Early Childhood Predictors of Boys’ Antisocial Behavior and Adjustment in Adolescence and Early Adulthood

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Women, Infants, and Children Nutritional Supplement Program
National Institute of Mental Health
National Institute on Drug Abuse
Aims

Describe developmental model of early conduct problems

Review support for components of model from ages 1 to 20 years

Briefly discuss implications for further basic and applied work
The Spread Of Antisocial Behavior

Working alone, Professor Dawson stumbles into a bad section of the petri dish.
Child Effects Model

Killer bees are generally described as starting out as larvae delinquents.
Parent Effects Model
Parent, Family, and Neighborhood
Developmental Transformations: 12 to 24 Months

- Increase in undirected anger
- Walking to toddling
12-24 Months: Transition to Physical Mobility
Attachment Theory: Early Starting Conduct Problems (Ainsworth, Sroufe, Greenberg)

- Sensitivity in 1st two years promotes child compliance
- By preschool age, parental requests should be honored differentially based on the quality of the parent-child relationship and the stakes for displeasing parents
- Supports parents making investment in child early on
Patterson’s Early Starter Model of Coercion

PARENTS:
Deficits in Family Management skills

CHILD
Irritability, Hyperactivity

Coercive Cycles of Interaction
### Totals

- **Sex of child**: 310 boys
- **Yearly Income**: $12,708
- **Mother’s age**: 28, range 17-43
- **Maternal education**: 12.6 years
- **% Married/Living Together**: 62
- **% White/Afr. Amer.**: 53/36
- **Criminality**: 36%
Pitt Mother & Child Project: Follow-Up Schedule

1 yr.  1.5 yr.  2 yr.  3.5 yr.  5 yr.  5.5 yr.  6 yr.  8 yr.  10 yr.  11 yr.  12 yr.  15 yr.  17 yr.  20 yr
Lab   Lab/   Lab    Lab     Home  Home    Lab    Home  Home  Lab    Home  Home  Home  Home

----  Camp  ----  ---  Court Data  ---

----------Teacher and School Data ---------

83% retention at age 20
Measurement Strategies

Focus on observation of developmentally salient issues (e.g., maternal responsiveness & infant persistence at age 1, discipline practices at age 2)

Assess in multiple contexts (e.g., home, lab, summer camp, school) with observations of target child interacting with parents, sibs, peers, best friends, and romantic partners

Supplement observations with reports of family, child, and community risk factors using multiple family members, peers, best friends, romantic partners, teachers, school and official records
Measures

**High Chair Task at 1 yr:** Maternal Responsiveness and Infant Persistence

**Child Noncompliance at 2 yrs:** observed during clean-up task

**Behavioral Inhibition at 2 yrs:** In response to distressing gorilla sounds

**Parenting Practices at 1.5 & 2 yrs:** Hostile/Rejecting based on molecular and global ratings during clean-up task

**Sibling Conflict at 5 yrs:** Verbal and physical conflict between target child and closest-age sib during 1 hour directed play session

**Maternal Resources:** HOME Acceptance (2 yrs.), Beck Depression Inventory (1.5 to 5 years), General Life Satisfaction (1.5 yrs.), and Parenting Daily Hassles (1, 5, 2, & 3.5 yrs.)

**Child IQ at 5.5 yrs:** 4 subscales of the WPPSI-R

**Achenbach CBCL/TRF at 2, 3.5, 5, 6, 8, 10-12 yrs:** Externalizing, Aggression, and other DSM-based factors
Child and Parenting Predictors: Boys

- Persistence (12 Months)
  - .19x
- Noncompliance (24 months)
  - .29*
  - .38**
  - .18x
- Maternal Rejection (24 months)
  - .39**
- CBCL Externalizing Problems (24 months)
  - .70***
- CBCL Externalizing Problems (42 months)
  - -.23*

- Maternal Responsiveness (12 months)
  - -.33**

*p < .10, *p < .05, **p < .01, ***p < .001
Trajectories Leading to Clinically-Elevated Scores on TRF Aggression at age 8: **CBCL Aggression** at Ages 2, 3.5, 5, & 5.5

CBCL Aggression

**Effect size** = -.1 - .48 sd
Shaw, Bell, & Gilliom, Clinical Child and Family Psychology Review (2000)
Trajectories Leading to Clinically-Elevated Scores on TRF Aggression at age 8: Maternal Depressive Symptoms At Ages 1.5, 2, 3.5, and 5.5

