We are the medicine: human development sciences and the epidemiology of child and family adversity and well-being

November 23, 2015

Christina Bethell, PhD, MBA, MPH

“It is easier to build strong children than to repair broken men.”
Frederick Douglass
(1817–1895)
Promote Early and Lifelong Health of Children, Youth and Families
(using family centered data and tools)

- Identify Shared Transformative Goals For Child & Family Health
- Transformational Partnerships
- Inspire and Inform
- Innove and Act
- Discern and Develop
- Actionable Data & Data-Driven Tools
“Social and emotional skills—also known as non-cognitive skills, soft skills or character skills—are the kind of skills involved in achieving goals, working with others and managing emotions. As such they manifest themselves in countless everyday life situations.” “Skills for Social Progress: The Power of Social and Emotional Skills” OECD, March 10, 2015
“Pixar’s latest effortlessly conveys the idea that its hero is both the sum of her emotions and somehow independent of them.”
Mindfulness

The little things, the little moments. They aren’t little.
Jon Kabat Zinn

A four pronged learned skill enabling individuals to

(1) Pay attention; (2) On purpose; (3) In the present moment; (4) and non-judgmentally

Mindfulness training involves:
1. Dedicated reflection time—meditation
2. Micro-practices
3. Relational Mindfulness—Transparent communication (“from the balcony”)
We Are the Medicine
*When our science, lived experience and policies meet*

Ours is a social brain.
Knowledge about brain plasticity, epigenetics and social determinants of health make relationships, self-awareness and mindfulness a matter of public health.
Methods and Status of Research and Action Agenda

1. Consensus dialogue on need, goals and priorities
2. **2-day working meeting** (held at AcademyHealth 2014)
3. **Papers commissioned** on priority themes (e.g. measurement, implications for policy, practice, broader social determinants efforts, innovations and frameworks, etc.)
4. Living **environmental and literature scan**
5. Ongoing **key informant** and small group interviews
6. Ongoing **input forums** (PAS, AcademyHealth, APHA, NCPHC, AMCHP, etc.)
7. **Collective Insight/CrowdSourcing Process** (June 2014, August 2015, October 2015)
8. Agenda and paper **dissemination and support**
1. **Short story** on We Are the Medicine premises and human development sciences
2. **Short story** on the epidemiology of child and family social and emotional adversity
3. **Longer story** on prioritizing possibilities for resilience, healing and positive health development (and the cross cutting role of mindfulness based mind-body methods)
4. **Sound bite** on promoting life course well-being by further establishing a new integrated science of thriving
5. **1 (or 2) exercises** –if you are willing!
We Are the Medicine
A BrainSmart Approach To Improving Population Health and Health Care Reform

Emphasizes:

- cross-cutting role of safe, stable, nurturing relationships to healthy child brain development and health across life

Legitimizes:

- the known impact of embedded and chronic stress on child development and well-being and adult health

Calls Out:

- the syndemic of adverse childhood experiences and the possibilities arising from a new science of thriving to promote self-led individual, family, community and organizational healing

Recognizes:

- that child development depends on adult development and the urgency to promote a “your being, their well-being” model

Concludes:

- that the health of children and our nation calls us to squarely address trauma and promote positive health—and the foundational role of safe, stable, nurturing relationships, neuro-repair and engagement to healing and health
Short story on human development sciences and social and emotional well-being
A Simple Story About Requirements for Healthy Development and Well-Being

“Led by a new paradigm, scientists adopt new instruments….and see new and different things when looking with familiar instruments.”

