THE NATURE OF THE CHALLENGE: INCIDENCE AND IMPACT OF TRAUMA AND IMPLICATIONS FOR INTERVENTIONS

Donald Meichenbaum, Ph.D.
Research Director of The Melissa Institute for Violence Prevention and Treatment
Miami, FL

www.melissainstitute.org

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THE NATURE OF THE CHALLENGE

Experiencing and witnessing interpersonal violence is a significant public health problem, especially for children and youth. Consider the following illustrative data.

Exposure to Violence

- 20% of children in the U.S. will experience a traumatic event before age 4.

- 60% of youth in the U.S. aged 17 and younger have been exposed to violence, abuse, or a crime, directly or indirectly.

- Surveys of police reports and interviews with mothers and child welfare reports indicate that 40% to 90% of school children living in urban poor neighborhoods have witnessed or experienced a homicide and/or domestic violence.

- The experience of community violence is often accompanied by intra family violence. In 40% of cases of spouse abuse, child abuse co-occurs.

- There are approximately 2 million cases of child maltreatment (physical and sexual abuse, and/or neglect) each year in the U.S.

- Approximately 3.6 million children receive an investigation by a service agency for child maltreatment.

- It is estimated that 20 million children live in households with an addicted caregiver, an incarcerated parent, or a mentally ill parent.

- “Risky” families (families with high conflict and aggression and cold unsupportive and neglectful relationships) are more likely to have children with disruptions in stress-responsive biological systems, poorer health behaviors, and increased risk for behavioral problems and chronic illnesses, such as heart disease.

- Children are more prone to be subject to victimization than adults. For example, the rates of assault, rape, and robbery against those 12 to 19 years of age are two to three times higher than for the adult population.

- Such stressors are compounded by poverty. Twenty five percent of children in the U.S. (some 15 million) live below the poverty line.

- The poverty level of the family is correlated with the child under achieving academically.

    a) Children from poverty enter school 2,000-3,000 vocabulary words behind their middle and upper-class peers. Vocabulary level by grade three predicts high school graduation rates.

    b) Students from minority families who live in poverty are 3 times more likely than their Caucasian counterparts to be placed in a class for educationally-challenged students. They are 3 times more likely to be suspended and expelled.

    c) The overall academic proficiency level of an average 17 year old attending school in a poor, urban setting is equivalent to that of a typical 13 year old who attends school in an affluent neighborhood.

    d) Students from families with income below the poverty level are nearly twice as likely to be held back by a grade. The school dropout rate is highly correlated with grade retention.

- These statistics take on specific urgency when we consider that 15% of students are African American and 11% are Hispanic. If present birthrates continue, by the year 2030 minority students will constitute 45% of school-age students in the U.S., up from the current level of 30%.

- The exposure to interpersonal violence is not limited to the U.S. The United Nations estimates that over 25 million children live in “conflict-affected poor countries.” This is further affected by the high exposure rate to natural disasters.

IMPACT OF TRAUMA EXPOSURE, VICTIMIZATION AND POVERTY

While any one of these factors such as living in poverty, experiencing abuse and neglect, witnessing violence, or being a victim of violence constitutes high risk for poor developmental adjustment, research indicates that:

> The total number of risk factors present is more important than the specificity of risk factors in influencing developmental outcomes.

FAR REACHING EFFECTS OF ADVERSITY
(See TED Talk by Dr. Nadine Burke Harris- www.Ted.com/talks)

Adverse childhood experiences (ACE) assesses the long-term impact of multiple categories of adversities including physical, sexual, psychological abuse; witnessing maternal battering; household substance abuse and mental illness; parental divorce or separation and parental criminal activity.

- ACEs are common — 2/3 of children experience 1 ACE; 1/5 3+ACE; 1/10 5+ different ACE events. It is the pile-up of cumulative ACE categories (4 categories or more), that leads to neurobiological, behavioral and psycho-social health-related, and/or psychiatric disorders. For example: versus those with 0 ACE scores

  ACE 4+ — 500% increased chance of becoming alcoholic
  ACE 6+ — 4600% increased chance of intravenous drug use
  ACE 4+ — 3100% higher incidence of depression and suicide attempts
  ACE 6+ — shorter life span

- ACE scores also predict early initiation of tobacco use, 2 to 4 times early sexual activity resulting in teen pregnancy, multiple sexual partners, sexual transmitted disease, intimate partner-violence, and being a victim of human trafficking.

- ACE scores also predict a variety of medical conditions such as cardiovascular disorders, obesity, diabetes, metabolic autoimmune, and muscular disorders.

