization and perpetration, as well as substance misuse, sexually transmitted infections, including HIV, and teen pregnancy.[25,26,28,29] Strengthening parenting skills and promoting nurturing and supportive family environments can build a strong foundation for children and protect them from multiple forms of violence, substance misuse, and other negative health outcomes across developmental periods and into adulthood.[25-29]

There are a number of approaches to teach skills. **Social emotional learning approaches** (also referred to as universal school-based programs when delivered to all students in a particular classroom, grade or school) are widely used across the United States to enhance interpersonal skills.[25,26,28,29] This includes skills related to communication, problem-solving, alcohol and drug resistance, conflict management, empathy, coping, and emotional awareness and regulation. **Safe dating and healthy relationship skill programs** address similar skills within the context of dating and intimate partner relationships with the goal of promoting caring, respectful, and non-violent relationships.[25,28] **Parenting skills and family relationship approaches** cover developmentally appropriate expectations for child behavior; teach behavior management, monitoring, and problem-solving skills; safe and effective discipline; healthy relationship behaviors; and work with parents to enhance parent-child communication and ways to support children and youth.[25-29]

Evidence

Systematic reviews of the evidence for social emotional learning approaches finds that they significantly reduce peer violence across grade levels, school environments, and demographic groups.[77,78] In addition to impacts on aggression and violent behavior,[79-86] programs such as *Life Skills® Training*, the *Good Behavior Game*, and *Promoting Alternative THinking Strategies® (PATHS)* have demonstrated other benefits as well, including reductions in youth alcohol, tobacco, and drug use, depression and anxiety, suicidal thoughts and attempts, delinquency, and involvement in crime.[80,83-85,87] Social emotional learning approaches are also associated with improvements in reading, writing, and math proficiency, paving the way for future academic success.[79,88]

Unhealthy relationships can start early and last a lifetime, especially for teens who display aggression towards peers, engage in early sexual activity, and witness or experience violence in the home.[25,28] Programs such as ***Dating Matters®, Safe Dates*** and the ***Fourth R***, which teach healthy relationship skills to adolescents, have been shown to significantly reduce teen dating violence.[89-91] ***Dating Matters®*** and the ***Safe Dates*** program are also associated with reductions in peer violence and weapon carrying.[92-94]

The evidence is also strong for skill-based parenting and family relationship approaches in reducing known risk factors for child abuse and neglect and protecting children and youth from multiple forms of violence and other health compromising behaviors.[25-29,79] For instance, programs such as ***The Incredible Years®*** and ***Strengthening Families 10-14*** decrease child behavior problems,[79,95] youth substance use (including prescription opioid misuse),[97-99] physical fighting and involvement in crime;[96] reduce parental stress, depression, and family conflict;[96,100] and improve parenting practices related to child discipline, monitoring and supervision.[100]

Connect Youth to Caring Adults and Activities

Relationships with caring adults who are positive role models can prevent ACEs and improve future outcomes for young people.[26] Caring adults could include teachers, coaches, extended family members, neighbors or community volunteers. Connecting youth to caring adults and activities helps to ground them, improve their engagement in school, and establish positive networks and experiences.[25,26] It is an important preventive strategy to buffer against parental absence or other difficulties at home, frequent moves, and exposure to negative influences at school and in the community. It can also buffer against the impact of ACEs for youth who have already experienced ACEs.

Mentoring and **after-school programs** are ways to connect youth to other caring adults and activities.[26] Mentoring programs pair youth with an adult volunteer with the goal of fostering a relationship that will contribute to the young person's growth opportunities, skill development, academic success, and future schooling and employment outcomes.[26,101] Mentoring programs may be delivered in a school or community setting and to youth of all ages, from early childhood through adolescence.[101]

After-school programs are a way to provide opportunities for youth to strengthen their behavioral, leadership, and academic skills and become involved in positive school and community activities.[25,26] Programs range from those offering tutoring and homework assistance to more formal skill-based programming and structured learning activities.[26] These programs also address other key risk and protective factors for high-risk behavior by providing adult supervision during critical periods of the days, such as between 3:00 to 6:00 p.m., when youth crime and violence peaks.[102] Mentoring and after-school programs can reduce the prevalence of crime, violence, and other adolescent risk behavior and pave the way for positive outcomes in adulthood.[25,26]

Evidence

Research suggests that mentoring programs improve outcomes across behavioral, social, emotional and academic domains.[103,104] ***Big Brothers, Big Sisters*** is the oldest and best known example of a one-on-one mentoring program.[105] Evaluations of the program show that mentored youth are less likely to skip classes, skip school, initiate drug and alcohol use, or engage in physical fighting.[106] Other benefits include improvements in academic performance, parent-child and student-teacher relationships, and parental trust.[106-108]

Opportunities to develop and practice leadership, decision-making, self-management, and social problem-solving skills are important components of after-school programs with documented benefits.[104,109] One example is the ***After School Matters*** program, which offers apprenticeship experiences in technology, science, communication, the arts, and sports to high-school students.[110] Rigorous evaluations of the program show many program benefits, including improved attitudes toward school, fewer course failures, and higher graduation rates.[111,112] Youth in the program are also less likely to sell drugs or participate in gang activity.[112]

Another example is ***Powerful Voices,*** which helps adolescent girls build confidence and develop individual leadership skills as a way to strengthen their future education and employment outcomes and reduce risk for sexual and other forms of violence.[25] Evaluation results show improvements in girls' job skills, motivation to excel at school, connections to their cultural identity and values, and ability to develop healthy relationships with peers and adults.[113]

Intervene to Lessen Immediate and Long-term Harms

Children and youth with ACE exposures may show signs of behavioral and mental health challenges. They may be irritable, depressed, display acting-out behaviors, have difficulty sleeping or concentrating, and show other traumatic stress symptoms.[25-28] They may be struggling with school, associating with delinquent peers, and already engaging in other health compromising behaviors (e.g., alcohol use, opioid misuse, high-risk sexual behavior).[25-28] Continued exposure to violence and other adversity increases the risk that these patterns will continue in adulthood potentially affecting their own future and their children's future.[25-28] Timely access to assessment, intervention, and effective care, support, and treatment for children and families in which ACEs have already occurred can help mitigate the health and behavioral consequences of ACEs, strengthen children's resilience, and break the cycle of adversity.[25-29]

There are a number of approaches to lessen the immediate and long-term harms of ACE exposures. **Enhanced primary care** may be used to identify and address ACE exposures with brief screening assessments and referral to intervention services and supports.[27-29] For children, assessments may be used with parents or caregivers to identify risks in the family environment such as parental alcohol or drug use, depression, stress, the use of harsh punishment, as well as intimate partner violence.[27] For adults, assessments may be used to identify a history of ACE exposures to assist with risk mitigation and improve treatment outcomes.[28,29] Follow-up intervention services are tailored to assessment findings and coordinated with local community agencies.