Thomas Kuhn, The Structure of Scientific Revolutions, 1962
Fundamentals of Safe, Stable, Nurturing Relationships (SSNRs) for Children and Adults: Serve and Return and SCARF

Young children can not go away from threat

I matter
I know
I choose
I connect
I trust
Early Childhood Investments Substantially Boost Adult Health

Frances Campbell, Gabriella Comi, James J. Heckman, Seung Hyun Moon, Rodrigo Pinto, Elizabeth Pongillo, Yi Pin

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Look After the Child

PEDIATRICS
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

The Effects of Childhood Stress on Health Across the Lifespan

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTER FOR DISEASE CONTROL AND PREVENTION

Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science into Lifelong Health
Committee on Psychosocial Aspects of Child and Family Health. Committee on Early Childhood, Adoption, and Dependent Care. Section on Developmental and Behavioral Pediatrics. Andrew S. Carras, Jack P. Shonkoff, Benjamin S. Sneed, Mary L. Dobbins, Marion F. Earls, Andrew S. Carras, Lorna McGuinn, John Pascoe and David L. Wood

Pediatrics 2012;129:222; originally published online December 26, 2011;
DOI: 10.1542/peds.2011-2662
Early Stress

CHILDHOOD STRESS

Hyper-responsive stress response; calm/coping

Chronic “fight or flight;” cortisol / norepinephrine

Changes in Brain Architecture

Andy Garner (with permission)
Business Teams:

- High Performance = 5.6 positives to 1 negative
- Medium Performance = 1.9 positives to 1 negative
- Low Performance = 1 positive to 2.7 negatives

Losada, 1999; Losada & Heaphy, 2004

Successful Marriages:

- 5.1 positives to 1 negative (speech acts) and
- 4.7 positives to 1 negative (observed emotions)

Gottman, 1994
Short story on epidemiology of child and family adversity and well-being
"Adverse childhood experiences" has become a buzzword in social services, public health, education, juvenile justice, mental health, pediatrics, criminal justice, medical research and even business. The ACE Study - the CDC’s Adverse Childhood Experiences Study -- has recently been featured in the New York Times, This American Life, and Salon.com. Many people say that just as you should what your cholesterol score is, so you should know your ACE score. But what is this study? And do you know your own ACE score?
# Prevalence of Adverse Childhood Experiences Found

<table>
<thead>
<tr>
<th>Abuse, by Category</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological (by parents)</td>
<td>11%</td>
</tr>
<tr>
<td>Physical (by parents)</td>
<td>28%</td>
</tr>
<tr>
<td>Sexual (anyone)</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neglect, by Category</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional</td>
<td>15%</td>
</tr>
<tr>
<td>Physical</td>
<td>10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Household Dysfunction, by Category</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcoholism or drug use in home</td>
<td>27%</td>
</tr>
<tr>
<td>Loss of biological parent &lt; age 18</td>
<td>23%</td>
</tr>
<tr>
<td>Depression or mental illness in home</td>
<td>17%</td>
</tr>
<tr>
<td>Mother treated violently</td>
<td>13%</td>
</tr>
<tr>
<td>Imprisoned household member</td>
<td>5%</td>
</tr>
</tbody>
</table>

**CDC/Kaiser Study: Adverse Childhood Experiences Score**

Number of categories (not events) is summed… persistent dose/response regardless of specific type of ACE reported

<table>
<thead>
<tr>
<th>ACE Score</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>33%</td>
</tr>
<tr>
<td>1</td>
<td>25%</td>
</tr>
<tr>
<td>2</td>
<td>15%</td>
</tr>
<tr>
<td>3</td>
<td>10%</td>
</tr>
<tr>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>5 or more</td>
<td>11%*</td>
</tr>
</tbody>
</table>

- Two out of three experienced at least one category of ACE.
- If any one ACE is present, there is an 87% chance at least one other category of ACE is present, and 50% chance of 3 or >.