Maternal Depressive Symptoms

Effect size = .27 - .73 sd
Maternal Social Support

Trajectories Leading to Clinically-Elevated TRF Aggression Scores at Age 8: Maternal Social Support at Age 1.5

Effect size = .80 sd
Trajectories Leading to Clinically-Elevated TRF Aggression at age 8: HOME Total at Age 2

Nonproblem at or > 90th %

Effect size = .56 sd
Developmental Trajectories of Overt Antisocial Behavior

Shaw, Gilliom, Ingoldsby, & Nagin (2003), Developmental Psychology
Age 2 Risk Factors that Differentiate Initially High vs. Initially Low Starting Groups

- Including rejecting parenting, child IQ, maternal education, and family income as other predictors:
- Low Behavioral Inhibition
- High Maternal Depressive Symptomatology
Age 2 Risk Factors that Differentiate Persisters vs. Desisters

- Including child IQ, maternal education, and family income, and maternal depression as other predictors:
- Low Behavioral Inhibition
- High Rejecting Parenting

![Graph showing Overt Antisocial Behavior over Age (years) for different groups: Low-actual, Mod. desister-actual, High desister-actual, Chronic-actual, Low-pred., Mod. desister-pred., High desister-pred., Chronic-pred.](image)
Developmental Trajectories of Youth Antisocial Behavior Ages 10-17

4 group solution with highest BIC score, all posterior probabilities > .85

Shaw, Hyde, & Brennan, 2012, Development and Psychopathology
Trajectory Group Differences on Juvenile Court Petitions

- Low Stable -- 62% of sample: 25%
- High ‘Decreasing’ -- 5% of sample: 60%
- Late Increasing -- 10% of sample: 49%
- High Increasing -- 22% of sample: 78%
Accounting for predictors in early childhood,

- Factors that discriminated high increasers from low stable: *maternal depression* at ages 1.5-3.5 years
- Factors that discriminated ‘high decreasing’ group: *rejecting parenting and maternal depression*

Shaw et al., *Development and Psychopathology*, 2012
Amygdala reactivity and AB Trajectory Groups (N = 51)
Choe, Shaw, & Hyde., 2014, Clinical Psychological Science
Early childhood factors that discriminated:

- Nonoffenders vs. nonviolent offenders
  - Family income
- Violent offenders vs. nonoffenders
  - Family income, oppositional behavior, emotion regulation (ER), minority status
- Violent vs. nonviolent offenders
  - Rejecting parenting, oppositional behavior, ER

* Sitnick, Shaw et al., in press, *Child Development*

* homicide, forcible rape, sexual/physical assault, robbery, arson, weapons possession
Sex Differences in Risk for School-Age Conduct Problems

- Male sex: a robust risk factor for CP (Moffitt et al., 2001; Rutter et al., 2003)

Risk factor prevalence
- Do boys have higher levels of risk factors than girls? (Moffitt et al., 2001; Rutter et al., 2003)

Risk factor threshold
- Are associations between risk factors and conduct problems stronger in boys than in girls? (Moffitt et al., 2001; Lahey et al., 2006; Fergusson & Horwood, 2002)

Contextual risk differences less clear (e.g., harsh parenting)
- Findings that boys have higher levels of risk (e.g., inhibitory control, language delays) than girls (Moffitt, 1993; Messer et al., 2006)

Inconsistent findings (Moffitt et al., 2001; Lahey et al., 2006; Fergusson & Horwood, 2002)
Participants
- 731 children and families recruited from Women, Infants, and Children Nutrition Programs at 3 sites
- High-risk: ≥1 SD above mean in 2 of 3 domains
- 28% African American, 50% European American, 13% biracial, and 9% other
- In-home assessments: 2, 3, 4, 5, 7.5, 8.5, 9.5, 10.5
  - Parent reports, structured interaction tasks, examiner interview
- Randomly assigned to the Family Check-Up at age 2
  - Intervention assignment used as a control
Developmental Trajectories of Aggression from Ages 2 to 9.5

Brennan & Shaw, 2015
# Developmental Trajectories of Aggression from Ages 2 to 9.5

Aggression class distribution and means known-class solution (together)