POSSIBLE MEDIATING MECHANISMS

- Exposure to multiple, diverse traumatic victimizing experiences can alter brain architecture and function, derail development, and contribute to the "wear and tear" on the body.

- Neurobiological changes resulting from exposure to ACE include alterations to the amygdala, hippocampus, anterior cingulate prefrontal cortex, nucleus accumbens, and at the neurochemical level, alterations including dopamine, norepinephrine, epinephrine, cortisol, serotonin brain-derived neurotrophic factor, endocannabinoids, glutamate, and neuropeptides.

- When a child experiences adversity early in life, their monocytes and macrophages (types of white blood cells) become calibrated to respond to future threats with a heightened pain inflammatory response, influences the hormonal system, and contributes to the dysregulation of cortisol levels.

- Traumatic stress may alter the organization and "tuning" of multiple stress response systems, including the immune system, the autonomic system and the hypothalamic-pituitary-adrenal (HPA) axis, and alter gene expression. For example, childhood maltreatment sensitizes the amygdala to over respond to threat.

- Childhood adversity has been associated with shorter telomeres. Telomeres are receptive DNA sequences that cap and protect the ends of chromosomes from DNA damage and premature aging.

- In terms of the developing brain, exposure to cumulative adverse events contribute to:

    a) Reduction in the volume and activity levels of major structures including the corpus callosum (connective fibers between the left and right side of the brain) and limbic system (amygdala and hippocampus) that is involved in emotional regulation.

    b) Cerebral lateralization differences or asynchrony: Abused children are seven times more likely to show evidence of left hemisphere deficits.

    c) Impact the communication between the prefrontal cortex (PFC) (upper portion of the brain) and the amygdala (lower portion of the brain). The "top-down" regulation of executive skills can be compromised by perceived threats and stressors.

    The bottom-up emotional processes (amygdala) can "hijack" the PFC.

- The earlier and the longer the exposure to cumulative ACE, the greater the neurological impact.

BEHAVIORAL CONSEQUENCES

- Victimized children are more likely to have:

  a) Lower IQ, delayed language development, and lower school grades;

  b) Exaggerated startle responses, hypervigilance, physical tension, emotional dysregulation, tendency to "space out" and dissociate;

  c) Attachment disorders and eating disorders such as bulimia, especially girls who have been sexually abused. They may have difficulty connecting with others, modulating negative emotions, and evidence limited ability to self-soothe. They have fewer adaptive coping strategies and have problems handling strong emotions such as anger, evidence behavioral impulsivity, and affective lability.

- Early childhood maltreatment increases a child's risk of arrest by 11% during adolescence (from 17% to 28%); abuse and neglect increases the risk of engaging in violent crime by 29%, and arrest as a juvenile by 59%.

- Abused and neglected children begin their criminal activity almost a year earlier, have twice the number of arrests, and are more likely to be repeat violent offenders than non-abused children. Note that the incidence of neglect is more than twice that of physical abuse.

- Up to 70% of girls in juvenile justice system have histories of physical and sexual abuse versus 20% of female adolescents in the general population. 32% of boys in the juvenile justice system have been victimized.

WHAT IS YOUR ADVERSE CHILDHOOD EXPERIENCES (ACE) SCORE
(See https://www.cdc.gov/brfss Behavioral Risk Factor Surveillance System)

1. ***Did you live with anyone who was depressed, mentally ill, or suicidal?***
2. ***Did you live with anyone who was a problem-drinker or alcoholic?***
3. ***Did you live with anyone who used illegal street drugs or who abused prescriptions?***
4. ***Did you live with anyone who served time in prison, jail or other correctional facility?***
5. ***Were your parents separated or divorced?***
6. ***How often did your parents or adults in your home ever slap, hit, kick, punch each other?***
7. ***How often did a parent or adult in your home physically hurt you in any way?***
8. ***How often did a parent or adult in your home ever swear at you, insult you, or put you down?***
9. ***How often did anyone at least 5 years older than you, or an adult, try to make you touch them sexually?***
10. ***How often did anyone at least 5 years older than you, or an adult, force you to have sex?***

What is your ACE score? How have you evidenced resilience, in spite of these adverse events?

EVIDENCE OF RESILIENCE

"Resilience does <u>not</u> come from rare and special qualities; but from the everyday magic of ordinary normative resources in the minds, brains and bodies of children; in the families and relationships; and in their communities. The conclusion that resilience emerges from ordinary processes offers a far more optimistic outlook for action than the idea that rare and extraordinary processes are involved." Ann Masten

- Research indicates that 1/2 to 2/3 of children living in extreme victimizing experiences grow up and "overcome the odds", and go on to achieve successful, well-adjusted lives.