For children and adult survivors of violence, **victim-centered services** can be both lifesaving and helpful in reducing the harms of violence.[25,28] Such services include crisis intervention, hotlines, medical and legal advocacy, housing support, social support, and access to community resources.[25,28] For children of survivors, such services also include meeting their needs around recreation, school supports, and material goods.[28]

Treatment to lessen the harms of ACEs may be used to address depression, fear and anxiety, post-traumatic stress disorder (PTSD), problems adjusting to school, work, or daily life, and other symptoms of distress.[25-29] These symptoms can be successfully reduced with therapeutic treatments that are trauma-informed (i.e., delivered in a way that is influenced by knowledge and understanding of how trauma affects a survivor's life and experiences long-term[28]) and tailored to the specific circumstances and needs of children, youth, and families.[2,25-28] **Treatment to prevent problem behavior and future involvement in violence** is another approach to mitigate consequences.[25-28] This includes therapeutic interventions and other supports to address the social, emotional, and behavioral risks associated with ACE exposures.[25-28] Evidence-based treatments are provided by trained clinicians in the home or clinic setting and typically include multiple components (e.g., individual and family counseling, parent training, and school consultation).[25-28] Referrals may come from social services, the juvenile justice system, schools, or other community organizations working with children, youth, and families.[25-28]

Finally, **family-centered treatment approaches for substance use disorders** may be used to simultaneously address substance misuse by parents and the needs of their children with this ACE exposure.[114] Parents with alcohol or drug use problems may have difficulty regulating stress, processing emotions, and fulfilling the many childrearing tasks that are essential for children's healthy social and emotional development.[114] These approaches utilize integrated program models that combine evidence-based treatments for substance use disorders (e.g., medication-assisted treatment for opioid use disorder[115]) with a range of preventive services (e.g., mental health services, parenting education and training, medical and nutrition services, education and employment assistance, childcare, children's services, and aftercare). Programs may be delivered in residential or outpatient settings.

Evidence

Primary care settings offer a unique opportunity to identify and address ACE exposures. Randomized trials of the *Safe Environment for Every Kid (SEEK)* model (which screens for ACE exposures in the family environment), have demonstrated a number of positive effects including fewer reports to child protective services, fewer reported occurrences of harsh physical punishment by parents, better adherence to medical care, and more timely childhood immunizations.[116] *SEEK* is also associated with less maternal psychological aggression,[117] fewer minor maternal physical assaults,[117] and improvements among providers in addressing depression, substance misuse, intimate partner violence, and serious parental stress.[118]

Women receiving victim-centered services report less abuse from former intimate partners, less depression, decreased feelings of distress, and overall improvements in self-esteem, safety and well-being[119-121] —outcomes that help to ensure safe, stable, nurturing relationships and environments for their children. Many victims of partner violence have a history of ACEs. Victim-centered services in this regard also help women cope with their own history of ACEs and access support.

Effective treatments such as *Trauma-focused Cognitive Behavioral Therapy® (TF-CBT)* have demonstrated many benefits for children, youth, and families with ACE exposures.[25-28] *TF-CBT* effectively reduces symptoms of PTSD, depression, fear, anxiety, shame, and behavioral problems.[122-126] It also reduces parental emotional distress and depressive symptoms and is associated with improvements in parenting behaviors.[125,126] For children who may face treatment barriers, such as stigma and access to services, *Cognitive Behavioral Intervention for Trauma in Schools (CBITS)* is another treatment option that is associated with improvements in symptoms of PTSD, depression, and parent-reported behavioral problems.[127,128]

Children with a history of ACE exposures are at increased risk of becoming involved in crime and violence, using alcohol or drugs, and engaging in other health-compromising behaviors.[25-28] Effective treatments such as *Multisystemic Therapy® (MST)* have demonstrated both short- and long-term benefits in reducing these risks and strengthening protective factors.[129] *MST*, for example, effectively reduces rates of arrests for violent felonies and other crime,[129-132] problematic sexual behavior,[133-135] and out-of-home placements.[136,137] *MST* has also demonstrated beneficial impacts on family functioning, parenting practices, youth substance use, peer relations, academic performance, mental health, involvement in gangs, and sibling criminal behavior.[129,130]

Available evidence suggests that integrated programs that combine evidence-based treatments for substance use disorders (e.g., medication-assisted treatment for opioid use disorder) with a range of preventive services benefit both children and parents and that pairing effective parenting interventions with substance use treatment has benefits that go beyond substance use treatment alone.[138,139] Integrated programs are associated with improvements in child development and emotional and behavioral functioning.[139] They are also associated with positive impacts on maternal mental health, birth outcomes, parent-child attachment, and positive parenting behaviors.[138,140-142]

Sector Involvement

Public health can play an important and unique role in preventing ACEs. Public health agencies, which typically place prevention at the forefront of efforts and work to create broad population-level impact, can bring critical leadership and resources to bear on this problem. For example, these agencies can serve as a convener, bringing together partners and stakeholders to plan, prioritize, and coordinate prevention efforts.[25-29] Public health agencies are also well positioned to collect and disseminate data, implement preventive measures, evaluate programs, and track progress.[25-29] Although public health can be a lead in preventing ACEs, the strategies and approaches outlined here cannot be accomplished by the public health sector alone.

Other sectors vital to preventing ACEs and mitigating the immediate and long-term harms of ACEs include, but are not limited to, education, government (local, state, and federal), social services, health services, business and labor, public safety, justice, housing, media, and organizations that comprise civil society such as faith-based organizations, youth-serving organizations, domestic violence and sexual assault coalitions, foundations and other non-governmental organizations.[25-29] Collectively, these sectors can make a difference in preventing ACEs by impacting the various contexts and underlying risks that contribute to violence and adversity and by supporting safe, stable, nurturing relationships and environments for all children.

Monitoring and Evaluation

Monitoring and evaluation are necessary components of the public health approach to prevention. Timely and reliable data are essential for monitoring the extent of the problem, determining how best to utilize resources, and evaluating the impact of prevention efforts. Data are also necessary for program planning and implementation.

Surveillance data can help researchers and practitioners track changes in the burden and consequences of ACEs. There are a number of surveillance systems that collect information related to ACE exposures and consequences at the federal, state, and local levels. For example, the Behavioral Risk Factor Surveillance System (BRFSS) is an example of a surveillance system that provides state data on previous exposure to ACEs among adults aged 18 and older reporting on their childhood. The system also gathers information on a range of health conditions to assess the impact of ACE exposures on health. The Youth Risk Behavior Surveillance System (YRBSS) collects information on multiple forms of violence among high-school students in the United States, including information about lifetime and past year sexual violence victimization, past year physical and sexual teen dating violence victimization, youth violence (including bullying), and suicidal behavior. It also collects lifetime and current use of alcohol and other substances. YRBS data are available at the local, state, and national levels.