<table>
<thead>
<tr>
<th>Class</th>
<th>Males N (%)</th>
<th>Females N (%)</th>
<th>Aggressive behavior mean (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>49 (13.3)</td>
<td>25 (6.9)</td>
<td>M: .83 (.6-1.23) F: .84 (.65-1.32)</td>
</tr>
<tr>
<td>Increasing</td>
<td>38 (10.5)</td>
<td>33 (9.1)</td>
<td>M: .47 (.31-.71) F: .49 (.27-.80)</td>
</tr>
<tr>
<td>Decreasing</td>
<td>83 (22.5)</td>
<td>72 (19.9)</td>
<td>M: .44 (.24-.80) F: .39 (.26-.70)</td>
</tr>
<tr>
<td>Low</td>
<td>199 (53.9)</td>
<td>232 (64.1)</td>
<td>M: .14 (0-.4) F: .10 (0-.35)</td>
</tr>
</tbody>
</table>

Aggression class distribution and means from separate sex solutions

<table>
<thead>
<tr>
<th>Class</th>
<th>Males N (%)</th>
<th>Females N (%)</th>
<th>Aggressive behavior mean (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>48 (13.0)</td>
<td>26 (7.2)</td>
<td>M: .83 (.6-1.23) F: .83 (.65-1.32)</td>
</tr>
<tr>
<td>Increasing</td>
<td>37 (10.0)</td>
<td>32 (8.8)</td>
<td>M: .46 (.31-.70) F: .47 (.27-.80)</td>
</tr>
<tr>
<td>Decreasing</td>
<td>86 (23.3)</td>
<td>72 (19.9)</td>
<td>M: .44 (.24-.8) F: .40 (.26-.70)</td>
</tr>
<tr>
<td>Low</td>
<td>198 (53.7)</td>
<td>232 (64.1)</td>
<td>M: .14 (0-.4) F: .10 (0-.32)</td>
</tr>
</tbody>
</table>
## Comparisons of Child and Contextual Factors by Child Sex

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Male Mean (% meeting risk)</th>
<th>Female Mean (% meeting risk)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>-.11 (27.9%)</td>
<td>0.07 (22.4%)</td>
<td><em>p &lt; .01</em></td>
</tr>
<tr>
<td>Inhibitory control</td>
<td>3.88 (29.5%)</td>
<td>4.06 (19.6%)</td>
<td><em>p &lt; .01</em></td>
</tr>
<tr>
<td>ADHD</td>
<td>1.14 (31.4%)</td>
<td>1.10 (26.8%)</td>
<td><em>p &lt; .10</em></td>
</tr>
<tr>
<td>Fearlessness</td>
<td>2.97 (17.6%)</td>
<td>2.91 (13.5%)</td>
<td><em>ns</em></td>
</tr>
<tr>
<td>Cumulative Risk</td>
<td>1.07</td>
<td>0.82</td>
<td><em>p &lt; .001</em></td>
</tr>
<tr>
<td><strong>Contextual Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engagement</td>
<td>0.23 (25.5%)</td>
<td>0.23 (24.0%)</td>
<td><em>ns</em></td>
</tr>
<tr>
<td>Coercion</td>
<td>0.25 (25.2%)</td>
<td>0.24 (24.3%)</td>
<td><em>ns</em></td>
</tr>
<tr>
<td>Depression</td>
<td>17.20 (44.4%)</td>
<td>16.29 (38.4%)</td>
<td><em>ns</em></td>
</tr>
<tr>
<td>Education</td>
<td>5.23 (21.1%)</td>
<td>5.16 (26.0%)</td>
<td><em>ns</em></td>
</tr>
<tr>
<td>Income</td>
<td>3.72</td>
<td>3.84</td>
<td><em>ns</em></td>
</tr>
<tr>
<td>Cumulative Risk</td>
<td>1.16</td>
<td>1.13</td>
<td><em>ns</em></td>
</tr>
</tbody>
</table>
Summary of Findings

For boys, child and parenting precursors identifiable from 1.5-2 years of age, stronger than for girls
- Both independent and interactive effects of parenting and child

Factors that compromise parenting also related to persistence of conduct problems
- Maternal depression, social support

For male and female toddlers identified at high-risk for early conduct problems, boys’ higher risk for persistently high trajectories based on child risk, but no differences in magnitude of associations for boys and girls with similar levels of early CP
Discussion

• Overall results suggest importance of identifying at-risk boys in early childhood
  – Based on greater vulnerability to contextual risk factors
  – Higher levels of child risk (language, inhibitory control)
  – Consistent with literature on boys’ higher rates of host of neurodevelopmental disorders (LD, autism, ADHD), stillbirths and death in first year

• How to engage such families?