Social Determinants of Child Mental Health

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Disclosures

- No financial disclosures
- We will not be discussing off-label treatments
Learning Objectives

- Understanding general associations between socioeconomic status and childhood mental health
- Review literature focusing on specific social determinants
- Brainstorm ways to better serve the socioeconomically disadvantaged.
Socioeconomic Status in Childhood: Indicators

- Household income
- Income inequality ("Relative poverty")
- Parental employment status
- Parental education attainment
- Food insecurity
- Neighborhood deprivation
SES: Impact on Childhood Mental Health

- Children of low SES more likely to have mental health problems (In US, OR = 1.9-3.2)
- Improvement in SES leads to reduce mental health problems
- Children of low SES more likely to have comorbidities
- Externalizing > internalizing symptoms

Reiss F, Social Science and Medicine, 2013
Theories

- Social causation hypothesis
- Social selection hypothesis
POVERTY
Poverty

- Federal Poverty Threshold
  - $24,339 for family of 4 with 2 children
  - $19,318 for family of 3 with 1 child
  - $16,543 for family of 2 with 1 child
- “Low Income” or “Near Poor”
  - Between 100% and 200% of FPT
Figure 1: Children by family income, 2016

- Above low income: 59%
- Near poor: 22%
- Poor: 19%
- Low income: 41%

Percentages may not add up to 100 due to rounding.

Note: Above low income is defined as at or above 200% of the federal poverty threshold (FPT), poor is defined as below 100% of FPT, and near poor is between 100% and 199% of the FPT. The low-income category includes both the poor and the near poor.
FIGURE F. The Self-Sufficiency Standard for Washington State by Year for Select Counties

ANNUAL INCOME

Great Recession

King County (Seattle)
Yakima County
Clark County
Pacific County

SELF-SUFFICIENCY STANDARD YEAR

FIGURE E. Percentage Change in the Self-Sufficiency Standard for Washington State between 2001-2017
Two Adults, One Preschooler, and One School-Age Child: WA 2017

PERCENTAGE CHANGE
2001 — 2017
41% — 50%
51% — 59%
60% — 69%
70% — 79%

Note: King and Pierce counties percentage change represents weighted average across counties. In 2001, Kitsap and Snohomish counties were calculated in one area. Thus, for 2017 the cost data representing the largest population is used for this comparison (South Kitsap County and West Snohomish County).
Poverty

- Children receiving welfare twice as likely to have mental health problems (Spady DL, 2001)
- Associated with smaller white matter, cortical grey matter, hippocampal and amygdala volumes (Luby J, JAMA Pediatr, 2013)
  - Hippocampal volume mediated by caregiving (L) and stressful life events (R)
- Children from low income households score average of 4-7 points less on standardized tests (Hair NL, JAMA Pediatr, 2015)
Adverse Childhood Experiences (ACE) Study 1998

Defining Childhood Exposures

- Psychological abuse (11%)
- Physical abuse (10.8%)
- Sexual abuse (22%)
- Violence against mother (12.5%)
- Substance abuse in household (25.6%)
- Mentally ill in household (18.8%)
  - “Depressed or mentally ill?” (17.5%)
  - “Attempt suicide?” (4%)
- Imprisonment (3.4%)

Risk Factors and Disease Conditions

- Smoking
- Severe Obesity
- Physical Inactivity
- Depressed mood
- Suicide attempts
- Alcoholism
- Any drug abuse
- Parenteral drug abuse
- High number lifetime sex partners
- Hx STD
- Ischemic Heart Disease
- Any cancer
- Stroke
- Chronic Bronchitis/emphesema/COPD
- Diabetes
- Hepatitis
- Skeletal fractures

# Adverse Childhood Experiences (ACE) Study 1998

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## Adverse Childhood Experiences (ACE) Study 1998

Table 4. Number of categories of adverse childhood exposure and the adjusted odds of risk factors including current smoking, severe obesity, physical inactivity, depressed mood, and suicide attempt