Other sources of data include the National Survey of Children's Exposure to Violence (NatSCEV), the National Intimate Partner and Sexual Violence Survey (NISVS), the National Survey of Children's Health (NSCH), and the National Crime Victimization Survey (NCVS). NatSCEV provides self-reported data on violence against children through a nationally representative random-digit dial survey of children (aged 0-9) and youth (aged 10-18). Youth report on their own past year and lifetime victimization experiences across five general areas (i.e., conventional crime, child abuse and neglect, peer and sibling victimization, sexual victimization, and witnessing violence). Caregivers report on these victimizations for children. NISVS collects lifetime and past year information on intimate partner violence, sexual violence, and stalking victimization at both the state and national level, including data on characteristics of the victimization, demographic information on victims and perpetrators, impacts of the violence, age at first experiences of these types of violence, and health conditions associated with the violence. The NSCH is a nationally representative survey that gathers information on the physical and emotional health of children aged 0-17 and the child's family, neighborhood, school, and social context. The survey includes several ACE exposures as well as information on family, school, and neighborhood protective factors. The NCVS gathers information from a nationally representative sample of households on the frequency, characteristics, and consequences of criminal victimization among persons aged 12 and older in the United States.

National, state, and local data are available from other sources as well. The National Child Abuse and Neglect Data System (NCANDS) provides official reports of child abuse and neglect made to Child Protective Services. The National Violent Death Reporting System (NVDRS) is a state-based surveillance system that combines data from death certificates, law enforcement reports, and coroner or medical examiner reports to provide detailed information on the circumstances of violent deaths such as homicide and suicide, including intimate partner violence, mental health problems and treatment, and recent life stressors. Information about violent offenses, victimization, and involvement with the justice system are also available from the Department of Justice's Bureau of Justice Statistics, the Federal Bureau of Investigation's Uniform Crime Reports, and the Office of Juvenile Justice and Delinquency Statistical Briefing Book.

No matter the data source, it is important that routine and ongoing monitoring align with the work of multiple federal, state-level, and local partners and agencies to achieve a more comprehensive understanding of ACE exposures, their consequences, and effective prevention efforts in this area. It is also important to track progress of prevention efforts and to evaluate the impact of those efforts. Evaluation data, produced through program implementation and evaluation, is essential in providing information on what does or does not work to prevent ACEs and associated risk and protective factors.

Conclusion

ACEs are a serious public health problem with far-reaching consequences across the lifespan. They are also preventable. The strategies outlined here, drawn from the *CDC Technical Packages to Prevent Violence,* are intended to change norms, environments, and behaviors in ways that can prevent ACEs from happening in the first place as well as to lessen the immediate and long-term harms of ACEs. To maximize impact, these strategies and approaches are intended to be used in combination as part of a comprehensive effort to help ensure that all children have safe, stable, nurturing relationships and environments in which to thrive and achieve lifelong health and success. The hope is that multiple sectors, such as public health, health care, education, public safety, justice, social services, and business will use this information as a guide and join CDC in efforts to prevent ACEs.

Learn More

CDC's Technical Packages to Prevent Violence
https://www.cdc.gov/violenceprevention/communicationresources/pub/technical-packages.html

CDC's *Violence Prevention in Practice* is a resource to help state and local health agencies and other stakeholders with their violence prevention efforts
https://vetoviolence.cdc.gov/apps/violence-prevention-practice/#!/

References

1. Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the Adverse Childhood Experiences (ACE) study. *American Journal of Preventive Medicine, 14*, 245-258.
2. What is child trauma? National Child Traumatic Stress Network. (2019). Retrieved from https://www.nctsn.org/what-is-child-trauma/about-child-trauma
3. Merrick, M. T., Ford, D. C., Ports, K. A., & Guinn, A. S. (2018). Prevalence of adverse childhood experiences from the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. *JAMA Pediatrics, 172*(11), 1038-1044.
4. Shonkoff, J. P., & Phillips, D. A. (eds). (2000). *From neurons to neighborhoods: The science of early childhood development.* National Research Council and Institute of Medicine. Washington DC: National Academy Press.
5. Shonkoff, J. P., Garner, A. S., & Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care and Section on Developmental and Behavioral Pediatrics. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, *129(1),* e232-e246.
6. Dube, S. R., Anda, R. F., Felitti, V. J., Edwards, V. J,. & Croft, J. B. (2002). Adverse Childhood Experiences and personal alcohol abuse as an adult. *Addictive Behaviors, 27*(5), 713-725.
7. Dube, S.R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, W. H., & Anda, R. F. (2003). Childhood abuse, neglect and household dysfunction and the risk of illicit drug use: The Adverse Childhood Experience Study. *Pediatrics, 111*(3), 564-572.
8. Anda, R. F., Whitfield, C. L., Felitti, V. J., Chapman, D., Edwards, V. J., Dube, S. R., & Williamson, D. F. (2002) Adverse childhood experiences, alcoholic parents, and later risk of alcoholism and depression. *Psychiatric Services, 53*(8), 1001-1009.
9. Hillis, S. D., Anda, R. F., Felitti, V. J., & Marchbanks, P. A. (2001). Adverse childhood experiences and sexual risk behaviors in women: a retrospective cohort study. *Family Planning Perspectives, 33*, 206-211.
10. Leeb, R. T., Lewis, T., & Zolotor, A. J. (2011). A review of the physical and mental health consequences of child abuse and neglect and implications for practice. *American Journal of Lifestyle Medicine, 5*(5), 454-468.
11. Hillis, S. D., Anda, R. F., Felitti, V. J., Nordenberg, D., & Marchbanks, P. A. (2000). Adverse childhood experiences and sexually transmitted diseases in men and women: a retrospective study. *Pediatrics, 106*(1), E11.
12. Chapman, D. P., Anda, R. F., Felitti, V. J., Dube, S. R., Edwards, V. J., Whitfield, C. L. (2004). Adverse childhood experiences and the risk of depressive disorders in adulthood. *Journal of Affective Disorders, 82*, 217-225.
13. Hillis, S. D., Anda, R. F., Dube, S. R., Felitti, V. J., Marchbanks, P. A., & Marks, J. S. (2004). The association between adverse childhood experiences and adolescent pregnancy, long-term psychosocial outcomes, and fetal death. *Pediatrics, 113(*2), 320-327.
14. Edwards, V. J., Anda, R. F., Dube, S. R., Dong, M., Chapman, D. F., & Felitti, V. J. (2005). The wide-ranging health consequences of adverse childhood experiences. In Kathleen Kendall-Tackett and Sarah Giacomoni (eds.) *Victimization of Children and Youth: Patterns of Abuse, Response Strategies*, Kingston, NJ: Civic Research Institute.
15. Gilbert, L. K., Breiding, M. J., Merrick, M. T, Parks, S. E, Thompson, W. W., Dhingra, S. S., & Ford, D. C. (2015). Childhood adversity and adult chronic disease: an update from ten states and the District of Columbia, 2010. *American Journal of Preventive Medicine, 48*(3), 345-349.
16. Dube, S. R., Anda, R, F., Felitti, V. J., Chapman, D., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction and the risk of attempted suicide throughout the life span: findings from Adverse Childhood Experiences Study. *Journal of the American Medical Association, 286,* 3089-3096.