* Women are 50% more likely than men to have a Score >5.*

ACEs Impact Multiple Outcomes

Risk Factors for Common Diseases
- Smoking
- Alcoholism
- Promiscuity
- High Perceived Risk of HIV
- Obesity
- Illicit Drugs
- IV Drugs
- Multiple Somatic Symptoms
- Poor Perceived Health

Prevalent Diseases
- Cancer
- Skeletal Fractures
- Ischemic Heart Disease
- Liver Disease
- Chronic Lung Disease

General Health and Social Functioning
- Relationship Problems
- High perceived stress
- Married to an Alcoholic
- Difficulty in job performance

Mental Health
- Depression
- Sleep Disturbances
- Memory Disturbances
- Anxiety
- Panic Reactions
- Poor Anger Control

Sexual Health
- Teen Paternity
- Teen Pregnancy
- Fetal Death
- Unintended Pregnancy
- Sexual Dissatisfaction
- Early Age of First Intercourse

Sexually Transmitted Diseases
- HIV
- Chlamydia
- Gonorrhea
- Herpes
- Syphilis

Poor Self-Rated Health
- Difficulty in job performance
- Difficulty in job performance
- Difficulty in job performance

In his New York Times column, David Brooks succinctly summarized the adult outcomes associated with higher ACE scores.

"The link between childhood trauma and adult outcomes was striking. People with an ACE score of 4 were seven times more likely to be alcoholics as adults than people with an ACE score of 0. They were six times more likely to have had sex before age 15, twice as likely to be diagnosed with cancer, four times as likely to suffer emphysema. People with an ACE score above 6 were 30 times more likely to have attempted suicide."
Attributable Fraction

AF = the proportion of disease incidence that can be attributed to a specific exposure (among those who were exposed)
AR divided by incidence in the exposed X 100%

\[ AF = \frac{\text{Risk among risk factor positives}}{\text{Risk among risk factor negatives}} \times 100\% \]
Figure 16: Population Attributable Risk


Growing Sciences Reveal Mechanisms of Effect and Begin to Explain Variations in Impact

Social, Neurodevelopmental, Epigenetic and Other Sciences Map the Biologic Mechanisms and Pathways Linking Emotional and Social Stress and Trauma to Health Through Life

[Diagram showing the pyramid of health and stress factors from conception to death, with key stages such as Adverse Childhood Experiences, Disrupted Neurodevelopment, Social, Emotional, and Cognitive Impairment, Disease, Disability, and Social Problems, and Early Death.]
What Can We Do Today?

• Routinely seek a history of adverse childhood experiences from all patients, by questionnaire.

• Acknowledge their reality by asking, “How has this affected you later in life?”

• Use existing systems to help with current problems.

• Develop systems for primary prevention.

National Survey of Children’s Health
US Prevalence and Across State Variations

47.9% of US Children 1+ (of 9) ACEs
Age 0-17 years

- No adverse family experiences (52.1%)
- One adverse family experience (25.3%)
- Two or more adverse family experiences (22.6%)

**State Variation** In Prevalence of 2+ (of 9) ACEs: 16.3% (UT) – 32.9% (OK)

**State Ranking**
- Lower performance than U.S.: significantly lower or lower but not significant
- Higher performance than U.S.: significantly higher or higher but not significant

**Statistical significance:** $p<.05$
### Prevalence Of Adverse Childhood Experiences (ACEs) Among Children Age 0-17, By Eleven Child Health And Health Risk Factors, And Prevalence Of Health And Risk Factors, By Number Of ACEs, 2011-12

<table>
<thead>
<tr>
<th>Category of children</th>
<th>Study population (%)</th>
<th>Prevalence of ACEs (%)</th>
<th>Prevalence of health problems and risks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 ACE</td>
<td>2 or more ACEs</td>
</tr>
<tr>
<td>All</td>
<td>100.0</td>
<td>25.3</td>
<td>22.6</td>
</tr>
<tr>
<td>In fair or poor overall health</td>
<td>3.2</td>
<td>31.8</td>
<td>39.3</td>
</tr>
<tr>
<td>With special health care needs</td>
<td>19.8</td>
<td>25.9</td>
<td>36.0</td>
</tr>
<tr>
<td>With special health care needs and EBD</td>
<td>7.2</td>
<td>23.7</td>
<td>51.9</td>
</tr>
<tr>
<td>At high or moderate risk for developmental, behavioral, or social delays</td>
<td>26.2</td>
<td>26.9</td>
<td>18.8</td>
</tr>
<tr>
<td>With asthma</td>
<td>8.8</td>
<td>27.3</td>
<td>33.4</td>
</tr>
<tr>
<td>With ADHD</td>
<td>7.9</td>
<td>24.8</td>
<td>45.2</td>
</tr>
<tr>
<td>With autism spectrum disorder</td>
<td>1.8</td>
<td>27.1</td>
<td>34.4</td>
</tr>
<tr>
<td>Who are overweight or obese</td>
<td>31.3</td>
<td>25.5</td>
<td>37.1</td>
</tr>
<tr>
<td>With a behavior problem</td>
<td>3.2</td>
<td>23.6</td>
<td>61.4</td>
</tr>
<tr>
<td>Who bully</td>
<td>2.2</td>
<td>23.0</td>
<td>55.4</td>
</tr>
</tbody>
</table>
## Consistent Effects Observed Across Income Groups

