

Social Determinants of Chronic Pain

Barbara Dailey, DNP, ARNP, CMS-CHT

Objectives for Learning Outcomes:

Following my presentation, participants will be able to apply:

1. Understanding the wide spectrum of competing issues that support & may predict future chronic pain.
2. Focusing on the newest research of the long-term health risks for those affected by ACE.
3. How to minimize those risks by early recognition and treatment.

*If handouts are not included in the session, they were not provided by the presenter.
The presenter may choose to provide handouts at the time of the presentation.*

Adverse Childhood Experience (ACE) Questionnaire
Finding your ACE Score 10-24-06

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household **often** ...
Swear at you, insult you, put you down, or humiliate you?
or
Act in a way that made you afraid that you might be physically hurt?
Yes No If yes enter 1 _____

2. Did a parent or other adult in the household **often** ...
a Push, grab, slap, or throw something at you?
or
Ever hit you so hard that you had marks or were injured?
Yes No If yes enter 1 _____

3. Did an adult or person at least 5 years older than you **ever**...
Touch or fondle you or have you touch their body in a sexual way?
or
Try to or actually have oral, anal, or vaginal sex with you?
Yes No If yes enter 1 _____

4. Did you **often** feel that ...
No one in your family loved you or thought you were important or special?
or
Your family didn't look out for each other, feel close to each other, or support each other?
Yes No If yes enter 1 _____

5. Did you **often** feel that ...
You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
or
Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
Yes No If yes enter 1 _____

6. Were your parents **ever** separated or divorced?
Yes No If yes enter 1 _____

7. Was your mother or stepmother:
Often pushed, grabbed, slapped, or had something thrown at her?
or
Sometimes or often kicked, bitten, hit with a fist, or hit with something hard?
or
Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

Yes No

If yes enter 1 _____

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?

Yes No

If yes enter 1 _____

9. Was a household member depressed or mentally ill or did a household member attempt suicide?

Yes No

If yes enter 1 _____

10. Did a household member go to prison?

Yes No

If yes enter 1 _____

Now add up your "Yes" answers: _____ This is your ACE Score

Social Determinants of Chronic Pain

UW Challenge of Pain Conference
 January 17, 2019
 Barbara Dailey, DNP, ARNP, CMS-CHT, FIBH

Objectives

- 1. Understanding the wide spectrum of competing social issues that support & may predict future chronic health problems including chronic pain
- 2. Focus on the newest research of the long-term health risks for those affected by Adverse Childhood Experiences (ACE)
- 3. Understand how to minimize those risks by prevention, early recognition, intervention and treatment.

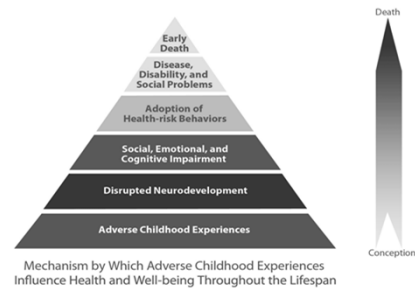
Adverse Childhood Experiences (ACEs)

- Adverse Childhood Experiences (ACEs)—are potentially traumatic events that can have negative, lasting effects on health and well-being. (Academy of Health)
- See handouts for questionnaire
- Physical, emotional, sexual abuse
- Neglect, Lack of love, support, protection
- Hunger, lack of necessities
- Parents separated/divorced
- Mother abused
- Household member alcohol/drug
- Household member mentally ill, suicide, prison