17. Metzler, M., Merrick, M. T., Klevens, J., Ports, K. A., & Ford, D. C. (2017). Adverse childhood experiences and life opportunities: shifting the narrative. *Children and Youth Services Review, 72,* 141-149.

18. Peterson, C., Florence, C., & Klevens, J. (2018). The economic burden of child maltreatment in the United States, 2015. *Child Abuse and Neglect, 86*, 178-183.

19. Peterson, C., DeGue, S., Florence, C., & Lokey, C. (2017). Lifetime economic burden of rape in the United States. *American Journal of Preventive Medicine, 52*(6), 691-701.

20. Peterson, C., Kearns, M. C., McIntosh, W. L., Estefan, L. F., Nicolaidis, C., McCollester, K. E., Gordon, A., & Florence, C. (2018). Lifetime economic burden of intimate partner violence among U.S. adults. *American Journal of Preventive Medicine, 55*(4), 433-444.

21. Centers for Disease Control and Prevention. (2019). Cost of Injury. Web-based Injury Statistics Query and Reporting System (WISQARS). Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Retrieved from http://www.cdc.gov/injury/wisqars/

22. National Scientific Council on the Developing Child. (2010). *Persistent fear and anxiety can affect young children's learning and development*. Working Paper No. 9. Retrieved from https://developingchild.harvard.edu/wp-content/uploads/2010/05/Persistent-Fear-and-Anxiety-Can-Affect-Young-Childrens-Learning-and-Development.pdf

23. Duke, N. N., Pettingell, S. L., McMorris, B. J., & Borowsky, I. W. (2010). Adolescent violence perpetration: associations with multiple types of adverse childhood experiences. *Pediatrics, 125*(4), e778-86.

24. Fox, B. H., Pereza, N., Cass, E., Bagliviob, M. T., & Epp, N. (2015). Trauma changes everything: examining the relationship between adverse childhood experiences and serious, violent and chronic juvenile offenders. *Child Abuse & Neglect, 46,* 163-173.

25. Basile, K.C., DeGue, S., Jones, K., Freire, K., Dills, J., Smith, S.G., & Raiford, J.L. (2016). *STOP SV: A technical package to prevent sexual violence*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

26. David-Ferdon, C., Vivolo-Kantor, A. M., Dahlberg, L. L., Marshall, K. J., Rainford, N. & Hall, J. E. (2016). *A comprehensive technical package for the prevention of youth violence and associated risk behaviors.* Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

27. Fortson, B. L., Klevens, J., Merrick, M. T., Gilbert, L. K., & Alexander, S. P. (2016). *Preventing child abuse and neglect: a technical package for policy, norm, and programmatic activities.* Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

28. Niolon, P. H., Kearns, M., Dills, J., Rambo, K., Irving, S., Armstead, T., & Gilbert, L. (2017). *Preventing intimate partner violence across the lifespan: a technical package of programs, policies, and practices.* Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

29. Stone, D.M., Holland, K.M., Bartholow, B., Crosby, A.E., Davis, S., & Wilkins, N. (2017). *Preventing suicide: a technical package of policies, programs, and practices*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

30. Frieden, T. R. (2014). Six components necessary for effective public health program implementation. *American Journal of Public Health, 104,* 1, 17-22.

31. Stith, S. M., Liu, T., Davies, L. C., Boykin, E. L., Alder, M. C., Harris, J. M., Som, A., McPherson, M., & Dees, J. E. M. E. G. (2009). Risk factors in child maltreatment: a meta-analytic review of the literature. *Aggression and Violent Behavior, 14,* 13-29.

32. Capaldi, D. M., Knoble, N. B., Shortt, J. W., & Kim, H. K. (2012). A systematic review of risk factors for intimate partner violence. *Partner Abuse*, *3*(2), 231-80.

33. Child Trends Databank. (2019). *Children in poverty*. Retrieved from https://www.childtrends.org/?indicators=children-in-poverty

34. Cooper, K., & Stewart, K. (2013). *Does money affect children's outcomes? A systematic review.* York, UK: Joseph Rowntree Foundation. Retrieved from http://www.jrf.org.uk/publications/does-money-affect-childrens-outcomes

35. Levitie, J., & Koulish, J. (2008). *State earned income tax credits: 2008 legislative update*. Center on Budget and Policy Priorities. Retrieved from http://www.cbpp.org/cms/?fa=view&id=462

36. Waldfogel, J. (2004). Welfare reform and the child welfare system. *Children and Youth Services Review, 26*, 919-929.

37. Arno, P. S., Sohler, N., Viola, D., & Schechter, C. (2009). Bringing health and social policy together: the case of the Earned Income Tax Credit. *Journal of Public Health Policy, 30*, 198-207.

38. Dahl, G., & Lochner, L. (2012). The impact of family income on child achievement: evidence from the Earned Income Tax Credit. *American Economic Review, 102*(5), 1927-1956.

39. Marr, C., Charite, J., & Huang, C. C. (2013). *Earned Income Tax Credit promotes work, encourages children's success at school, research finds*. Center on Budget and Policy Priorities. Retrieved from www.cbpp.org/files/6-26-12tax.pdf

40. Evans, W. N., & Garthwaite, C. L. (2010). *Giving mom a break: The impact of higher EITC payments on maternal health*. NBER Working Paper No. 16296. Retrieved from https://www.nber.org/papers/w16296

41. Milligan, K., & Stabile, M. (2011). Do child tax benefits affect the well-being of children? Evidence from Canadian child benefit expansions. *American Economic Journal: Economic Policy, 3*, 175-205.

42. Michalopoulos, C., Lundquist, E., & Castells, N. (2010). *The effects of child care subsidies for moderate-income families in Cook County, Illinois*. New York, New York: MDRC.