<table>
<thead>
<tr>
<th></th>
<th>Chronic Emotional, Behavioral and/or Developmental Problem (age 2-17)</th>
<th>Has Anxiety (age 2-17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Children (0-17)</td>
<td>14.2% (72% have ACEs)</td>
<td>3.3%</td>
</tr>
<tr>
<td>0-99% FPL w/ 4+ ACEs</td>
<td>41.8% (AOR: 1.08)&lt;sub&gt;ns&lt;/sub&gt;</td>
<td>10% (AOR: 1.02)&lt;sub&gt;ns&lt;/sub&gt;</td>
</tr>
<tr>
<td>100-199% FPL w/ 4+ ACEs</td>
<td>37.7% (AOR: .90)&lt;sub&gt;ns&lt;/sub&gt;</td>
<td>14.6% (AOR: 1.68)&lt;sub&gt;ns&lt;/sub&gt;</td>
</tr>
<tr>
<td>200-399% FPL w/ 4+ ACEs</td>
<td>35.4% (AOR: .90)&lt;sub&gt;ns&lt;/sub&gt;</td>
<td>12% (AOR: 1.36)&lt;sub&gt;ns&lt;/sub&gt;</td>
</tr>
<tr>
<td>400% FPL w/ 4+ ACEs</td>
<td>37.2% (ref)</td>
<td>10.5% (ref)</td>
</tr>
</tbody>
</table>

### Excerpt from “Breaking Ground” Christina Bethell

Rich or poor
The withholding of love Pierces

May you be led to the mysterious transfiguration this piercing can allow

And open to the truth from within like the nautilus closing off all former layers

And slowly, patiently rising up into the love that always was

Mirrored or not Always was Always will be

Excerpt from “Breaking Ground” Christina Bethell
“ISIS Mothers” (of Western Recruits) Speak
Why they went? What could’ve stopped them?

“[Damian] had had issues with depression. He had tried to commit suicide and shortly after getting out of the hospital he found Islam and found a certain peace in it,” says Ioffe.

Lukas had been a withdrawn child, and his social interactions often ended in conflict. When he was ten, he was diagnosed with Asperger’s syndrome and attention deficit disorder, but in adolescence, his problems became more serious.

Thom Alexander’s story, its contours were familiar. There was the absent father, who died of a heroin overdose when Thom Alexander was seven. Her son was diagnosed with attention deficit hyperactivity disorder at 14;

**Adverse Child or Family Experiences (ACEs) Items**

- Extreme economic hardship
- Family discord leading to divorce or separation
- Has lived with someone who had an alcohol/drug problem
- Has been a victim or witness of neighborhood violence
- Has lived with someone who was mentally ill or suicidal
- Witnessed domestic violence at home
- Parent served time in jail
- Treated or judged unfairly due to race/ethnicity
- Death of parent
- Child had any ACE (1/more of above items)

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**Children & Youth with 2+ Adverse Childhood Experiences (ACEs)**

- **National**
  - N=73,708,179:
  - 22.6%

- **Maryland**
  - N=1,346,235:
  - 19.4%

- **Baltimore City**
  - N=141,775:
  - 30.7%

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**~43,500 Children in Baltimore City have 2 or more ACEs**
Estimated ACEs Exposure for Baltimore’s Children and Youth:
Differential across income levels less for 2+ ACES
Nearly 1 in 3 of Baltimore City’s 141,700 children age 0-17 have been exposed to two or more adverse childhood experiences (ACEs).

