

Intervening During Childhood and Adolescence to Prevent Mental, Emotional and Behavioral Disorders

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Continuing Education Information

Developments on multiple fronts are rapidly converging to create focused attention on the possibilities of preventing mental, emotional and behavioral disorders through interventions with children, youth and their families and communities. Mental health disorders create enormous psychosocial and economic costs during childhood and adolescence, including reduced school achievement and increased child welfare and juvenile justice costs – estimated at \$247 billion in 2007 (Eisenberg and Neighbors, 2007). Approximately half of all adults affected by mental health problems recall that their disorders started by their mid-teens, and three-quarters reported onset by their mid-twenties (Kessler, Berglund, et.al., 2005). National and state health care reform initiatives are taking note of the high costs of unidentified or undermanaged mental health conditions in health care costs, making mental health a legitimate part of preventive and primary care. At the same time, epidemiological and neurobiological research advances are contributing to a more unified understanding of the processes by which mental disorders emerge, creating more sophisticated and nuanced possibilities for prevention. These rapid developments led the National Research Council and Institute of Medicine (IOM) to issue a 2009 report, *Preventing Mental, Emotional, and Behavioral Disorders Among Young People* (O’Connell, et.al., 2009), notable for building on the foundation of but eclipsing the IOM’s 1994 outline of the application of prevention science to these disorders. In this brief overview, specific developments in the study of trauma, neurodevelopment and resilience will be described. All of these in turn are contributing to a transformed understanding of a public health approach to the mental health of children and adolescents, producing a model in which both wellness and disease amelioration have prominent roles.

Trauma and the Emergence of Health and Mental Health Disorders

The largest study to date to examine the lifespan health and social effects of childhood experiences which can be traumatic is the Adverse Childhood Experiences (ACE) Study, conducted by Vincent Felitti of Kaiser Permanente and Robert Anda of the Centers for Disease Control and Prevention (Felitti, Anda, et.al., 1998). ACEs were defined as experiences of childhood abuse and neglect, as well as growing up with domestic violence, substance abuse or mental illness, parental discord or criminal activity in the home. The ACE study, conducted with 17,421 Kaiser Permanente members, sought to measure the prevalence of ACEs in a non-clinical population, determine the overlap between different dimensions of adverse experience, and investigate the cumulative impact of ACEs on a wide variety of health outcomes. Beginning in the mid-1990s, Kaiser members undergoing a complete physical examination provided retrospective self-report on their childhood experiences; were assessed for current health status, disease conditions and health habits; and were then followed to determine medical utilization, morbidity and mortality.

ACE scores for participants were defined by their endorsement of experiences on the dimensions of emotional abuse, physical abuse, contact sexual abuse, familial substance abuse, familial mental illness, domestic violence, and household criminal behavior. In the decidedly upper-middle class Kaiser sample (39% college graduates and another 35% with some college; 75% Caucasian), ACEs were remarkably common, with prevalence rates varying from 28% for physical abuse to 5% for household criminal activity. More importantly for the analyses which followed, the prevalence of having at least one ACE was 64%, and 22% of the study population had three or more ACEs. Co-occurrence of specific ACEs was also marked, with specific patterns varying somewhat by gender; as the authors note, risk factors are not randomly distributed.

The simple summing of ACE scores across domains became a powerful predictive tool as health risk behaviors and health status variables were analyzed. Graded dose-response relationships emerged for health risk behaviors including early smoking initiation, current smoking and smoking persistence; early drinking initiation and problems with alcohol; drug abuse and addiction; history of sexually transmitted diseases and HIV risks; low physical activity; severe obesity; and poor self-rated health. Specific mental health variables also showed the same graded relationship to ACE scores, including lifetime history of depression, suicide attempts, and reported amnesia for childhood experiences. Both antidepressant and mood stabilizer prescriptions similarly varied with ACE scores. Multiple ACEs eventually appeared to take their toll in chronic disease, morbidity and mortality, with linear relationships established for heart disease, autoimmune diseases, liver disease, chronic obstructive pulmonary disease, and early death.

