The 2013 Alberta Adverse Childhood Experiences (ACE) Survey

Key Findings

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Overview

- Background
- Alberta Study
  - Rationale and Objectives
  - Methods
  - ACE descriptive results
  - Domain-specific approach to conceptualizing ACEs
- Resilience
- Implications and Conclusion
Adverse Childhood Experiences (ACEs) include all types of experiences of *abuse*, *neglect*, and *dysfunction within the household* that occur to individuals under the age of 18.
The Landmark ACE (Kaiser) Study

- The Centers for Disease Control in collaboration with one of the largest Health Maintenance Organizations in the US (Kaiser Permanente) conducted the first ACE study.

- Between 1995 and 1997, over 17,000 individuals undergoing physical examinations completed a confidential survey about childhood trauma and current health.

- Participants in this study were educated, employed, middle-class Americans with an average of 57 years.

- The landmark ACE study found relationships between childhood traumatic experiences and poor health and well-being later in life.

www.acestudy.org
ACE Study\(^1\) Findings

As ACE score goes up, so does risk for:

- Organic disease (pulmonary, heart & liver disease)
- Smoking
- Adult alcoholism & illicit drug use
- Depression and suicide attempts
- Multiple sexual partners & STDs
- Poor health–related quality of life
- Intimate partner violence
- Adolescent pregnancy
- Unintended pregnancy
- Fetal death

www.acestudy.org
Brain research helps us understand the mechanism:

- **Toxic stress from trauma in childhood damages the developing brain**

- **Exposure to trauma influences the stress response and coping strategies leading to health and social problems in adulthood**

1http://www.cdc.gov/violenceprevention/acestudy/pyramid.html
The Alberta ACE survey
Rationale

- To date, there has been no research done in Alberta on ACEs and there is limited Canadian data.

- There is a need for provincial baseline data on ACEs.
Objectives

◦ To develop an ACE checklist that is appropriate to the Alberta, Canada context and that can be implemented through telephone methodology

◦ To describe the prevalence of ACEs among Albertan adults

◦ To examine ACEs as risk factors for perceived health and diagnosed conditions

◦ To develop ACE risk profiles using a domain-specific approach
Methods

- Computer-assisted telephone survey with a random sample of adults in Alberta, Canada (n=1207)

- Random digit dialling and computer-assisted telephone interviewing drawing from a provincial database of 8-digit telephone banks

- Two-stage sampling procedure

- Eligibility: ≥18 yrs; able to be contacted by direct dialling; 20.9% response rate
Eight questions were asked about two main areas or domains of childhood trauma: childhood abuse and household dysfunction.

Questions on self-perceived health and diagnosed health conditions were asked.
Prior to your 18th birthday:

Did you frequently experience verbal insults or threats from an adult or parent in the household?

Were you ever injured or bruised from physical abuse by an adult or parent in the household?

Did you experience inappropriate sexual advances or contact by an adult or someone who was 5 or more years older than you?
Prior to your 18th birthday:

Were your parents separated or divorced?

Did you ever witness your mother or stepmother being treated violently?

Were you part of a household where someone abused alcohol or drugs?

Were you part of a household where someone was depressed or mentally ill?

Were you part of a household where someone was diagnosed with a serious chronic illness or physical disability that limited or interfered with his/her daily activities?
## Demographic Characteristics
\[ n=1207 \]

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
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<tbody>
<tr>
<td>Age <em>mean (SD)</em></td>
<td>52.4 (16.3)</td>
</tr>
<tr>
<td>Married/Common-law</td>
<td>791 (65.8)</td>
</tr>
<tr>
<td>Post-secondary education (college, university, or trade)</td>
<td>936 (78.2)</td>
</tr>
<tr>
<td>Employed (PT or FT)</td>
<td>671 (55.7)</td>
</tr>
<tr>
<td>Born in Canada</td>
<td>965 (80.1)</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>1028 (86.2)</td>
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</tbody>
</table>
Prevalence of ACES: Abuse

- Sexual Abuse: 14.9%
- Physical Abuse: 11.0%
- Emotional Abuse: 16.9%

Percentage of participants with a specific ACE
Prevalence of ACES: Household Dysfunction

- Violent among Adults: 13.1%
- Chronic Physical Illness in Household: 16.3%
- Mental Illness in Household: 20.6%
- Parental Separation or Divorce: 11.0%
- Adult Substance Abuse: 20.7%

Percentage of participants with a specific ACE
How Common are ACEs?

56% have at least 1 ACE

44% None
12% One
12% Two
8% Three
12% Four or More
Total ACE Score

More than half of participants (56%) had at least one ACE
ACEs rarely occur in isolation

Consistent with other studies, our findings showed that ACEs were highly interrelated

- **One ACE present**
  - At least one additional ACE
    - Likelihood = 84%
  - At least two additional ACEs
    - Likelihood = 64%
  - At least three additional ACEs
    - Likelihood = 44%
Impact of ACEs

Possible Risk Outcomes:

**BEHAVIOR**
- Lack of physical activity
- Smoking
- Alcoholism
- Drug use
- Missed work

**PHYSICAL & MENTAL HEALTH**
- Severe obesity
- Diabetes
- Depression
- Suicide attempts
- STDs
- Heart disease
- Cancer
- Stroke
- COPD
- Broken bones

http://www.rwjf.org
Impact of ACES

Perceived Health
ACEs and Perceived Health

**Perceived fair or poor physical health**

- ACE Score: 1, Odds Ratio: 1
- ACE Score: 1 to 2, Odds Ratio: 1.65
- ACE Score: 3 or more, Odds Ratio: 2.38