This translates into about 800 school buses—that is, 6.6 miles of school buses filled with children with multiple adverse childhood experiences, more than the distance between Fort McHenry and the Maryland Zoo.

Unless children with ACEs learn resilience, fewer than 1 in 3 are expected to be adequately engaged in school. They are 3 times more likely to repeat a grade and are 4 times more likely to have an emotional, mental or behavioral health issue.

Altogether, we estimate that fewer than 6 in 10 Baltimore City school age children demonstrate some resilience. Over 4 in 10 do not. Our children with ACEs are half as likely to do so, impacting their school success and health status across life without help.

Building resilience is essential to all children in Baltimore and to the future well-being of children, families and the economic success of our city that needs all our children to be healthy and ready to learn, work and thrive.
A longer story on prioritizing possibilities
Maslow Rewired: The primacy of safe, stable, nurturing relationships to physical and mental health throughout life

“…there is recent evidence that individual differences in self-esteem and locus of control, positive psychological attributes that emerge early in life and modify the appraisal of environmental stressors, are associated with hippocampal volume and related changes in HPA regulation in both young and elderly people.”

Bruce McEwen and Peter Gianaros
Central role of the brain in stress and adaptation: links to SES, health and disease (Ann. N.Y. Acad Scie, 2010)
Less Than One in Three School Age Children in the US Demonstrate Basic Resilience and are ACEs Free: Resilience Trumps ACEs

<table>
<thead>
<tr>
<th>Category</th>
<th>Not Resilient and 2+ ACEs</th>
<th>Resilient and 2+ ACEs</th>
<th>Not Resilient and 1 ACES</th>
<th>Resilient and 1 ACE</th>
<th>Not Resilient and No ACEs</th>
<th>Resilient and No ACEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Children</td>
<td>12.5%</td>
<td>15.0%</td>
<td>9.6%</td>
<td>16.3%</td>
<td>13.2%</td>
<td>33.4%</td>
</tr>
<tr>
<td>0-99% FPL</td>
<td>23.3%</td>
<td>19.4%</td>
<td>13.3%</td>
<td>16.5%</td>
<td>10.7%</td>
<td>16.7%</td>
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<td>15.6%</td>
<td>9.3%</td>
<td>16.8%</td>
<td>13.1%</td>
<td>34.7%</td>
</tr>
<tr>
<td>400% or above FPL</td>
<td>3.9%</td>
<td>8.3%</td>
<td>6.0%</td>
<td>14.1%</td>
<td>16.6%</td>
<td>51.1%</td>
</tr>
</tbody>
</table>

School-age children have 11 times greater odds of having emotional, mental or behavioral problems with 2+ACEs and without resilience (2.77 with resilience)

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<th>9.6%</th>
<th>16.3%</th>
<th>13.2%</th>
<th>33.4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Resilient and 2+ ACEs</td>
<td>32.2%</td>
<td>14.6%</td>
<td>16.3%</td>
<td>8.3%</td>
<td>15.8%</td>
<td>12.8%</td>
</tr>
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<td>Resilient and 2+ ACEs</td>
<td>12.5%</td>
<td>25.7%</td>
<td>19.7%</td>
<td>10.2%</td>
<td>7.9%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Not Resilient and 1 ACE</td>
<td>400% or above FPL</td>
<td>12%</td>
<td>8%</td>
<td>14%</td>
<td>10%</td>
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<td>8%</td>
<td>14%</td>
<td>10%</td>
<td>25%</td>
</tr>
</tbody>
</table>