Combining these findings with emerging work in the developmental neurobiology of stress response, the ACE team has proposed an interpretive framework to describe – and hypothesize — the cumulative effects of ACEs. The ACE Pyramid proposes a set of developmental relationships in which the trauma associated with early adversity creates a cascade of effects, from:

- Social, emotional and cognitive impairments; leading to
- Adoption of health-risk behaviors; leading to
- Disease, disability and social problems; leading to
- Early death.



ACE Pyramid, courtesy of Centers for Disease Control and Prevention

In the sections which follow, some of the “scientific gaps” noted on the diagram will be found to be closing, and there is also a basis for understanding progressive selection within the population from one level to the next, as protective factors demonstrate their value. The basic ACE findings, though, are raising public health awareness around the nation (e.g., Washington Family Policy Council) of the ubiquity of early trauma and its complex and pernicious effects on both health and mental health.

Neurobiological Development

One specific ACE – familial mental illness – has an associated research base which illustrates well how the first level of predicted effects might be constructed. Using only the mental illness subset of caregiver depression, effects on young children’s social, emotional and cognitive development are profound. Caregiver depression has been variously linked to reduced responsiveness to the child’s need for interaction; reduced verbal interactions with the child; modeling of depressed affect; reduced capacity for secure attachment; reduced capacity for differential responses to child behavior; and increased risk of child diagnosis of depression as well as other childhood mental health problems such as anxiety and disruptive behavior disorders.

These findings are hardly surprising, given that during the most rapid period of brain development prenatally and in the first years of life, brain circuitry is most amenable to environmental influences, both positive and negative (National Scientific Council on the Developing Child, n.d.). The building blocks for both emotional and cognitive development reside in responsive, dependable interactions with caregiving adults; conversely, chronic or extreme adversity can derail typical brain development. Adverse experiences such as caregiver depression can be conceptualized as creating stress for the developing child, the effects of which may vary with the intensity and duration of the stressor as well as with mechanisms which ameliorate the stress. Using non-invasive techniques to measure stress hormones such as cortisol, the relationship between stress and developing brain architecture is being progressively mapped (Loman and Gunnar, 2010). While some level of stress is necessary to the development of new competencies, this “positive” stress is marked by return to typical hormone levels when the stressor is removed. Higher levels of stress might be considered neurobiologically “tolerable,” if they occur as discrete episodes which are managed or buffered with sufficient social support. These higher levels of stress are apparently common in the experiences of many young children – all of the ACE variables, for example, are correlated with poverty – but the presence of an attentive, connected caregiver can make it possible for the young child to contain and regulate her distress and return to typical functioning.

Stressors become “toxic,” though, when the stress produces an excessive, prolonged activation of the body’s stress response system that overwhelms and interferes with development. In this case, which might be produced by high intensity and/or chronic stressors in the absence of adequate social support, stress hormone levels remain high for extended periods of time and may not resume ordinary diurnal variation. Put simply, the young child’s body stays activated to accommodate perceived danger and fear; the emotional response system becomes acutely tuned at the expense of developing connections between areas of the brain controlling emotional regulation and emerging executive functions. Whether the emotional response most typically triggered is fight (aggression), flight (disrupted attachment) or freezing (numbing, detachment), the stage is set for the development of social and emotional problems, as well as for impairment in cognitive development.

Findings from two national data sets confirm that children exposed to toxic stressors develop mental health disorders in much the way predicted by the ACE study. The federal Substance Abuse and Mental Health Services Administration (SAMHSA, 2011) has developed the National Child Traumatic Stress Network (NCTSN), a collaborative network of grantees from academic, clinical and community entities. Among children receiving treatment through NCTSN (N=14,773), the most common traumatic experiences were loss of a caregiver (48%), witnessing domestic violence (47%) and living with a family member whose caregiving ability is impaired (44%). As with the ACE study, exposure to multiple types of trauma was common, with 40% of children and youth having experienced four or more traumatic event types (SAMHSA, 2011). A second data set maintained by SAMHSA, derived from its Children’s Mental Health Initiative (CMHI; N=7,819 children and youth with complete data at intake) grant program, found that among children known to have experienced at least one traumatic event, 9% were identified as having post-traumatic stress disorder or acute stress disorder, but children and youth with trauma exposure also commonly met criteria for attention deficit hyperactivity disorder (39%), mood disorders (38%), and oppositional defiant disorder (26%). Higher levels of exposure were linked to both higher levels of anxiety and depression and to greater aggression. And these mental health disorders had functional correlates as well: with greater trauma exposure came more school absences, greater use of alcohol and drugs, and more suicide attempts.