43. Morrissey, T. W., & Warner, M. E. (2007). Why early care and education deserves as much attention, or more, than prekindergarten alone. *Applied Development Science, 11*(2), 47-70.

44. Gordon, R. A., Usdansky, M. L., Wang, X., & Guzman, A. (2011). Child care and mothers' mental health: is high-quality care associated with fewer depressive symptoms? *Family Relations, 60*, 446-460.

45. Wickham, M. E., Senthilselvan, A., Wild, T. C., Hoglund, W. L., & Colman, I. (2015). Maternal depressive symptoms during childhood and risky adolescent health behaviors. *Pediatrics, 135*(1), 59-67.

46. Waldfogel, J. (1997). Working mothers then and now: a cross-cohort analysis of the effects of maternity leave on women's pay. Paper presented at the Annual Meeting of the Population Association of America, New Orleans, LA.

47. Chatterji, P., & Markowitz, S. (2005). Does the length of maternity leave affect maternal health? *Southern Economic Journal, 72*(1), 16-41.

48. Klevens, J., Luo, F., Xu, L., Peterson, C., & Latzman, N. (2016). Paid family leave's effect on hospital admissions for pediatric abusive head trauma. *Injury Prevention, 22*, 442-445.

49. Gartland, D., Hemphill, S. A., Hegarty, K., & Brown, S. J. (2011). Intimate partner violence during pregnancy and the first year postpartum in an Australian pregnancy cohort study. *Maternal and Child Health Journal, 15*(5), 570-578.

50. Morsy, L., & Rothstein, R. (2015). *Parents' non-standard work schedules make adequate childrearing difficult: Reforming labor market practices can improve children's cognitive and behavioral outcomes*. Economic Policy Institute, Issue Brief #400. Retrieved from https://www.epi.org/files/pdf/88777.pdf

51. Han, W. (2005). Maternal nonstandard work schedules and child cognitive outcomes. *Child Development, 76*(1), 137-154.

52. Joshi, P., & Bogen, K. (2007). Nonstandard schedules and young children's behavioral outcomes among working low-income families. *Journal of Marriage and Family, 69*, 139-156.

53. Golden, L. (2015). *Irregular work scheduling and its consequences*. Economic Policy Institute Briefing Paper #394. Retrieved from https://www.epi.org/files/pdf/82524.pdf

54. Poole, M. K., Seale, D. W., & Taylor, C. A. (2014). A systematic review of universal campaigns targeting child physical abuse. *Health Education Research, 29*(3), 388-432.

55. Bussman, K., Erthal, C., & Schroth, A. (2011). Effects of banning corporal punishment in Europe – A five nation comparison. In J. E. Durrant & A. B. Smith (Eds), *Global pathways to abolishing physical punishment* (pp. 299-322). New York: Routledge.

56. Zolotor, A. J., & Puzia, M. E. (2010). Bans against corporal punishment: a systematic review of the laws, changes in attitudes and behaviours. *Child Abuse Review, 19*, 229-247.

57. Dahlberg, L. L., & Simon, T. R. (2006). Predicting and preventing youth violence: developmental pathways and risk. In J. R. Lutzker (Ed.), *Preventing violence: research and evidence-based intervention strategies* (pp. 97-124). Washington, DC: American Psychological Association.

58. Durrant, J., & Ensom, R. (2012). Physical punishment of children: lessons from 20 years of research. *Canadian Medical Association Journal,* 184(12), 1373-1377.

59. Font, S. A., & Caige, J. (2018). Dimensions of physical punishment and their associations with children's cognitive performance and school adjustment. *Child Abuse & Neglect, 75,* 29-40.

60. Coker, A. L., Fisher, B. S., Bush, H. M., Swan, S. C., Williams, C. M., Clear, E. R., & DeGue, S. (2015). Evaluation of the Green Dot bystander intervention to reduce interpersonal violence among college students across three campuses. *Violence Against Women, 21*(12), 1507-1527.

61. Coker, A. L., Bush, H. M., Cook-Craig, P. G., DeGue, S. A., Clear, E. R., Brancato, C. J., Fisher, B. S., & Recktenwald, E. A. (2017). RCT testing bystander effectiveness to reduce violence. *American Journal of Preventive Medicine 52*(5), 566-578.

62. Miller, E., Tancredi, D. J., McCauley, H. L., Decker, M. R., Virata, M. C. D., Anderson, H. A., O'Conner, B., & Silverman, J. G. (2013). One-year follow-up of a coach-delivered dating violence prevention program: a cluster randomized controlled trial. *American Journal of Preventive Medicine, 45*(1), 108-112.

63. Sama-Miller, E., Akers, L., Mraz-Esposito, A., Zukiewicz, M., Avellar, S., Paulsell, D., & DeGrosso, P. (2017). *Home visiting evidence of effectiveness review: Executive summary*. Washington, DC: Administration for Children and Families, U.S. Department of Health and Human Services Retrieved from https://homvee.acf.hhs.gov/homvee_executive_summary_august_2017_final_508_compliant.pdf

64. Olds, D. L., Eckenrode, J., Henderson, C. R., Kitzman, H., Powers, J., Cole, R., Sidora, K., Morris, P., Pettitt, L. M., & Luckey, D. (1997). Long-term effects of home visitation on maternal life course and child abuse and neglect: fifteen-year follow-up of a randomized trial. *Journal of the American Medical Association, 278*(8), 637-643.

65. Olds, D. L., Henderson, C. R., & Kitzman, H. (1994). Does prenatal and infancy nurse home visitation have enduring effects on qualities of parental caregiving and child health at 25 to 50 months of life? *Pediatrics, 93*(1), 89-98.

66. Olds, D. L., Henderson, C. R., Cole, R., Eckenrode, J., Kitzman, H., Luckey, D., Pettitt, L., Sidora, K., Morris, P., & Powers, J. (1998). Long-term effects of Nurse Home Visitation on children's criminal and antisocial behavior: 15-year follow-up of a randomized controlled trial. *Journal of the American Medical Association, 280*(14), 1238-1244.

67. Eckenrode, J., Campa, M., Luckey, D. W., Henderson Jr., C. R., Cole, R., Kitzman, H., Anson, E., Sidora-Arcoleo, K., Powers, J., & Olds, D. L. (2010). Long-term effects of prenatal and infancy nurse home visitation on the life course of youths: 19-year follow-up of a randomized trial. *Archives of Pediatric and Adolescent Medicine, 164*(1), 9-15.

68. Olds, D. L., Kitzman, H., Hanks, C., Cole, R., Anson, E., Sidora-Arcoleo, K., Luckey, D. W., Henderson C. R. Jr., Holmberg, J., Tutt, R. A., Stevenson, A. J., & Bondy, J. (2007). Effects of nurse home visiting on maternal and child functioning: age-9 follow-up of a randomized trial. *Pediatrics, 120*(4), e832-e845.

