Developmental Pathways to Conduct Disorder: Implications for Understanding and Preventing Aggression in Youth

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Sources: Dodge & Petit, 2003; Frick, 1998; Loeber & Farrington, 2000; Raine, 2002
Contextual Risk Factors:

- Prenatal Exposure to Toxins
- Poor Quality Child Care
- High Crime Neighborhoods
- Exposure to Violence
- Peer Rejection
- Deviant Peer Group
- Parental Psychopathology
- Poor Parental Discipline
- Lack of Parental Involvement
- Family Conflict

Sources: Dodge & Petit, 2003; Frick, 1998; Loeber & Farrington, 2000; Raine, 2002
Childhood-Onset Conduct Disorder

Cruel to others, Stealing, Running away from home, Truancy, Breaking and entering, Assault

Lies, Physical fights, Bullies others, Cruel to animals, Breaks rules

Stubborn, Defies Adults, Non-compliant, Temper tantrums, Argumentative, Annoys others
Differential Correlates to the Subtypes of Conduct Disorder

- **Childhood-Onset Subtype**
  - Family dysfunction
  - Deficits in verbal intelligence
  - Deficits in social cognition
  - Poor response inhibition (ADHD)
  - Association with a deviant peer group

- **Adolescent-Onset Subtype**
  - High levels of rebelliousness
  - Rejecting of traditional values and status hierarchies
  - Association with a deviant peer group

Sources: Frick 1998; Moffitt, 2003
Cleckley’s Psychopath


- Superficial charm
- Absence of nervousness
- Untruthfulness and insincerity
- Lack of remorse or shame
- Unreliability
- Inadequately motivated antisocial behavior
- Pathological egocentricity
- Incapacity for love
- Poverty in major affective reactions
I. Construct Development
<table>
<thead>
<tr>
<th>Dimensions of Psychopathy in Children</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CALLOUS-UNEMOTIONAL</strong></td>
</tr>
<tr>
<td>Is unconcerned about the feelings of others</td>
</tr>
<tr>
<td>Does not feel bad or guilty</td>
</tr>
<tr>
<td>Is unconcerned about school work</td>
</tr>
<tr>
<td>Does not keep promises</td>
</tr>
<tr>
<td>Does not show emotions</td>
</tr>
<tr>
<td>Does not keep the same friends</td>
</tr>
<tr>
<td><strong>NARCISSISM</strong></td>
</tr>
<tr>
<td>Thinks he or she is more important than others</td>
</tr>
<tr>
<td>Brags excessively about accomplishments</td>
</tr>
<tr>
<td>Uses or cons others</td>
</tr>
<tr>
<td>Can be charming in ways that seem insincere</td>
</tr>
<tr>
<td>Becomes angry when corrected</td>
</tr>
<tr>
<td><strong>IMPULSIVITY</strong></td>
</tr>
<tr>
<td>Acts without thinking</td>
</tr>
<tr>
<td>Does not plan ahead</td>
</tr>
<tr>
<td>Engages in risky activities</td>
</tr>
<tr>
<td>Blames others for mistakes</td>
</tr>
<tr>
<td>Gets bored easily</td>
</tr>
</tbody>
</table>

Dimensions of Psychopathy and Type of Juvenile Offending

Caputo, Frick, & Brodsky, 1999

\[ X^2 (2, n=69) = 9.15, \ p < .01 \]

\[ X^2 (2, n=69) = .04, \ p = ns \]
Dimensions of Psychopathy in Clinic-Referred Children

Christian, Frick, Hill, Tyler, & Frazer, 1997
Childhood-Onset Subtypes: Callous-Unemotional

Is unconcerned about the feelings of others

Does not feel bad or guilty

Is unconcerned about school work

Does not show emotions

Does not keep promises

Does not keep the same friends

Childhood-Onset Subtypes: Callous-Unemotional

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Does not keep the same friends

Factor Analysis of Inventory of Callous-Unemotional Traits

Essau, Sasagawa, & Frick, 2006 / Kimonis et al., in press

Callousness

I do not care who I hurt to get what I want

I am concerned about the feelings of others (I)