In addition to these graded dose-response relationships, the SAMHSA data sets also demonstrate age-related differences in response to trauma reflective of developmental incorporation of the experiences into emotional and cognitive mechanisms. While preschool children were most likely to act out aggressively, demonstrating their emotional dysregulation, school age children were more likely to manifest mood disturbances, and adolescents were more prone to anxiety and isolation. These differences serve as a reminder that while brain development in the early years is crucial, neurodevelopmental changes at

later periods of rapid reorganization also represent toxic vulnerabilities. In terms of the ACE pyramid, by early adolescence, the internal mechanisms have been established to potentiate health risk behaviors.

Resilience

While the discussion to this point largely illustrates the fragility of development, development is also extraordinarily robust, and continues in the face of adversity. Development may proceed with the effects of trauma on brain organization incorporated, leading to continuing – either more nuanced or more pronounced – mental health challenges. But a research tradition which has grown rapidly over the past two decades was based on the observation that some children appear to thrive despite all odds (cf. Masten and Coatsworth, 1996). This phenomenon, labeled resilience, is probably still popularly considered an individual trait, possessed by some children and youth and not others. As such, it is circular and almost wholly uninformative. More productively construed as a developmental outcome, it has led to increasingly sophisticated research programs investigating the circumstances in which it arises (risk and protective factors), the developmental processes and mechanisms through which it is created (developmental competencies), and the interventions (prevention) which capitalize on these factors to support it. Each of these will be discussed in turn.

Risk and Protective Factors

While trauma, broadly defined, undoubtedly leads the list of risk factors, a number of other circumstances and events have also been found to increase the probability of diagnosable mental health conditions. One rubric for organizing these which will also be helpful in considering interventions is that used by Schaffer and Yates (2010). In this view, risk factors occur at multiple levels of analysis: individual, e.g., genetic liabilities, prematurity, low cognitive abilities; family, including many of the forms of trauma already discussed but also other disruptions in care; and sociocultural, including the multiple and interacting effects of poverty, community violence, and discrimination. Risk factors may have direct or indirect relationships to outcomes, may be more or less amenable to intervention, and may in fact vary in whether they can be considered “preventable.” Most importantly, risks have come to be understood dynamically, varying across time and context, leading to the unsurprising finding that few mental health disorders have specific causal risk factors. Research has rather turned to the creation of cumulative risk models incorporating risk gradients, and placing risk status in a context which may foster the design of effective preventive interventions.

Risk, of course, set the stage for resilience research, which has opened new vistas in not only understanding and ameliorating negative trajectories (Yates and Masten, 2004), but in structuring new models of positive development. These models include both factors which can be considered promotive, those which set the stage for positive outcomes and would be considered “assets” for all children in a population, and more specific protective factors, which appear especially important in counteracting risks. Assets and protective factors also encompass individual, family and sociocultural domains, with particular inclusion of models of community assets (Search Institute, n.d.) which may affect the socioemotional health of the youth population. Some such assets readily attain prominence because of their congruence with social and community values, including school readiness; the investment of adults in child and youth achievement (mentors); and self-regulation. Schaffer and Yates (2010) note, though, that a “powerful but often overlooked protective factor” is history of prior positive adaptation; many domains show good evidence of continuity over time. The cumulative nature of development means that success is likely to build upon success, leading to incorporating the fundamental principle of developmental competencies in models of prevention.

Developmental Competencies

Masten and colleagues have provided a framework for understanding the concept of developmental competencies, or those “outcomes of effective adaptation in the environment...inferred from a track record of effectiveness in age-salient developmental tasks” (Masten, Burt and Coatsworth, 2006, p. 704). The term “developmental competencies” was in turn used by the Committee on the Prevention of Mental Disorders and Substance Abuse (O’Connell, et.al., 2009) to refer to “young people’s ability to accomplish a broad range of social, emotional, cognitive, moral, and behavioral tasks at various developmental stages” (p. 75). While the picture of the acquisition of all developmental competencies needed for successful negotiation of transition to adult functioning is still being written in discrete chapters, a combination of cross-sectional and longitudinal studies is beginning to demonstrate how successful development is constructed.