Supporting and/or Exacerbating ACE's

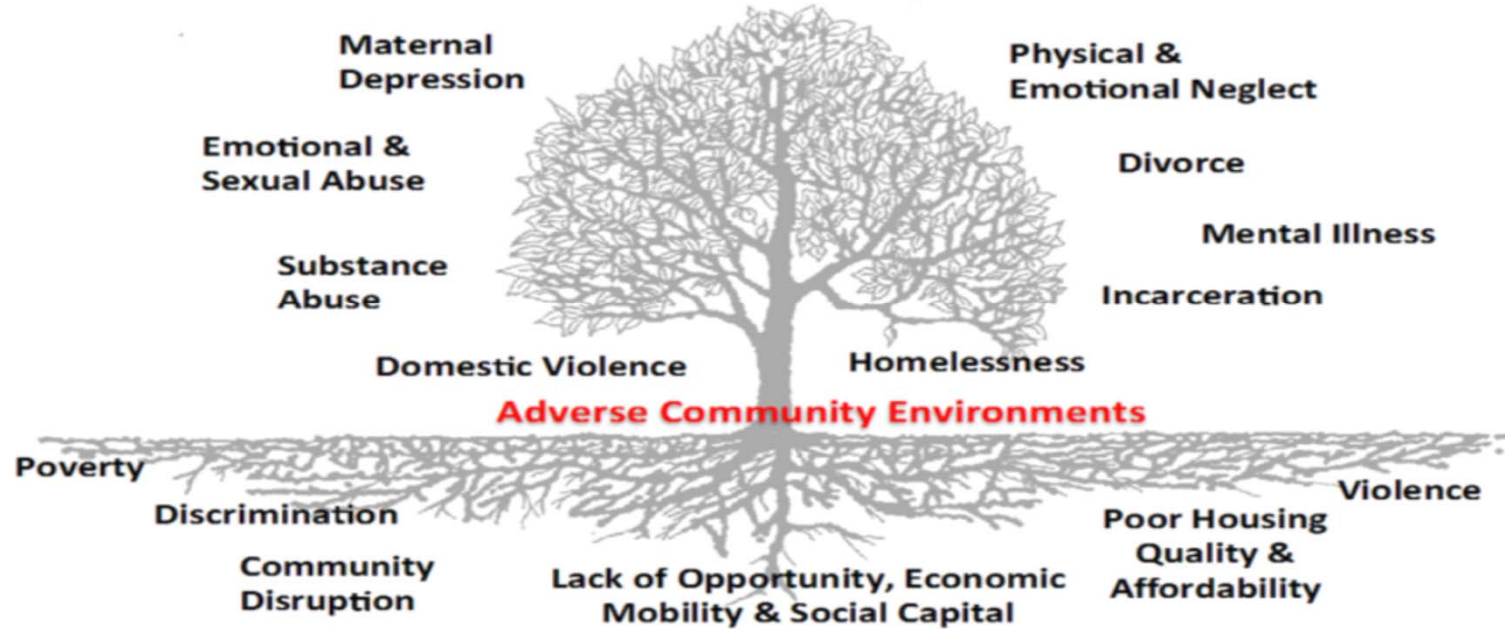
- Racism
- Community Violence
- Homelessness
- Poverty
- Discrimination
- Lack of Opportunity
- Poor Housing
- Bullying
- Can cause excessive activation of the stress-response system or Toxic Stress
- Can lead to long lasting wear & tear on the body and brain.
- The more ACE's a child experiences, the more likely he or she is to suffer from heart disease, diabetes, obesity, poor academic achievement & substance abuse in the future.