69. Olds, D. L., Robinson, J., Pettitt, L., Luckey, D. W., Holmberg, J., Ng, R. K., Isaacs, K., Sheff, L., & Henderson, C. R. Jr. (2004). Effects of home visits by paraprofessionals and by nurses: age 4 follow-up results of a randomized trial. *Pediatrics, 114*(16), 1560-1568.

70. Cash, S. J., & Wilke, D. J. (2003). An ecological model of maternal substance abuse and child neglect: issues, analyses, and recommendations. *American Journal of Orthopsychiatry, 73*, 392-404.

71. Schnitzer, P. G., & Ewigman, B. G. (2005). Child deaths resulting from inflicted injuries: household risk factors and perpetrator characteristics. *Pediatrics, 116*(5), e687-e693.

72. Love, J. M., Kisker, E. E., Ross, C., Constantine, J., Boller, K., Brooks-Gunn, J., Chazan-Cohen, R., Tarullo, L. B., Brady-Smith, C., Fuligni, A. S., Schochet, P. Z., Paulsell, D., & Vogel, C. (2005). The effectiveness of Early Head Start for 3-year-old children and their parents: lessons for policy and programs. *Developmental Psychology, 41*, 885-901.

73. Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: a 15-year follow-up of low-income children in public schools. *Journal of the American Medical Association, 285*(18), 2339-2346.

74. Reynolds, A. J., Temple, J. A., Ou, S. R., Robertson, D. L., Mersky, J. P., Topitzes, J. W., & Niles, M. D. (2007). Effects of a school-based, early childhood intervention on adult health and well-being: a 19-year follow-up of low-income families. *Archives of Pediatrics and Adolescent Medicine, 161*(8), 730-739.

75. Reynolds, A. J., Temple, J. A., White. B. A. B., Ou, S., & Robertson, D. L. (2011). Age-26 cost-benefit analysis of the Child-Parent Early Education Program. *Child Development, 82*(1), 379-404.

76. Reynolds, A. J., & Robertson, D. L. (2003). School-based early intervention and later child maltreatment in the Chicago Longitudinal Study. *Child Development, 74*(1), 3-26.

77. Hahn, R., Fuqua-Whitley, D., Wethington, H., Lowy, J., Crosby, A., Fullilove, M., …& Task Force on Community Preventive Services. (2007). Effectiveness of universal school-based programs to prevent violent and aggressive behavior: a systematic review. *American Journal of Preventive Medicine, 33*(2), S114-S129.

78. Matjasko, J. L., Vivolo-Kantor, A. M., Massetti, G. M., Holland, K. M., Holt, M. K., & Cruz, J. D. (2012). A systematic meta-review of evaluations of youth violence prevention programs: common and divergent findings from 25 years of meta-analyses and systematic reviews. *Aggression and Violent Behavior, 17*(6), 540-552.

79. Center for the Study and Prevention of Violence. (2019). Blueprints for violence prevention. Boulder, CO: University of Colorado Boulder, Institute of Behavioral Science, Center for the Study and Prevention of Violence. Retrieved from http:// www.colorado.edu/cspv/blueprints/

80. Botvin, G. J., Griffin, K. W., & Nichols, T. D. (2006). Preventing youth violence and delinquency through a universal school-based prevention approach. *Prevention Science*, *7*(4), 403-408.

81. Dolan, L. J., Kellam, S. G., Brown, C. H., Werthamer-Larsson, L., Rebok, G. W., Mayer, L. S., …& Wheeler, L. T. (1993). The short term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement. *Journal of Applied Developmental Psychology, 14*(3), 317-345.

82. Kellam, S. G., Rebok, G. W., Ialongo, N., & Mayer, L. S. (1994). The course and malleability of aggressive behavior from early first grade into middle school: results of a developmental epidemiologically-based preventive trial. *Journal of Child Psychology and Psychiatry 35*(2), 259-282.

83. Kellam, S. G., Brown, C. H., Poduska, J. M., Ialongo, N. S., Wang, W., Toyinbo, P., …& Wilcox, H. C. (2008). Effects of a universal classroom behavior management program in first and second grades on young adult behavioral, psychiatric, and social outcomes. *Drug and Alcohol Dependence, 95*(1), S5-S28.

84. Petras, H., Kellam, S. G., Brown, C. H., Muthen, B. O., Ialongo, N. S., & Poduska, J. M. (2008). Developmental epidemiological courses leading to antisocial personality disorder and violent criminal behavior: effects by young adulthood of a universal preventive intervention in first- and second-grade classrooms. *Drug and Alcohol Dependence, 95*(Suppl 1), 45-59.

85. Greenberg, M. T., & Kusché, C. A. (2006). Building social and emotional competence: The PATHS curriculum. In S. R. Jimerson & M. Furlong (Eds.), *Handbook of school violence and school safety: From research to practice* (pp. 395-412). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

86. Crean, H. F., & Johnson, D. B. (2013). Promoting Alternative THinking Strategies (PATHS) and elementary school aged children's aggression: results from a cluster randomized trial. *American Journal of Community Psychology, 52*(1-2), 56-72.

87. Wilcox, H. C., Kellam, S. G., Brown, C. H., Poduska, J. M., Ialongo, N. S., Wang, W., & Anthony, J. C. (2008). The impact of two universal randomized first- and second-grade classroom interventions on young adult suicide ideation and attempts. *Drug and Alcohol Dependence, 95*(Suppl. 1), S60-S73.

88. Schonfeld, D. J., Adams, R. E., Fredstrom, B. K., Weissberg, R. P., Gilman, R., Voyce, C., … & Speese-Linehan, D. (2015). Cluster-randomized trial demonstrating impact on academic achievement of elementary social-emotional learning. *School Psychology Quarterly, 30*(3), 406-420.

89. Niolon, P. H., Vivolo-Kantor, A. M., Tracy, A. J., Latzman, N. E., Little, T. D., DeGue, S., … & Tharp, A., T. (2019) An RCT of Dating Matters®: effects on teen dating violence and relationship behaviors. *American Journal of Preventive Medicine, 57*(1):13-23.

90. Foshee, V. A., Bauman, K. E., Ennett, S. T., Linder, G. F., Benefield, T., & Suchindran, C. (2004). Assessing the long-term effects of the Safe Dates program and a booster in preventing and reducing adolescent dating violence victimization and perpetration. *American Journal of Public Health, 94*(4), 619-624.

91. Wolfe, D. A., Crooks, C., Jaffe, P., Chiodo, D., Hughes, R., Ellis, W., Stitt, L., & Donner, A. (2009). A school-based program to prevent adolescent dating violence: a cluster randomized trial. *Archives of Pediatrics & Adolescent Medicine*, *163*(8), 692-699.