There are numerous attempts at taxonomies of developmental tasks as the child grows and matures, including common measurement of the outcomes of these negotiations. For the early childhood period, another IOM study, *From Neurons to Neighborhoods: The Science of Early Childhood Development*(2000) noted that the accomplishment of the developmental tasks of secure attachment, emotional regulation, executive functioning and appropriate conduct has been associated with both longer-term positive development and the prevention of mental health disorders. In middle childhood, some of these tasks are revisited and new challenges are added, with signal developmental tasks including academic achievement, following rules for appropriate behavior, and developing positive peer relations (Masten and Coatsworth, 1995). With adolescence and young adulthood come additional challenges, including identity development, exploration and evaluation of alternatives, and beginning commitments to work and relationships (Arnett, 2000).

What is important about these catalogs of tasks is that at each stage, there are both vulnerabilities and assets, risks and protections, which the developing child approaches with a history of relevant past successes and failures. One of the most robust demonstrations of this sequential dependency came from Project Competence (Masten, Burt and Coatsworth, 2006), a longitudinal study of 205 children in a community cohort assessed on three dimensions of competence (academic, social and conduct) followed to late adolescence and again assessed on relevant competencies (academic, social, conduct, job and romantic). While a particularly noteworthy finding was the persistence of childhood conduct competence in predicting adolescent success, especially academically, the pattern of early success persisting to later outcomes led the authors to propose the concept of developmental cascades, the process(es) by which competence and problems become linked across time. Cascades – which now may be either vicious or virtuous spirals – recall the levels of the ACE pyramid (Felitti, Anda, et.al, 1998) with which this article opened. Cascades open both an interpretive framework and new research directions in the study of resilience, including cataloguing preventive interventions.

Preventive Interventions

The 2009 IOM study committee (O’Connell, et.al., 2009) considered specific aspects of risk and protective factors, their relations to one another and to mental health outcomes, and their implications for the design and evaluation of interventions. While the report included analyses of specific risk/protection factors and interventions for depression, anxiety, schizophrenia and substance abuse, the committee noted that some risk and protective factors are associated with a broad spectrum of disorders and that these important factors need particular attention in prevention design. Generally following the lead of Biglan, et.al. (2004) they propose that:

- For these factors, intervention should lead to preventing multiple untoward outcomes, including behavioral problems, substance abuse and academic failure;
- With multiple risk factors across the developmental course, there should be multiple plausible routes to prevention;
- and

- With developmentally early risk factors influencing later ones, the timing of preventive interventions is critical to protect against developmentally salient risks (*Preventing Mental, Emotional and Behavioral Disorders*, pp.98-99).

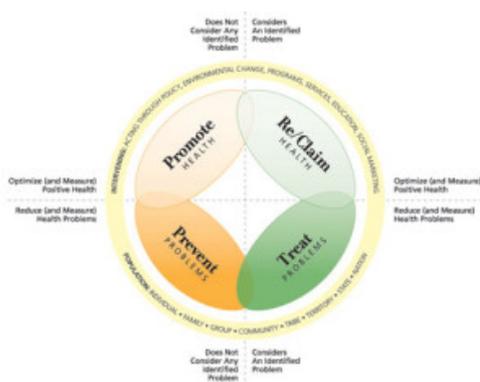
The implications of these provisions create rich opportunities for the future of prevention science and practice, but at minimum, call attention to needs for broader outcome measurement; varied and contextually-suited intervention mechanisms; and a preference for creating the best possible starting points for the support of children’s development, revisited and reinforced at each successive stage in childhood and adolescence. The enormity of what can be done is creating new partnerships to execute this agenda, bringing together mental health and public health on a conceptual front and prevention and clinical practice on a more strategic one.