AOR: Adjusted Odds Ratio

Ref: 1.00

Prevalence of emotional, mental or behavioral conditions by adverse childhood experiences (ACEs) and resilience status
(all US children ages 6-17). Data: 2011-12 NSCH

Attributable Fraction for EMB Diagnosis by Resilience Status
No ACEs: 68%
1 ACE: 70%
2+ ACEs: 62%

AOR: 4.02
**RR: 3.11

AOR: 4.61
**RR: 3.35

AOR: 4.02
**RR: 2.64

Attributable Fraction for EMB Diagnosis by Resilience Status
0% Usually/always stays calm/in control with challenges (has this aspect of resilience)**
10% Never/sometimes calm/in control with challenges (no resilience)
20% No ACEs
30% 1 ACE
40% 2+ ACEs

*All rate ratios statistically significant at p \leq 0.05 and using multivariate logistic regression with adjustment for age, sex, race/ethnicity, household income and insurance status/type, **Reference category for multivariate logistic regression models, AOR: Adjusted Odds Ratio

Prevalence of resilience among US children age 2-17 with emotional, mental or behavioral conditions (EMB) and 2 or more adverse childhood experiences (ACEs) exposures: by key protective factors (Data: 2011-12 NSCH)

“attributable benefit” from Protective Factors varies across income groups, but not dramatically.

Example: Share Ideas: 0-99% 57% AF; 400+: 43% AF

* RR: Rate Ratio. All rate ratios statistically significant at p \leq .05 and using multivariate logistic regression with adjustment for age, sex,

Confirming What We Know: Resilience Higher for Children with 4+ ACEs When Stronger Relationships Exist

<table>
<thead>
<tr>
<th>% Children Who Exhibit Resilience</th>
<th>% Children Who Exhibit Resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
</tr>
</tbody>
</table>

**Youth Has An Adult Mentor**
- 49.1%  
- 29.6%

**Parent & Child Share Ideas**
- 53.8%  
- 36.4%

**Parental Stressed By Child**
- 24.5%  
- 53.6%

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*Improbable people*
Always lay low
They take short sips
And never throw fits
There are things
Only they know

*Like, love is real*
Yet, hard to feel
When the screen was so blank
And only God to thank
For that night light
Hung on the soul

*Excerpt from “Improbable People”, Christina Bethell*
Common Assumption: Parent coping is a private matter – not the role of a community to address this issue.

<table>
<thead>
<tr>
<th>Parental coping as a parent</th>
<th>% Engaged: All School Age Children</th>
<th>% Engaged: No ACEs</th>
<th>% Engaged: 4+ ACEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very well or Not at all well</td>
<td>44.2%</td>
<td>60.8%</td>
<td>33.8%</td>
</tr>
<tr>
<td>Somewhat well</td>
<td>75.6%</td>
<td>84.0%</td>
<td>59.2%</td>
</tr>
<tr>
<td>Very Well</td>
<td>85.4%</td>
<td>90.3%</td>
<td>71.6%</td>
</tr>
</tbody>
</table>
Common Assumption: This is a personal issue of families. There is nothing we can do about what has already happened!

Prevalence of School Engagement Among CSHCN With Two or More Adverse Childhood Experiences, by Child Resilience

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Children who are Never, Rarely or Sometimes Resilient</th>
<th>Children who are Usually or Always Resilient</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-7 (AOR: 5.39)</td>
<td>21.6%</td>
<td>63.9%</td>
</tr>
<tr>
<td>8-9 (AOR: 2.80)</td>
<td>29.4%</td>
<td>56.2%</td>
</tr>
<tr>
<td>10-11 (AOR: 4.28)</td>
<td>23.9%</td>
<td>56.7%</td>
</tr>
<tr>
<td>12-13 (AOR: 3.72)</td>
<td>22.0%</td>
<td>52.5%</td>
</tr>
<tr>
<td>14-15 (AOR: 3.27)</td>
<td>22.2%</td>
<td>42.6%</td>
</tr>
</tbody>
</table>

Building Parental Coping Skills Key: School Engagement Higher for Children When Parents Cope Well With Parenting