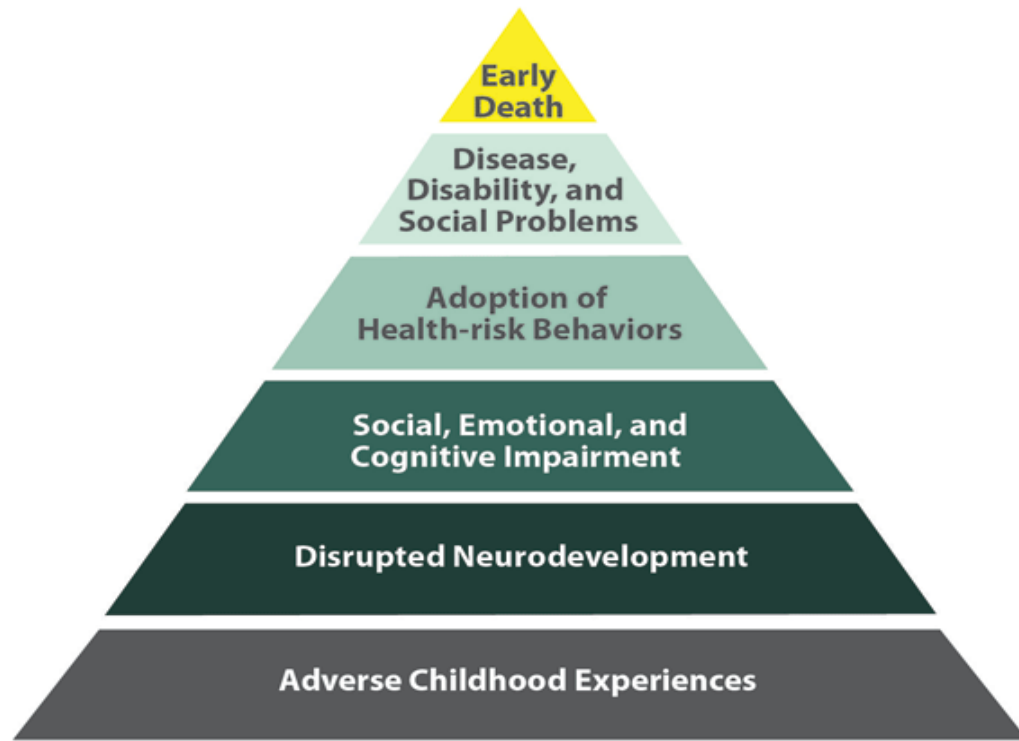


The Pair of ACEs

Adverse Childhood Experiences



Ellis W & Dietz W, A New Framework for Addressing Adverse Childhood and Community Experiences: The Building Community Resilience (BCR) Model, *Academic Pediatrics* (2017).



Mechanism by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan



Chronic or Toxic Stress

- **Positive Stress** – everyday challenges with supportive relationships with adults, child learns to cope and stress response returns to baseline
- **Tolerable Stress** – more serious difficulties but buffered by caring adults to help child adapt. Mitigates potential damaging effect of abnormal levels of stress hormones
- **Toxic Stress** – strong, frequent or prolonged adverse experience without adult support. Excessive cortisol disrupts developing brain circuits, increases inflammatory response.

Autonomic Nervous System

<ul style="list-style-type: none"> • Sympathetic – Fight or Flight • Shunts blood • Suppresses <ul style="list-style-type: none"> • Immune • Reproductive • Digestive • Insulin • Interferes with Neurodevelopment • Relies on pre-programmed response • Decreased analytical & problem solving abilities 	<ul style="list-style-type: none"> • Parasympathetic – Calm State • Maintains homeostasis • Supports <ul style="list-style-type: none"> • Immune • Reproductive • Digestion • Supports Neurodevelopment • Higher mind & problem solving functions
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(Relies on our perception of reality.)

POSITIVE Brief increases in heart rate, mild elevations in stress hormone levels.

TOLERABLE Serious, temporary stress responses, buffered by supportive relationships.

TOXIC Prolonged activation of stress response systems in the absence of protective relationships.

<https://developingchild.harvard.edu>

Child Development Core Story - Stress

- <https://developingchild.harvard.edu/resources/project-for-babies/>
- Video #3

Adaptive Vs. Maladaptive Outcome Dependent on Developmental Stage

For Example in Food Shortage:

- Flood of Stress Hormones & Increase in Cortisol
- Increase in blood sugar – think, plan, fuel muscles, maintain normal blood pressure by regulating water/salt levels
- Inhibits growth & reproduction (Not a safe time for family planning)
 - Adaptive for Adults – Survival (basics: food, water, shelter, protection)
 - Maladaptive for Children - Effect on child early neuro-development

Prevalence Of ACE

- 2011-2014 National Survey as Reported in JAMA 11-2018
- 248,934 adults in 23 states
 - 66% Experienced one
 - 25% Experienced three or more

[JAMA Pediatr.](https://doi.org/10.1001/jamapediatrics.2018.2537) 2018 Nov 1;172(11):1038-1044. doi: 10.1001/jamapediatrics.2018.2537

The greater the exposure, especially without responsive dependable interactions with adults, the higher the risk of chronic illness/pain and early death.