A Public Health Approach to Children’s Mental Health: A Conceptual Framework

Working in the same rich context of proliferating possibilities for prevention juxtaposed with a children’s mental health care system perceived as overburdened, costly and fragmented, SAMHSA charged its National Technical Assistance Center for Children’s Mental Health at Georgetown University with creating a conceptual framework for a new approach, incorporating public health principles, which could simultaneously address the reduction of mental health problems among children for whom these had been identified, and helping all children optimize their mental health. The resulting monograph (Miles, 2010) incorporated guiding principles of:

- Taking a population focus, with an emphasis on the mental health of all children, requiring a new commitment to consistent and usable epidemiological data;
- Placing greater emphasis on creating environments that support and promote optimal mental health and on developing skills that enhance resilience;
- Balancing the focus on mental health problems with one on “positive” mental health, including measurement of the latter;
- Collaborative work across all settings and structures that have an impact on children’s well-being;
- Adapting implementation to local contexts.

The heart of the model which was developed is a special emphasis on intervention, with distinct but related dimensions including both the optimization of health and the reduction of health problems. In contrast to older public health models based on disease stage (primary, secondary, tertiary prevention), this model is consciously developmental in orientation, demonstrating the cyclic nature of four types of interventions which together build strengths and reduce problems to create resilience.



The four “corners” of the intervention cycle incorporate both prevention concepts – particularly risk and protective factors – discussed above as well as traditional mental health treatment constructs, but none is meant to stand alone. In brief description, these are:

- Promotion: interventions to optimize positive mental health by addressing its determinants in the population
- Prevention: interventions to reduce mental health problems by addressing their determinants in the population
- Treatment: interventions to diminish or end the effects of an identified mental health problem in a population of focus
- Reclaiming: interventions to optimize positive mental health while taking into consideration an identified mental health problem with the ultimate goal of improving the positive mental health of a population of focus

As used here, prevention and treatment are familiar concepts, but promotion and reclaiming require new use of the asset and promotive factors which are being identified. “Reclaiming” is a profoundly new category in public health, but acknowledges the essential practice elements of many children’s mental health evidence-based treatments, in which not only symptom relief but rehabilitation of missed developmental tasks is incorporated. While analysis of this connection exceeds the scope of this article, striking parallels between aspects of many cognitive behavioral therapies (usually construed as treatment) and strategies to enhance problem solving skills or other executive functions (usually construed as preventive) seem clear. What is new is the joint hope that mental health problems can be ameliorated and normal developmental trajectories rejoined.

Applications: Screening

Knowledge of risk and protective factors, particularly at individual and family levels, is of little consequence unless mechanisms are available to identify these factors and provide appropriate interventions in developmentally timely ways. Broadly speaking, this is the function of screening, which has always had a central place in public health models of disease prevention. While mental health screening for children and youth has been slow to be accepted in major child serving systems, the U.S. Preventive Services Task Force has recently endorsed depression screening for adolescents (Williams, et.al., 2009). The IOM report (O’Connell, et.al, 2009) argues that screening for prevention purposes should go much further, targeting both risk factors and early behaviors that predict mental, emotional and behavioral disorders. Revising a checklist created by the World Health Organization more than 50 years ago for early detection of disease, the report argues that preventive goals can now be served by selective and indicated screening. Condensing the report’s argument, screening is supported by:

- The serious threats to mental health or increase in likelihood of substance abuse or delinquent or violent behaviors which may be prevented;
- The developmental links from risk factors to disorder history;
- Availability of effective interventions to address risks or early symptoms;
- Availability of settings for screening and intervention, including primary care, schools, preschools/child care and community-based programs;
- Identifiable risk or protective factors or early, subclinical stages of the disorders which can be affected by interventions;
- Availability of validated screening mechanisms (tools or interview techniques);
- Guidelines for screening which are acceptable to the population and do not result in stigmatizing labeling;
- Guidelines for post-screening referral for assessment, prevention services or treatment;

- Case finding which is affordable, cost-effective and reimbursable; and
- Longitudinal implementation to detect emerging risks.

This revised checklist provides anchors for health care and other systems to design effective screening systems fitted to their local contexts and resources. One example of implementation from which early lessons can be drawn is the Assuring Better Child Development (ABCD) program's second cohort, funded by the Commonwealth Fund and administered by the National Academy for State Health Policy (Kaye and Rosenthal, 2008). This effort, known as ABCD II and implemented in California, Illinois, Iowa, Minnesota and Utah, introduced screening for social and emotional development in the states' Medicaid programs, seeking to change the standard practice of well-child care delivered in primary care.