- Only about 1/3 of abused and neglected children develop PTSD, complex PTSD (Developmental Trauma Disorder), clinical psychiatric disorders, and get in trouble with the law.

CHARACTERISTICS OF RESILIENT CHILDREN AND YOUTH

Temperament factors — easy going disposition, not easily upset, good emotional regulation, delay of gratification, impulse control, genetic influence (MZ versus DZ twin studies), an appealing personality.

Problem-solving skills — higher IQ, abstract thinking, flexibility of thought

Social competence — communication skills, emotional responsiveness, empathy and caring, a sense of humor, including the ability to laugh at themselves. Bicultural competence — able to negotiate a cultural divide.

Autonomy — self-awareness, a sense of personal agency, sense of identity with kinship, ability to act independently, mastery orientation, grit, internal locus of control, self-efficacy, and self-worth.

A sense of optimism — maintain a hopeful outlook, a sense of purpose, problem-focused strategies (avoid seeing crises as insurmountable problems). Hold a growth resilience mindset.

Academic competence and school connectedness — school readiness skills, academic competence, especially in reading and math, commitment to learn, build on "islands of competence", active in school activities, and connection with someone in school other than friends.

Presence of Social Supports — has the perception of "go to person," has the ability and willingness to discuss problems and has ability to access social supports. Presence of "Guardian Angel", mentors, and prosocial peer group. Authoritative parenting ("loving but firm"), family rituals and activities, rites of passage rituals, and intergenerational transmission of resilience — use of story-telling. Religious and church affiliation and respect for community rules and values. ***Is there a person, a "charismatic" adult the child can identify with and from whom they can gather strength?***

Evidence of Positive Redirection of One's Life-style — an ability to breakaway from dysfunctional family, negative social influences such as antisocial peers, presence of an ecological niche, situational affordances, "door opening opportunities," (i.e. job, athletics and talents, supportive settings, romantic relationships, military, etc.) that act as a "surge of motivation to succeed", "change of heart", "late bloomer".

"It is never too late to bolster resilience."

PATHWAYS TO BOLSTERING RESILIENCE

"It takes a community to bolster resilience in 'high risk' children, youth and their families."

(See www.search.institute.org for a discussion of how to help children and youth thrive.)

Protective factors can moderate the impact of traumatic victimizing experiences on child and youth development.

There are multiple pathways to bolstering resilience that involve diverse settings. We will consider school settings, clinical settings, especially in terms of trauma-focused cognitive behavioral interventions, and parent training programs, and community-based interventions.

SCHOOL-BASED INTERVENTIONS

(See Melissa Institute Website www.melissainstitute.org. Paper by Don Meichenbaum – Ways to implement interventions in schools in order to make them safer, more inviting and pedagogically more effective, as well as other related papers.)

Beware of slick promotional programs that have little evidence-based research and that are filled with hype.

Here are two such examples:

1. The Tapping Solution Foundation org. For a slick promotional YouTube filled with hype see ***htttps//www.youtube.com/watch?v=s99M8eJV4sk***

   For a critique of such so-called Energy-based interventions see ***https://en.wikipedia.org/wiki/Emotional_Freedom_Techniques***

2. Dan Amen's SPECT analysis and so-called brain "ring of fire" evident in Hyperactive and other children see the following critique by Hall:

   https: //sciencebasedmedicine.org/dr.amens-love-affair-with-spect-scans/

Interventions

1. Focus on the school Principal and what steps he/she should implement from the Principle Report Card. This Principal Report Card can be found in The Melissa Institute Toolkit designed to make schools safer and ways to reduce gun violence. Please see http//www.melissainstitute.org/mfolds-toolkit/

2. Conduct systematic assessments of students' ACE scores and tailor interventions accordingly.

3. Use peer assessments to identify students at risk. For example, Ron Slaby had schools establish SNAP boxes on campus that stood for "Students Need Assistance Pronto". These warning boxes would be monitored regularly.

   Use various peer nomination and peer warning reporting.

4. Use teacher nomination procedures. Have teachers put a check mark next to each name of students they have a relationship with. Identify students who do not have any connections. Ask students to answer the following questions:

   "If you were absent from school, who besides your friends would notice that you were missing, and would miss you?"

   "If you had a problem in school who would you go to for help?"

   "If I were a new student at your school, what would you tell me about your school? What would you show me?"