<table>
<thead>
<tr>
<th>Health problem</th>
<th>Number of categories</th>
<th>Sample size (N)(^a)</th>
<th>Prevalence (%)(^b)</th>
<th>Adjusted odds ratio(^c)</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or more weeks of depressed mood in the past year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>3,799</td>
<td>14.2</td>
<td>1.0</td>
<td>Referent</td>
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<tr>
<td></td>
<td>1</td>
<td>1,984</td>
<td>21.4</td>
<td>1.5</td>
<td>(1.3–1.7)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1,036</td>
<td>31.5</td>
<td>2.4</td>
<td>(2.0–2.8)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>584</td>
<td>36.2</td>
<td>2.6</td>
<td>(2.1–3.2)</td>
</tr>
<tr>
<td></td>
<td>4 or more</td>
<td>542</td>
<td>50.7</td>
<td>4.6</td>
<td>(3.8–5.6)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7,945</td>
<td>22.0</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Ever attempted suicide</td>
<td>0</td>
<td>3,852</td>
<td>1.2</td>
<td>1.0</td>
<td>Referent</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1,997</td>
<td>2.4</td>
<td>1.8</td>
<td>(1.2–2.6)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1,048</td>
<td>4.3</td>
<td>3.0</td>
<td>(2.0–4.6)</td>
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<tr>
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<td>3</td>
<td>587</td>
<td>9.5</td>
<td>6.6</td>
<td>(4.5–9.8)</td>
</tr>
<tr>
<td></td>
<td>4 or more</td>
<td>544</td>
<td>18.3</td>
<td>12.2</td>
<td>(8.5–17.5)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>8,028</td>
<td>3.5</td>
<td>—</td>
<td></td>
</tr>
</tbody>
</table>
INCOME INEQUALITY
In 2016, 12% of national income was received by the top 1% in Western Europe compared to 20% in the United States. In 1980, 10% of national income was received by the top 1% in Western Europe, compared to 11% in the United States.
Income Inequality

• Associated with increased incidence of depression in adolescent girls but not boys (Pabayo R et al, J Epidemiol Community Health, 2016)
  • Social cohesion does not necessarily mediate this effect.
• Internationally, higher income inequality associated with...
  • Decreased physical activity
  • Higher BMI
  • More psychological sx$s
  • Decreased life satisfaction (Elgar FJ et al, Lancet, 2015)
FOOD INSECURITY
Food Insecurity: Definition

• “Food Insecurity”: Limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire acceptable foods in a socially acceptable way.

• “Very Low Food Security”: At least one member of household goes hungry at times due to inability to secure adequate food.
Food Insecurity: Washington State

• 2014-2016
  • 12% food insecure (13% US)
  • 5% very low food security (5% US)

WA State Dept of Health 2018
Food Insecurity and Neurodevelopment

• Maternal undernutrition associated with low birth weight (Vohr BR et al, Pediatrics, 2017)
• Low preconception BMI a risk factor for poor birth outcomes
• Nutritional content is key for neurodevelopment
  • Folate, Choline, B12, Zinc, Tryptophan, Omega-3s, Iodine, Iron
• High intake of processed foods during pregnancy predicts externalizing symptoms at age 5 (Jacka et al, JAACAP, 2013)
NEIGHBORHOOD DEPRIVATION
Neighborhood Deprivation: Characteristics

- More dangerous
- Poorer municipal services
- Greater degree of physical deterioration
- Fewer options for childcare
- Lower per-pupil school expenditures
- Higher exposure to environmental toxins
The task force divided the city’s 85,000 most troubled properties into three types of blight, recommending “immediate removal” of nearly half of them.

Of 377,602 properties surveyed, 84,641, or 22 percent, were found to be blighted.

Of the blighted properties:
- 40,077 are recommended for demolition.
- 38,429 need further review.
- 6,135 are vacant lots.

Black outlines show areas targeted as highest priority for blight intervention.
Children in poor neighborhoods have significantly more behavior problems
  - Family wide environment accounts for 20% of variability in behavior
  - Neighborhood deprivation accounts for 1% (Caspi A et al, Psychological Science, 2000)
- Prenatal exposure to air pollutants associated with reduced L hemisphere white matter volume in school aged children (Peterson BS et al, JAMA Psychiatry, 2015)
  - Slower processing speed
  - ADHD and externalizing sxs
- Exposure to greenspace within 1000m of home associated with reduced aggression in youth (Younon D et al, JAACAP, 2016)
The following is associated with childhood poverty EXCEPT:

a) Higher rates of externalizing behaviors
b) Smaller hippocampal volume
c) Higher rates of OCD
d) Lower average scores on standardized tests
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QUESTIONS?

THANK YOU