<table>
<thead>
<tr>
<th>Parental coping as a parent</th>
<th>% Engaged All School Age Children</th>
<th>% Engaged No ACEs</th>
<th>% Engaged 4+ ACEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very well or Not at all well</td>
<td>44.2%</td>
<td>60.8%</td>
<td>33.8%</td>
</tr>
<tr>
<td>Somewhat well</td>
<td>75.6%</td>
<td>84.0%</td>
<td>59.2%</td>
</tr>
<tr>
<td>Very well</td>
<td>85.4%</td>
<td>90.3%</td>
<td>71.6%</td>
</tr>
</tbody>
</table>

Addressing ACEs in Schools Increasing!

Collaboration for Academic Social and Emotional Learning (CASEL)

1. Self-awareness
2. Self-management
3. Social awareness
4. Relationship skills
5. Responsible decision making

Back to role of social and emotional well being and the health of the nation and world

Many of our social problems, such as crime, are traced to an absence of the social and emotional skills, such as perseverance and self-control, that can be fostered by early learning. Crime costs taxpayers an estimated $1 trillion per year. James Heckman, Nobel Prize Winning Economist
ALASKA — Alaska Resilience Initiative (Alaska Children's Trust)
ALBANY, NY — The HEARTS Initiative for ACE Response (University at Albany Foundation)
BOSTON, MA — Vital Village Community Engagement Network (Boston Medical Center)
BUNCOMBE COUNTY, NC — Buncombe County ACEs Collaborative (Buncombe County Health and Human Services)
THE DALLES, OR — Creating Sanctuary in the Columbia River Gorge (Columbia Gorge Health Council)
ILLINOIS — Illinois ACEs Response Collaborative (United Way of Metropolitan Chicago)
KANSAS CITY, MO — Trauma Matters KC (Chamber of Commerce of Greater Kansas City Foundation)
MONTANA — Elevate Montana
PHILADELPHIA, PA — Philadelphia ACE Task Force (Scattergood Foundation)
SAN DIEGO, CA — San Diego Trauma Informed Guide Team & Building Healthy Communities (Harmonium, Inc.)
SONOMA COUNTY, CA — Sonoma County ACEs Connection
TARPON SPRINGS, FL — Peace4Tarpon, Trauma Informed Community
WASHINGTON — ACEs/Resilience Team & Children's Resilience Initiative
WISCONSIN — Wisconsin Collective Impact Coalition
LONGER STORY: PART 2
CROSS CUTTING ROLE OF MINDFULNESS-BASED APPROACHES TO ENGAGE HEALING AND PROMOTE WELL-BEING

“and I said to my body, softly. ’I want to be your friend.’ it took a long breath and replied, ’I have been waiting my whole life for this’ ”

Nayyirah Waheed
Interventions should focus on top-down strategies intended to alter brain function in ways that will improve allostasis and minimize allostatic load.

Instilling:
• optimism,
• a sense of control and self-esteem,
• and finding a meaning and purpose in life should be among the chief goals of such interventions.

Indeed, virtually all policies of the public and private sector are, in fact, health policies.”
TRAUMA INTERRUPTED
Self-Awareness of Sensations, Thoughts and Emotions, Stress Regulation and Promoting Positive Emotions Leverage Neuroscience and Epigenetics
Inspire to rewire...the brain can grow and change!

- Neuroplasticity is best encapsulated in Canadian psychologist Donald Hebb's famous quote, "neurons that fire together wire together."

- The big implication here is that if our brain changes itself based on our experiences, then by changing our experiences we can actively reshape our brains.

- One way to consciously change our experience is to learn how to apply mindfulness, the ability to be intentionally aware of our experience as it is unfolding and to exercise conscious choice and intention in an open, caring and nonjudgmental way.

- Most Recent Research: Around 86 Billion Neurons
- Trillions of synaptic connections
- Neuroimaging shows mindfulness-related practices promote significant changes in the brain.
Short exercise