   "Tell me some things I might like about your school?"

   "Tell me some things I might not like?"

   "Can you show me on this map of your school where are places that I should avoid because they are not safe"

5. Conduct a School Climate assessment (see scales by Furlong). See The Melissa Institute website **www.teachsafeschools.org** for ways to reduce bullying, school suspension, zero tolerance policies and grade retention programs.

6. See ways to Engage Parents in school activities in Meichenbaum and Biemiller's book *Nurturing Independent Learners.*

7. Help teachers improve classroom management procedures. (See **www.apa.org/ed/cpse/homepage.html** and **www.teachsafeschools.org**).

8. Focus on reading comprehension skills. See The Melissa Institute website **www.readingteacher.net.**

9. Provide students who have neurological deficits due to ACE exposure with metacognitive prosthetic devices (MPDs) that provide needed academic supports (e.g., attentional and memory supports, instructional guidance, bottom-up and top-down "kernels" for learning.) Enhance students' executive functioning. See article on MI website. (Use the "wheel chair" metaphor).

10. Advocate and implement for school mental health programs. For example, see Roger Weissberg on teaching social and emotional learning in schools (www.CASEL.org), and

Lisa Jaycox's Cognitive Behavioral Intervention for Trauma in Schools (CBITs) program. Also see C. Santiago, T. Raviv, and L. Jaycox, "Creating healing school communities: School-based interventions for students exposed to trauma" (2018).

CBITS is a school-based early intervention program aimed at reducing children's symptoms related to existing traumatic experiences and enhancing their skills to handle future stressors. (***See Cognitive behavioral intervention for trauma in school by Jaycox, L. 2004, and Support for students exposed to trauma: The SSET Program by Lisa Jaycox, Audra Lanfley & Kristin Dean, 2009).***

11. Implement a "strengths-based" program, identifying "islands of competence" for each student. Have students answer questions such as:

    One thing I would like my teacher to know about me is _____

    "I have _____"
    "I can _____"
    "I am _____"

    Put students in a helper role and engage students to participate in community-wide social services of some sort.

12. Implement extra-curricular, school dropout prevention programs, and mentoring programs. Conduct student satisfaction assessments. For instance:

    "One of my teachers who helped me when I was in a difficult situation was _____. He/she did the following that had a real impact."

13. Build and broaden positive emotions in school like optimism, hope, gratitude, acceptance, empathy, compassion, grit, awe, humor, physical activity- exercise, problem-focused coping strategies, artistic expression, and resilience.

    Remember that resilience derives from "ordinary magic" and that there is no one way, nor "magic bullet" to bolster and nurture recovery from traumatic victimizing experiences.

    Resilience is associated with the HPA Axis and SNS activity, neuropeptides, DHEA, and CR4 activity, and the mediated reward system that maintains (builds and broadens) positive emotions, even in the face of chronic adversities.

14. There are ways to build in "neuroplasticity" and, in fact, alter ("turn on" and "turn off") gene expression by having students engage in resilient-engendering behaviors. (**"*History is not destiny*"**).

CLINICAL SETTINGS: HOW CLINICIANS CAN BOLSTER STUDENT RESILIENCE

1. Use evidence-based interventions. See MI Website papers by Marlene Wong, Esther Deblinger, Betty Pfefferbaum, Joan Asarnow, Jim Larsen, Steven Dykstra (See www.musc-tfcbt).

2. Be a critical consumer of psychotherapeutic interventions. See Don Meichenbaum and Scott Lillienfeld's article "How to spot HYPE in the field of psychotherapy," on the MI Website.

3. Conduct parent training preventative programs.

PARENTING PREVENTATIVE PROGRAMS

(See E. Chen, G. Brody & G. Miller, 2017 Childhood close relationship and health. American Psychologist, 72, 555-566.)

This article describes and evaluates several Parenting Programs including:

- Family Check-up Program – Connell et al., 2007
- Positive Parenting Program (Triple P) – Sanders et al., 2012
- Incredible Years Program – Webster-Stratton, 2005
- African American Families Training Program – Brody et al., 2015
- Foster Parents Program – Reid, 2000
- Children of Divorce Program – Luecken et al., 2015
- Loss of a Parent Program – Sandler et al., 2016
- Functional Family Therapy – Alexander et al., 2013

Also see parenting programs by Alan Kazdin "Everyday parenting: The ABC's of child rearing" (http://coursera.org/learn/everyday-parenting www.alankazdin.com); by Kolko for treatment of physical abuse (Alternatives for Families — Cognitive behavior therapy); Combined Parent-child CBT (Runyan and Deblinger); Multi-systemic Therapy for Child Abuse and Conflict (MST) — Henggeler & Swenson; Parent-child Interaction Therapy — Eyeberg & Chiffon; ACT parent program —APA-sponsored.