Early Experiences Influence the Developing Brain

- Brain's most rapid development in prenatal & first years of life
- 1 million new neural connections are formed every second
- Experiences determine whether brain architecture is sturdy or fragile
- Healthy emotional & cognitive development depends on responsive dependable interaction with adults.
- Chronic or extreme adversity can interrupt normal brain development
- Extreme neglect diminishes brain power.
- Chronic stress can be toxic to developing brains

National Pain Report

- Online survey of more than 2400 women with chronic pain
- 7/10 women with chronic pain reported one or more incidents of childhood trauma
- 50% do not believe their pain is linked to physical or emotional trauma

<http://nationalpainreport.com/childhood-trauma-and-pain-is-there-a-connection-8824829.html>

Childhood Trauma and Adult Pain



- Nearly 44% of the women surveyed said they experienced emotional abuse, making it the most common childhood trauma.
- Bullying (35%) was the second most common trauma, followed by sexual abuse (28%), witnessing domestic violence (24%), physical abuse (23%), and death of a parent or close loved one (17%).

DNA, Epigenetics & The Lick Your Pups Study

- Epigenetics – study of biological mechanisms that will switch genes off & on, may alter function but not the structure.
- ACE are substantial contributors to health disparities in Native Americans
- ACE linked to function of stress-response system including neuroendocrine; PNS & immune system <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3872279/>
- Rat Pups more maternal licking & grooming produced calmer adults. Less licking more stress hormones in adults.
- McGill team able to pharmacologically manipulate gene expression to change anxiety levels. <https://www.mcgill.ca/about/history/features/epigenetics>

The Impact of ACE on an Urban Pediatric Population 2012

- N 701
- Score range 0-9
- Majority 67.2% or N471 experienced (greater than ACE 1)
- 12% N84 experienced (greater than ACE 4)
- Increased ACE scores correlated with increased risk of learning/behavior problems and obesity

[Child Abuse Negl. 2011 Jun;35\(6\):408-13. doi: 10.1016/j.chiabu.2011.02.006. Epub 2011 Jun 8](https://doi.org/10.1016/j.chiabu.2011.02.006)

Long-Term Effect of ACE

- Twenty years of medical research shows that the effects of ACE can last a lifetime:
 - Child's growth & development, including failure to thrive
 - Triggers chronic inflammation & hormonal changes
 - Can alter the way DNA is read & how cells replicate
 - Can increase the risk for depression, heart disease, stroke, cancer, autoimmune diseases, diabetes and Alzheimer's

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What Can Help?

Prevention	Treatment
<ul style="list-style-type: none">• Recognition (screening for ACE's)• Meeting Basic Needs• Fostering strong responsive relationships between children & caregivers• Buffering children from toxic stress• Supporting Early Childhood Development Programs	<ul style="list-style-type: none">• Referral to Mental Health for Counseling• Help adults build core life skills• Family Therapy• Medication• Meditation• Physical Exercise• Spending time in Nature• Yoga

Center on the Developing Child Harvard University

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Child Development Core Story

<https://developingchild.harvard.edu/resources/project-for-babies/>

Video 4

Just Breathe

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Contact Information

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Handout - Challenge of Pain Conference 1-17-2019
Social Determinants of Chronic Pain – Barbara Dailey, DNP, ARNP, FIBH

The impact of adverse childhood experiences on an urban pediatric population Child Abuse Negl. 2011 Jun; 35(6): 408-413

Center on the Developing Child Harvard University <https://developingchild.harvard.edu/ACEs>

- Videos <https://developingchild.harvard.edu/resources/project-for-babies/>

Childhood Trauma Exposure and Toxic Stress: What the PNP Needs to know Gail Hornor, DNP, CPNP [https://www.ipedhc.org/article/S0891-5245\(14\)00344-7/pdf](https://www.ipedhc.org/article/S0891-5245(14)00344-7/pdf) (Covers several appropriate screening questions for various ages)

Prevalence of Adverse Childhood Experiences JAMA Pediatr. 2018 Nov 1;172(11):1038-1044. doi: 10.1001/jamapediatrics.2018.2537

Native American Study <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3872279/>

Books

The Deepest Well: Healing the Long-Term Effects of Childhood Adversity
by Nadine Burke Harris, MD

Childhood Disrupted How Your Biography Becomes Your Biology, and How You Can Heal
by Donna Jackson Nakazawa

The Body Keeps the Score – Brain, Mind, and Body in the Healing of Trauma
by Bessel Van Der Kolk, MD

Less Pain, Fewer Pills by Beth Darnall, PhD (“A superb book for anyone suffering from chronic pain” John Loeser, MD, Professor Emeritus UW)