**Perceived fair or poor emotional health**

- ACE Score: 1, Odds Ratio: 1
- ACE Score: 1 to 2, Odds Ratio: 1.65
- ACE Score: 3 or more, Odds Ratio: 3.11
Impact of ACEs

Diagnosed Health Conditions
ACEs and Diagnosed Conditions

Cancer

- Odds Ratio: 1.71, 0.69
- ACE Score: 1, 2, 3

High blood pressure, heart, or stroke

- Odds Ratio: 1.59, 1.12, 1.14
- ACE Score: 1, 2, 3

Diabetes

- Odds Ratio: 1, 1.59, 1.88
- ACE Score: 1, 2, 3

IBS, Crohn's, celiac, or colitus

- Odds Ratio: 1, 3.00, 4.17
- ACE Score: 1, 2, 3

ACEs and Diagnosed Conditions

**Chronic pain, arthritis, hip, or knee problems**

- **1** to **1.94** to **4.53**

**Backache or other back related problems**

- **1** to **1.35** to **2.56**

**Lung or asthma problems**

- **1** to **1.85** to **2.84**

**Allergies**

- **1** to **1.69** to **2.11**
ACEs and Diagnosed Conditions

- There is evidence for a graded relationship between number of ACEs and most adult health outcomes.

- The trend is significant for those outcomes with an inflammatory component and mental health component (e.g., IBS, pain, chronic fatigue, mental health problems, substance dependence).
Previous approaches to studying ACEs include:
- ACE score, Individual ACEs, Individual Domains

Previous approaches may oversimplify early trauma as a risk factor for adult health outcomes

Is there a need for a more comprehensive approach to studying ACEs?
ACE Risk Profiles: Domain–Specific Approach

- Considers BOTH ACE score and ACE domain (abuse or household dysfunction)

[Diagram with pie chart showing distribution of risk profiles:]
- 63% low risk abuse & low risk household dysfunction
- 13.8% low risk abuse & high risk household dysfunction
- 13.4% high risk abuse & low risk household dysfunction
- 9.8% high risk abuse & high risk household dysfunction
ACE risk profiles and Grouped Adult Health Conditions

- Four grouped adult health conditions were created:
  1. Mental Health condition / Addiction
  2. Circulatory condition
  3. Respiratory condition
  4. Chronic pain condition

- Examined association between ACE risk profile variable and each grouped health condition controlling for sociodemographic variables
# Prevalence of Grouped Adult Health Conditions

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<thead>
<tr>
<th>Grouped Adult Health Condition</th>
<th>n (%)</th>
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<tr>
<td><strong>Mental health condition/Addiction</strong> <em>(Anxiety, depression, other mental health problems/alcohol or drug dependence)</em></td>
<td>174 (15.0)</td>
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<tr>
<td><strong>Circulatory condition</strong> <em>(High blood pressure, cardiovascular disease, stroke, diabetes)</em></td>
<td>372 (32.1)</td>
</tr>
<tr>
<td><strong>Respiratory condition</strong> <em>(Lung or asthma problems)</em></td>
<td>314 (27.0)</td>
</tr>
<tr>
<td><strong>Chronic pain condition</strong> <em>(Chronic fatigue syndrome, fibromyalgia, chronic back or joint pain)</em></td>
<td>235 (20.2)</td>
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Overall, the four category ACE risk profile variable was significantly associated with a diagnosed **mental health condition/addiction** and **chronic pain**, when controlling for sociodemographic characteristics.

Given the interrelatedness of ACEs, comprehensive approaches to conceptualization of ACEs are warranted.
Plasticity in brains suggests that resilience factors can mitigate or reverse the potential for poor outcomes.

Resilience factors borne out of ACE concepts include:

- Asking for help
- Developing trusting relationships
- Developing positive coping strategies
- Paying attention to feelings
- Developing a positive outlook
Example items from the RESILIENCE questionnaire:

- ‘I believe that my mother loved me when I was little’
- ‘When I was a child, there were relatives in my family who made me feel better if I was sad or worried’
- ‘Someone in my family cared about how I was doing in school’
- ‘I believed that life is what you make it’
In addition to the ACE checklist, the RESILIENCE questionnaire can improve our understanding of:

- how early experiences affect later health outcomes
- why some individuals who have experienced trauma do well while others don’t
Implications

- Prevent
- Mitigate
- Intervene & Support
We need to focus on prevention of ACEs and recovery from ACEs to decrease the burden of disease.

Strategies include primary, secondary and tertiary prevention.

_Awareness and Education_
Implications

**Primary prevention**: effective programs to prevent exposure to toxic stress and support nurturing and stable relationships for children

**Secondary prevention**: identification of patients who have increased risk due to a high ACE score but do not exhibit problems

**Tertiary prevention**: provision of targeted treatment to address the impact of ACEs among patients with significant impairment
Conclusion

- ACEs are common and co-occur
- Findings showed a graded association with number of ACEs for the majority of adult health outcomes
- The ‘tipping point’ for clinical relevance appears to be at least 3 ACEs
- Children who experienced BOTH abuse and family dysfunction had the highest risk for mental health problems and chronic pain in adulthood
- Strategies to promote resilience in the face of adversity are important
Thank-you!

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