Keep in mind that the level of distress evident in parents is influential in determining the degree of distress experienced by their children.

In the aftermath of traumatic and victimizing experiences, "normalizing" the life for children and families acts as a buffering experience. Resuming school and play activities, restoring family routines, and supporting cultural and religious practices, each act as protective factors.

In addition the child's and youth's connectedness to his/her family and to prosocial adults outside the family provides a buffer to act as a set of protective factors. Connectedness is evident by the:

a) Consistent presence of the parents at least in one of the following activities: when awakening, when arriving home from school, at evening meal time, and/or at bed time;

b) Frequent shared activities with parents;

c) Family rituals and kinship relationships;

d) Intergenerational transmission of resilience — Use of "story-telling" that fosters cultural identity;

e) Authoritative parenting practices — firm, but loving and supportive;

f) Parenting monitoring — 4 "W"s when; where; with whom; what activities?

g) Child or youth doing family chores and engaging in altruistic behaviors that nurture empathy;

h) Child or youth feels they can share problems with their parents.

COMMUNITY-BASED INTERVENTION PROJECTS FOR CHILDREN AND FAMILIES

Icelandic Model

The Icelandic model is an example of a highly effective community-based preventative approach designed to both bolster resilience in youth and reduce substance abuse and crime. This model is receiving worldwide attention (14 counties in Europe have implemented it).

The program includes:

1. Governmental support for preventative programs that are evidence-based. Their support takes various forms including having a National Prevention Day, providing funds for training programs and youth recreational activities, funding annual student surveys with accompanying timely feedback and community-initiated interventions.

2. An annual child and youth anonymous survey (each February for ages 10 to 16) of "life and living conditions of youth" that comprehensively assesses risk and protective factors, especially family and peer affiliations and the type of after-school recreational activities.

3. Financial support to provide youth with after school recreational activities of their own choosing with supportive adult mentors.

4. Specific ways to bolster family ties and association with pro-social peers.

5. Ways to bolster students' self-efficacy and social competence.

6. Ways to broaden cultural experiences and engage in altruistic behaviors that nurture empathy training (See the following website for a fuller description and contact Dr. Harvey Milkman, milkmanh@msudenver.edu)

https://huffingtonpost.com/entry/iceland-succeeds-at-rever_b_9892758.html.

Other Efforts

Another example of a community-based intervention was conducted in New Orleans by Dr. Joy Osofsky, a former member of the Melissa Institute Scientific Board. The program included education for police officers at all levels on the effects of violence on children, a 24 hour hotline for consultation by police or families, and a referral service.

In addition, a needs assessment was conducted to determine, "how violent is your neighborhood?" A variety of assessment tools were used including: art expressive drawings by children, maps of how they got from their home to school and parental, and police and school personnel reports. This information was translated into preventative protective actions.

Finally, there is a need to engage community business leaders in supporting preventative efforts. An argument can be made that such preventative efforts are a wise investment by citing the following data. High school graduates earn on average of $290,000 more during their life-span than do high school dropouts and the high school graduates will pay $100,000 more in taxes. It has been estimated that governments lose three billion dollars in revenue for each one-year cohort of high school dropouts. (See Belfield and Levin, The price we pay).

A CAVEAT

A caution about "The Downside of Resilience" offered by Jay Belsky (New York Times, Nov. 30, 2014). He has explored why some children who have been exposed to adverse childhood experiences benefit more from interventions, while others tend to thrive without such intervention. To illustrate his point, he cited the results of the Fast Track early prevention program. Beginning in kindergarten, at-risk students were provided 10 years of extra academic and social support, involving teachers, parents and peers. The participants were assessed when they reached age 25.

Those students who benefitted most from the intervention had a particular genetic makeup. Namely, those who carried a variant of a glucocorticoid receptor gene, which plays a role in how the body responds to stress, improved most from the intervention. The behavior of children who did not have this gene variant were unaffected by the intervention.

In other intervention studies, children who carried genes that indicated greater susceptibility to depression and ADHD, benefitted most from treatment.

This pioneering research is suggesting that genetic vulnerability may prove to be predictable markers of where intervention dollars should be spent. Children without such genetic vulnerability may become resilient without specific interventions. This work is obviously at a beginning stage, but worth taking note of in planning any form of intervention.