92. Vivolo-Kantor, A. M., Niolon, P. H., Tracy, A., Latzman, N.E., Little, T.D., DeGue, S., … & Tharp, A., T. (2019). Middle school effects of the Dating Matters® comprehensive approach on peer violence, bullying, and cyber-bullying: a cluster-randomized controlled trial. *Prevention Science* (under peer-review).

93. Estefan, L. F., Vivolo-Kantor, A. M., Niolon, P. H., Tracy, A. J., Latzman, N., Little, T. D., … & Tharp, A., T. (2019). Effects of the Dating Matters® comprehensive prevention model on delinquent behaviors in middle school youth: a cluster-randomized controlled trial. *Prevention Science* (under peer-review).

94. Foshee, V. A., Reyes, L. M., Agnew-Brune, C. B., Simon, T. R., Vagi, K. J., Lee, R. D., & Suchindran, C. (2014). The effects of the evidence-based Safe Dates dating abuse prevention program on other youth violence outcomes. *Prevention Science, 15*(6), 907-916.

95. Menting, A. T., de Castro, B. O., & Matthys, W. (2013). Effectiveness of the Incredible Years® parent training to modify disruptive and prosocial child behavior: a meta-analytic review. *Clinical Psychology Review, 33*(8), 901-913.

96. Spoth, R. L., Redmond, C., & Shin, C. (2000). Reducing adolescents' aggressive and hostile behaviors: randomized trial effects of a brief family intervention 4 years past baseline. *Archives of Pediatrics & Adolescent Medicine, 154*(12), 1248-1257.

97. Spoth, R., Redmond, C., & Lepper, H. (1999). Alcohol initiation outcomes of universal family focused preventive interventions: one-and two-year follow-ups of a controlled study. *Journal of Studies on Alcohol, 13,* 103-110.

98. Spoth, R. L., Redmond, C., & Shin, C. (2001). Randomized trial of brief family interventions for general populations: adolescent substance use outcomes 4 years following baseline. *Journal of Consulting & Clinical Psychology, 69*(4), 627-642.

99. Spoth, R., Trudeau, L., Shin, C., Ralston, E., Redmond, C., Greenberg, M., & Feinberg, M. (2013). Longitudinal effects of universal preventive intervention on prescription drug misuse: three randomized controlled trials with late adolescents and young adults. *American Journal of Public Health, 103*(4), 665-672.

100. Webster-Stratton, C. (2016). The Incredible Years® series: a developmental approach. In M. J. Van Ryzin, K. L. Kumpfer, G. M. Fosco, & M. T. Greenberg (Eds.), *Family-based prevention programs for children and adolescents: Theory, research, and large-scale dissemination* (pp. 42-67). New York, NY: Psychology Press.

101. DuBois, D. L., & Karcher, M. J. (Eds.). (2014). *Handbook of youth mentoring*. Second edition. Thousand Oaks, CA: Sage Publications.

102. Sickmund, M., & Puzzanchera, C. (Eds.). (2014). *Juvenile offenders and victims: 2014 national report*. Pittsburgh, PA: National Center for Juvenile Justice. Retrieved from http://www.ojjdp.gov/ojstatbb/nr2014/

103. Tolan, P. H., Henry, D. B., Schoeny, M. S., Lovegrove, P., & Nichols, E. (2014). Mentoring programs to affect delinquency and associated outcomes of youth at risk: a comprehensive meta-analytic review. *Journal of Experimental Criminology, 10*(2), 179-206.

104. Durlak, J. A., Weissberg, R. P., & Pachan, M. (2010). A meta-analysis of after-school programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology, 45*(3-4), 294–309.

105. Big Brothers Big Sisters of America. (2016). *110 years of history*. Tampa, FL: Big Brothers Big Sisters of America. Retrieved from http://www.bbbs.org/site/c.9iILI3NGKhK6F/b.5960955/k.E56C/Starting_something_since_1904.htm

106. Grossman, J. B., & Tierney, J. P. (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters program. *Evaluation Review*, *22*(3), 403-426.

107. Herrera, C., Grossman, J. B., Kauh, T. J., & McMaken, J. (2011). Mentoring in schools: an impact study of Big Brothers Big Sisters school-based mentoring. *Child Development*, *82*(1), 346-361.

108. Chan C. S., Rhodes, J. E., Howard W. J., Lowe, S. R., Schwartz, S. E. O., & Herrera C. (2013). Pathways of influence in school-based mentoring: the mediating role of parent and teacher relationships. *Journal of School Psychology, 51*(1), 129-142.

109. Gottfredson, D. C., Cross, A., & Soulé, D. A. (2007). Distinguishing characteristics of effective and ineffective afterschool programs to prevent delinquency and victimization. *Criminology & Public Policy, 6*(2), 601-631.

110. After School Matters. (2016). Program information and requirements. Chicago, IL: After School Matters. Retrieved from http://www.afterschoolmatters.org/teens/programs/

111. Goerge, R. M., Cusick, G. R., Wasserman, M., & Gladden, R. M. (2007). After-school programs and academic impact: a study of Chicago's After School Matters. Chicago, IL: Chapin Hall, University of Chicago. Retrieved from http://www.chapinhall.org/sites/default/files/publications/ChapinHallDocument(2)_0.pdf

112. Hirsch, B. J., Hedges, L. V., Stawicki, J. A., & Mekinda, M. A. (2011). After-school programs for high school students: an evaluation of After School Matters. Technical report. Evanston, IL: Northwestern University. Retrieved from http://www.sesp.northwestern.edu/docs/publications/1070224029553e7f678c09f.pdf

113. Powerful Voices. (2011). Outcomes for girls: highlights of our 2011 outcome evaluation results. Retrieved from http://www.powerfulvoices.org/success/2011results.shtml

114. Rutherford, H. J. V., Barry, D., T., & Mayes, L. C. (2018). *Family-focused approaches to opioid addiction improve the effectiveness of treatment.* Society for Research in Child Development, Child Evidence Brief, No. 2 (June). Retrieved from https://www.srcd.org/policy-media/child-evidence-briefs/opioid-addiction

115. American Society for Addiction Medicine. (2015). *National practice guideline for the use of medications in the treatment of addiction involving opioid use*. Retrieved from https://www.asam.org/resources/guidelines-and-consensus-documents/npg

116. Dubowitz, H., Feigelman, S., Lane, W., & Kim, J. (2009). Pediatric primary care to help prevent child maltreatment: the Safe Environment for Every Kid (SEEK) model. *Pediatrics, 123*(3), 858-864.