Applications: Adaptations of Clinical Practice in Mental Health

Compton, et.al. (2010) argue that prevention-minded clinical practice is possible, and should become normative. Their arguments can be particularly extended from the discussion above to children and youth, for whom preventive interventions may be especially critical. The prevention-minded psychologist can routinely embed a number of strategies in practice:

Becoming prevention-oriented means taking a longer view: When serving children, adolescents and/or their families, a prevention orientation in many ways primarily means taking a developmental perspective. Interventions should be considered in light of where the child can be in five, ten or 20 years. Despite the many variables which will influence outcomes at these horizons, research has supported the early development of scaffolding frameworks which can support more positive trajectories.

Becoming trauma-sensitive and trauma-informed: The ubiquity of traumatic stress, particularly in early experience, should become a matter for routine screening and assessment. Broadly conceptualized, it can be argued that trauma probably accounts directly and indirectly for the majority of children's mental health problems which find their way to treatment. Untreated or undertreated, problems stemming from childhood trauma also lead to the variety of health and mental health problems that psychologists treat in the adult population in many health care settings. Trauma screening and assessment measures are readily available, as are evidence-based treatments for trauma. These should become central to psychologists' repertoire.

Thinking relationally and intergenerationally: Even when clinical interventions are individual, their impact may extend to the significant persons surrounding the client. In this article, special attention has been given to the impact of caregiver mental health problems, and particularly caregiver depression, on children's development. Keeping a "how are the children?" question on the treatment agenda may create opportunities for prevention, but may also create opportunities to foster the adult developmental competency of parenting.

Employ evidence-based prevention within treatment: Cascading negative outcomes may be avoided through risk reduction activities woven into treatment, including smoking cessation, supporting primary care appointments, or screening and brief intervention (and referral as needed) for alcohol use; "Simply asking routine questions – for example, about substance use, cigarette smoking, availability of firearms, and comorbid medical conditions – is an important first step toward prevention-minded clinical care" (Compton, et.al., 2010, p. 12).

By the same logic, protective factors can also be incorporated into treatment. In the state of Washington (Washington State Family Policy Council), for example, social support which is perceived to be adequate has been demonstrated to be a powerful protective factor against many of the untoward sequelae of adverse childhood experiences. Attending to the functional social networks of persons with mental health challenges can have important short and long-term payoffs.

Think not only about symptoms but also about developmental competencies: Some important competencies are likely to have been delayed or derailed by the development of a mental health disorder, and treatment can be conceptualized beyond symptom reduction to incorporate rehabilitation of lost or underdeveloped skills. Two domains that are particularly likely to feel the impact of childhood mental health problems are social skills and executive abilities, both of which will in turn affect functional adult abilities in judgment and problem solving. Developmental steps may need to be retraced to incorporate skill development in these areas.

Prevention applies even to those who are already seriously affected by mental health problems: Relapse prevention is a standard part of many mental health treatments, but may be enhanced by the perspective of “reclaiming” in the public health model described above, as “reclaiming” entails not only holding symptoms in check, but building positive health. Similarly, even in the face of chronic mental illness, there are opportunities to prevent functional impairments or the development of co-morbid conditions. Many states are currently attempting to address the disturbing finding that the population affected by serious and persistent mental illness (SPMI) has an average lifespan 25 years less than its age cohort (Parks, et.al., 2006), a difference not primarily attributable to mental health conditions per se, but to accumulating health risk behaviors and chronic disease conditions. In the children’s mental health field, there are emerging opportunities to address these risks and create healthy behaviors much earlier.

Consider incorporating formal screening tools into standard practice: A wide range of screening tools for both risk and protective factors as well as for mental health and substance abuse conditions are now available, and many are available online. The latter appear to be especially well received by adolescent and young adult populations, and can become important for both the surveillance on which prevention is based but also to initiate health and wellness discussions in clinical interchanges. For psychologists with a particular appreciation for data-based practice, these tools can enhance the pursuit of health and mental health outcomes.

