The Impact of Adverse Childhood Experiences on Health

SUMR SCHOLAR: MARIAH RAMIREZ
VANDERBILT UNIVERSITY
MENTOR: ROY WADE, MD, PHD, MPH, MSHP
Agenda

I. Significance

II. Background on Adverse Childhood Experiences
   - CDC-Kaiser Permanente Original Study
   - Philadelphia ACE Study

III. Summer Project One:
   Impact of Paternal Childhood Adversity on Health Outcomes of Offspring

IV. Summer Project Two:
   Family Medical History Project

V. Summer Project Three:
   Development of a National Youth Firearm Risk and Safety Assessment Tool

VI. My Role/Learning Experiences
Health disparities are not improving

Figure 1. Life expectancy at birth, by race and sex: United States, 1980–2007

Source: National Center on Healthcare Statistics, Health of the United States 2010
Relationship between Health Disparities and Social Determinants of Health

Adapted from Stark, 2016
Background: Adverse Childhood Experiences (ACE)

ACE stands for Adverse Childhood Experiences (1998)

- Abuse
  - Psychological
  - Physical
  - Sexual

- Household Stressors
  - Mental illness
  - Substance abuse
  - Intimate partner violence
  - Divorce
  - Criminal behavior

- Neglect
  - Emotional
  - Physical

17,000 survey respondents
  (79% white)

Adapted from Felitti et al., 1998
## ACE Effect on Health Outcomes

### Association between ACE Score and Risk for Cardiovascular Disease

<table>
<thead>
<tr>
<th>ACE Score</th>
<th>Adjusted Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5 to 6</td>
<td>3.5</td>
</tr>
<tr>
<td>7 to 8</td>
<td>4</td>
</tr>
</tbody>
</table>

### Health Risk Behaviors

<table>
<thead>
<tr>
<th>Health Risk Behaviors</th>
<th>Mental Health Conditions</th>
<th>Physical Health Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Abuse</td>
<td>Depression</td>
<td>Cardiovascular Disease</td>
</tr>
<tr>
<td>Smoking</td>
<td>Anxiety</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Drug Abuse/Illlicit Drug Use</td>
<td>PTSD</td>
<td>Emphysema</td>
</tr>
<tr>
<td>High Risk Sexual Behavior</td>
<td>Suicide/Suicide Attempt</td>
<td>Cancer</td>
</tr>
</tbody>
</table>

Adapted from Dong et al., 2004
Philadelphia ACE Study: Original ACE Study not representative of Urban or Diverse Populations

<table>
<thead>
<tr>
<th>Demographics</th>
<th>ACE Study</th>
<th>Philadelphia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>56</td>
<td>34</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>79% White</td>
<td>45% White</td>
</tr>
<tr>
<td></td>
<td>5% African American</td>
<td>44% African American</td>
</tr>
<tr>
<td></td>
<td>5% Hispanic</td>
<td>14% Hispanic</td>
</tr>
<tr>
<td>High school graduates</td>
<td>94%</td>
<td>81%</td>
</tr>
<tr>
<td>College graduates</td>
<td>43%</td>
<td>24%</td>
</tr>
<tr>
<td>Percent below FPL</td>
<td>Not measured</td>
<td>27%</td>
</tr>
</tbody>
</table>

Adapted from Wade et al., 2016
Philadelphia ACE Study

Conventional/Original ACES
- Physical abuse
- Emotional Abuse
- Sexual Abuse
- Physical Neglect
- Emotional Neglect
- Domestic Violence
- Household Substance Abuse
- Incarcerated Care Provider
- Mental Illness in the home

Additional/Expanded ACEs
- Witnessing Violence
- Living in Unsafe Neighborhoods
- Experiencing Racism
- Living in Foster Care
- Experiencing Bullying

Adapted from Wade et al., 2016
Findings: Many of Original ACEs are More Prevalent in an Urban, Diverse Populations