117. Dubowitz, H., Lane, W. G., Semiatin, J. N., & Magder, L. S. (2012). The SEEK model of pediatric primary care: can child maltreatment be prevented in a low-risk population? *Academic Pediatrics, 12*(4), 259-268.

118. Dubowitz, H., Lane, W. G., Semiatin, J. N., Magder, L. S., Venepally, M., & Jans, M. (2011). The Safe Environment for Every Kid model: impact on pediatric primary care professionals. *Pediatrics, 127*(4), 962-970.

119. Sullivan, C.M. (2012, October). *Domestic violence shelter services: a review of the empirical evidence*. Harrisburg, PA: National Resource Center on Domestic Violence. Retrieved from http://www.dvevidenceproject.org.

120. Wasco, S. M., Campbell, R., Howard, A., Mason, G. E., Staggs, S. L., Schewe, P. A., & Riger, S. (2004). A statewide evaluation of services provided to rape survivors. *Journal of Interpersonal Violence, 19*(2), 252-263.

121. Campbell, R. (2006). Rape survivors' experiences with the legal and medical systems: do rape victim advocates make a difference? *Violence Against Women, 12*(1), 30-45.

122. Cary, C. E., & McMillen, J. C. (2012). The data behind the dissemination: a systematic review of trauma-focused cognitive behavioral therapy for use with children and youth. *Children and Youth Services Review, 34*(4), 748-757.

123. de Arellano, M. A., R. Lyman, D. R., Jobe-Shields, L., George, P., Dougherty, R. H., Daniels, A. S., … & Delphin-Rittmon, M. E. (2014). Trauma-focused cognitive behavioral therapy: assessing the evidence. *Psychiatric Services, 65*(5), 591–602.

124. Mannarino, A. P., Cohen, J. A., Deblinger, E., Runyon, M. K., & Steer, R. A. (2012). Trauma-Focused Cognitive-Behavioral Therapy for sustained impact of treatment 6 and 12 months later. *Child Maltreatment, 17*(3), 231-241.

125. Cohen, J. A., Deblinger, E., Mannarino, A. P., & Steer, R. A. (2004). A multisite, randomized controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(4), 393-402.

126. Deblinger, E., Mannarino, A. P., Cohen, J. A., & Steer, R. A. (2006). A follow-up study of a multisite, randomized, controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*(12), 1474-1484.

127. Dorsey, S., Briggs, E. C., & Woods, B. A. (2011). Cognitive-behavioral treatment for posttraumatic stress disorder in children and adolescents. *Child and Adolescent Psychiatric Clinics of North America, 20*(2), 255-269.

128. Stein, B. D., Jaycox, L. H., Kataoka, S. H., Wong, M., Tu, W., Elliott, M. N., & Fink, A. (2003). A mental health intervention for schoolchildren exposed to violence: a randomized controlled trial. *Journal of the American Medical Association, 290*(5), 603-611.

129. Multisystemic Therapy Services. (2016). *Multisystemic Therapy (MST) research at a glance: Published MST outcome, implementation, and benchmarking studies*. Mount Pleasant, SC: Multisystemic Therapy Services. Retrieved from http://mstservices.com/files/outcomestudies.pdf.

130. van der Stouwe, T., Asscher, J. J., Stams, G. J. J. M., Deković, M., & van der Laan, P. H. (2014). The effectiveness of Multisystemic Therapy (MST): a meta-analysis. *Clinical Psychology Review, 34*(6), 468-481.

131. Sawyer, A. M., & Borduin, C. M. (2011). Effects of Multisystemic Therapy through midlife: a 21.9-year follow-up to a randomized clinical trial with serious and violent juvenile offenders. *Journal of Consulting and Clinical Psychology, 79*(5), 643-652.

132. Wagner, D. V., Borduin, C. M., Sawyer, A. M., & Dopp, A. R. (2014). Long-term prevention of criminality in siblings of serious and violent juvenile offenders: a 25-year follow-up to a randomized clinical trial of Multisystemic Therapy. *Journal of Consulting and Clinical Psychology, 82*(3), 492-499.

133. Borduin, C. M., Henggeler, S. W., Blaske, D. M., & Stein, R. J. (1990). Multisystemic treatment of adolescent sexual offenders. *International Journal of Offender Therapy and Comparative Criminology, 35*, 105-114.

134. Borduin, C. M., Schaeffer, C. M., & Heiblum, N. (2009). A randomized clinical trial of multisystemic therapy with juvenile sexual offenders: effects on youth social ecology and criminal activity. *Journal of Consulting and Clinical Psychology, 77*, 26-37.

135. Letourneau, E. J., Henggeler, S. W., Borduin, C. M., Schewe, P. A., McCart, M. R., Chapman, J. E., & Saldana, L. (2009). Multisystemic therapy for juvenile sexual offenders: 1-year results from a randomized effectiveness trial. *Journal of Family Psychology, 23*(1), 89-102.

136. Swenson, C. C., Schaeffer, C., Henggeler, S. W., Faldowski, R., & Mayhew, A. M. (2010). Multisystemic Therapy for child abuse and neglect: a randomized effectiveness trial. *Journal of Family Psychology, 24*, 497-507.

137. Schaeffer, C. M., Swenson, C. C., Tuerk, E. H., & Henggeler, S. W. (2013). Comprehensive treatment for co-occurring child maltreatment and parental substance abuse: outcomes from a 24-month pilot study of the MST-Building Stronger Families program. *Child Abuse and Neglect, 37*(8), 596-607.

138. Niccols, A., Milligan, K., Sword, W., Thabane, L., Henderson, J., & Smith, A. (2012). Integrated programs for mothers with substance abuse issues: a systematic review of studies reporting on parenting outcomes. *Harm Reduction Journal*, 9-14.

139. Niccols, A., Milligan, K., Smith, A., Sword, W., Thabanee, L., & Henderson, J. (2012). Integrated programs for mothers with substance abuse issues and their children: a systematic review of studies reporting on child outcomes. *Child Abuse & Neglect 36*, 308-322.

140. Milligan, K., Niccols, A., Sword, W., Thabane, L., Henderson, J., & Smith, A. (2011). Birth outcomes for infants born to women participating in integrated substance abuse treatment programs: a meta-analytic review. *Addiction Research & Theory, 19*, 6, 542-555.

141. Niccols, A., Milligan, K., Sword, W., Thabane, L., Henderson, J., Smith, A., Liu, J., & Jack, S. (2010). Maternal mental health and integrated programs for mothers with substance abuse issues. *Psychology of Addictive Behaviors, 24,* 466-474.

142. Neger, E. N., & Prinz, R. J. (2015). Interventions to address parenting and parental substance abuse: conceptual and methodological considerations. *Clinical and Psychological Review, 39,* 71–82.

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