Author

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References

- Arnett, J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55, 469-480.
- Biglan, A., Brennan, P., Foster, S., and Holder, H. (2004). *Helping Adolescents at Risk: Prevention of Multiple Problem Behaviors*. New York: Guilford Press.
- Compton, M., Koplan, C., Oleskey, C., Powers, R., Pruitt, D., and Wissow, L. (2010). Prevention in mental health: An introduction from the Prevention Committee of the Group for the Advancement of Psychiatry. In M. Compton (Ed.), *Clinical Manual of Prevention in Mental Health*. Washington, D.C.: American Psychiatric Publishing, Inc.

Eisenberg, D. and Neighbors, K. (2007). *Economics of Preventing Mental Disorders and Substance Abuse Among Young People*. Paper commissioned by the Committee on Prevention of Mental Disorders and Substance Abuse Among Children, Youth and Young Adults: Research Advances and Promising Interventions, Board on Children, Youth and Families, National Research Council and Institute of Medicine, Washington, D.C.

Felitti, V., Anda, R., Nordenberg, D., Williamson, D., Spitz, A., Edwards, V., Koss, M., and Marks, J. (1998). The relationship of adult health status to childhood abuse and household dysfunction. *American Journal of Preventive Medicine*, 14, 245-258.

Kaye, N. and Rosenthal, J. (2008). *Improving the Delivery of Health Care That Supports Young Children's Healthy Mental Development: Update on Accomplishments and Lessons from a Five-State Consortium*. New York: The Commonwealth Fund.

Kessler, R., Berglund, P., Demler, O., Jin, R., Merikangas, K., and Walters, E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry*, 62 (6), 593-602.

Loman, M., Gunnar, M. and the Early Experience, Stress and Neurodevelopment Center Team (2010). Early experience and the development of stress reactivity and regulation in children. *Neuroscience and Biobehavioral Reviews*, 34 (6), 867-876.

Masten, A., Burt, K., and Coatsworth, J. (2006). Competence and psychopathology in development. In D. Cicchetti and D. Cohen (Eds.), *Developmental Psychopathology: Risk, Disorder and Adaptation* (vol. 3, pp. 696-738). New York: Wiley.

Masten, A., and Coatsworth, J. (1995). Competence, resilience and psychopathology. In D. Cicchetti and D. Cohen (Eds.), *Developmental Psychopathology: Risk, Disorder and Adaptation*(vol. 2, pp. 715-752). New York: Wiley.

Miles, J., Espiritu, R., Horen, N., Sebian, J., and Waetzig, E. (2010). *A Public Health Approach to Children's Mental Health: A Conceptual Approach*. Washington, D.C. Georgetown University Center for Child and Human Development.

National Scientific Council on the Developing Child. <http://developingchild.harvard.edu/activities/council/>

O'Connell, M., Boat, T., and Warner, K., Eds. (2009). *Preventing Mental, Emotional and Behavioral Disorders Among Young People: Progress and Possibilities*. Washington, D.C.: The National Academies Press.

Parks, J., Svendsen, D., Singer, P., and Foti, M.E. (2006). *Mortality and Morbidity in People with Serious Mental Illness*. Alexandria, VA: National Association of State Mental Health Program Directors. Available at www.nasmhpd.org.

Search Institute Developmental Assets Lists: <http://www.search-institute.org/developmental-assets/lists>

Shaffer, A. and Yates, T. (2010). Identifying and understanding risk factors and protective factors in clinical practice. In M. Compton (Ed.), *Clinical Manual of Prevention in Mental Health*. Washington, D.C.: American Psychiatric Publishing, Inc.

Shonkoff, J., and Phillips, D., Eds. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, D.C.: National Academy Press.

Substance Abuse and Mental Health Services Administration (2011). *Helping Children and Youth Who Have Experienced Traumatic Events*. HHS Publication No. SMA-11-4642. Available at www.samhsa.gov/children

Washington State Family Policy Council: <http://www.aceresponse.org/washington.html>

Williams, S., O'Connor, E., Eder, M., and Whitlock, E. (2009). Screening for child and adolescent depression in primary care settings: A systematic evidence review for the U.S. Preventive Services Task Force. *Pediatrics*, 123 (4), e716-735.

Yates, T. and Masten, A. (2004). Fostering the future: Resilience theory and the practice of positive psychology. In P. Linley and S. Joseph (Eds.), *Positive Psychology in Practice*. New York: Wiley.