<table>
<thead>
<tr>
<th></th>
<th>Philadelphia ACE Study (N = 1,784)</th>
<th>CDC-Kaiser ACE Study (N = 17,337)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional abuse</td>
<td>33.2%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>35.0%</td>
<td>28.3%</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>16.2%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Physical neglect</td>
<td>19.1%</td>
<td>14.8%</td>
</tr>
<tr>
<td>Emotional neglect</td>
<td>7.7%</td>
<td>9.9%</td>
</tr>
<tr>
<td>Substance abusing</td>
<td>34.8%</td>
<td>26.9%</td>
</tr>
<tr>
<td>household member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentally ill household</td>
<td>24.1%</td>
<td>19.4%</td>
</tr>
<tr>
<td>member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Witnessed domestic</td>
<td>17.9%</td>
<td>12.7%</td>
</tr>
<tr>
<td>violence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household member in</td>
<td>12.9%</td>
<td>4.7%</td>
</tr>
<tr>
<td>prison</td>
<td></td>
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</tr>
</tbody>
</table>
Findings of Philadelphia ACE Study: Connection between Socioeconomic Status, ACEs, and Health

ACEs increase risk for poverty in adulthood

Both SES and ACEs have influences on poor health

ACE scores affect future health outcomes, and *possibly health outcomes of offspring*
Summer Project One

Impact of Paternal Childhood Adversity on Health Outcomes of Offspring

- Evidence to suggest maternal ACE score has an impact on their children’s health outcomes

What about dads??

Family Medical History Project

Development of a National Youth Firearm Risk and Safety Assessment Tool

- PI: Kimberly Mitchell, PhD from the University of New Hampshire in Collaboration with Roy Wade, MD from Children’s Hospital of Philadelphia
Impact of Paternal Childhood Adversity on Offspring Health Outcomes

Primary Objective:
Assess the impact of paternal ACEs on their health outcomes, on parenting styles, and on the health outcomes of their children

Hypothesis:
Higher ACE scores of father is associated with higher offspring ACE score, lower parenting abilities, and increased household environment chaos

Higher ACE score of offspring will lead to increased risk of negative health outcomes
Methods

Case-Control Study
- ~250 children with Neurocognitive Disorder (NCD) diagnosis
- ~250 children with no NCD diagnosis

Survey in development

Population
- 500 Parents and/or caregivers of children receiving care at 1 of 32 CHOP clinical practice sites
Summer Project #2

Impact of Paternal Childhood Adversity on Health Outcomes of Offspring

Family Medical History Project

Development of a National Youth Firearm Risk and Safety Assessment Tool

- PI: Kimberly Mitchell, PhD from the University of New Hampshire in Collaboration with Roy Wade, MD from Children’s Hospital of Philadelphia
Family Medical History Project at Mount Zion Baptist Church

Health Behavior

Culture <-> Environment
Analysis Phase

Review
- Demographics
- Family medical trees

Coding
- Preset/Emergent Codes
- Codebook
- Code interviews

Analyze
- Association between themes and patterns of illness
- Association between intervention self reported health/health promotion strategies
- Potential opportunities to intervene
Summer Project #3:

Impact of Paternal Childhood Adversity on Health Outcomes of Offspring

Family Medical History Project

Development of a National Youth Firearm Risk and Safety Assessment Tool

◦ PI: Kimberly Mitchell, PhD from the University of New Hampshire in Collaboration with Roy Wade, MD from Children’s Hospital of Philadelphia
Developing an Assessment Tool is Important..

1,297 children die annually from a gun-related injury

Firearm-Related Events: 3rd Leading Cause of death for children, ages 1 to 17
  - Surpasses influenza, pediatric congenital anomalies, pneumonia, chronic lower respiratory diseases

Source: Fowler & Dahlberg, 2017
Focus Group Development

3 Age Groups:
- 1: Parents of 2-9 year olds
- 2: 10-14 year olds
- 3: 15-17 year olds

Primary Goal: Develop a set of questions for pediatricians to use when talking to patients and patients’ parents about guns and gun safety
My Role

Focus Group recruitment, organization and data collection

Paternal survey translation from English to Spanish

Codebook development

Participant in weekly team meetings

Plan to continue work with Dr. Wade remotely
  ◦ Systematic Literature Review: Impact of Parental Childhood Adversity on Parenting
My Learning Experience

Close observation of the many roles, responsibilities, and simultaneous projects of a clinical researcher

Qualitative research skills
- Qualitative coding
- Process of a systematic literature review
- Conducting focus groups

Utilizing research database (REDCap)

Importance of taking initiative/voicing your own interests
Acknowledgements

Dr. Roy Wade

Research Coordinators
- Danielle Collins
- Macy Marcucci

Joanne Levy

Safa Browne

Fellow Research Assistants at CHOP
2017 SUMR Scholars Cohort
Questions?