I do not care if I get into trouble

I do not feel remorseful when I do something wrong

I do not care about doing things well

The feelings of others are unimportant to me

I do not care about being on time

I do not like to put the time into doing things well

What I think is “right” and “wrong” is different from what other people think

I do not let my feelings control me

I seem very cold and uncaring to others
Factor Analysis of Inventory of Callous-Unemotional Traits

Uncaring

I always try my best (I)
I try not to hurt others’ feelings (I)

I work hard on everything I do (I)
I do things to make others feel good (I)

I apologize (’say I’m sorry’) to persons I hurt (I)
I easily admit to being wrong (I)

I care about how well I do school work (I)
I feel bad or guilty when I do something wrong (I)
Factor Analysis of Inventory of Callous-Unemotional Traits

Essau, Sasagawa, & Frick, 2006 / Kimonis et al., in press

**Unemotional**

I express my feelings openly (I)

I am very expressive and emotional (I)

I do not show my emotions (I)

I hide my feelings from others

It is easy for others to tell how I am feeling (I)
Stability of Parent Reported Psychopathic Traits in a Non-referred Sample

Frick, Kimonis, Dandreaux, & Farrell, 2004

<table>
<thead>
<tr>
<th></th>
<th>2 Years (n=92)</th>
<th>3 Years (n=86)</th>
<th>4 Years (n=77)</th>
<th>Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU Traits</td>
<td>.76</td>
<td>.86</td>
<td>.71</td>
<td>.90&gt;</td>
</tr>
<tr>
<td>Narcissism</td>
<td>.88</td>
<td>.84</td>
<td>.77</td>
<td>.92&gt;</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>.86</td>
<td>.73</td>
<td>.72</td>
<td>.87&gt;</td>
</tr>
<tr>
<td>Total</td>
<td>.88</td>
<td>.87</td>
<td>.80</td>
<td>.93&gt;</td>
</tr>
</tbody>
</table>

Stability coefficients are all Average Measure Intraclass Correlation Coefficients (Absolute Agreement Definition); All p < .001

3 year stability - Mn r = .46 (.30-.58) ; McConaughy et al., 1992

4 year stability - Mn r = .41 (.11-.67) ; Verhulst et al., 1990
Prediction from Childhood to Adulthood

Burke et al., 2007
- CU - age 7-12 (177 clinic-referred boys)
- PCL-R - age 18-19
- Teacher rated CU predicted PCL-R after controlling for CD, IQ, and SES

Lynam et al., 2007
- CU - age 12 (250 high risk boys)
- PCL-R - age 24
- R=.32
II. Association with Severity of Antisocial Behavior
CU Traits and Severity of Antisocial Behavior

Kruh, Frick, & Clements, 2005

- Adolescents incarcerated in adult prisons (n=100)

  - Associated with greater frequency and severity of violence
    - Historical risk indices were not

  - Associated with a pervasive pattern of violence
    - Repeated instances of violence against same victim
    - More severe injuries to victim
    - More likely to be for instrumental or sadistic motives
CU Traits and Severity of Antisocial Behavior

Christian, Frick, Tyler, Hill, & Frazer (1997)

- Children (6 - 13 years) referred to a mental health clinic (n=112)
  - Children with conduct problems AND CU traits
    - Greater number and variety of conduct problems
    - Stronger family history of antisocial behavior
    - Higher rates of police contacts
### CU Traits and the Prediction of Antisocial Behavior in a School-Based Sample

**Frick, Cornell, Barry, Bodin, & Dane, 2003**

<table>
<thead>
<tr>
<th>Conduct Problems</th>
<th>CU Traits</th>
<th>Lo</th>
<th>Hi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lo</td>
<td>Hi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N=225</td>
<td>N=77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SEI = 53.49 (12.38)</td>
<td>SEI = 22.46 (22.46)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys = 32%</td>
<td>Boys = 60%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caucasian = 92%</td>
<td>Caucasian = 64%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N=66</td>
<td>N=128</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SEI = 54.53 (19.95)</td>
<td>SEI = 37.17 (19.10)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys = 52%</td>
<td>Boys = 64%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caucasian = 91%</td>
<td>Caucasian = 68%</td>
<td></td>
</tr>
</tbody>
</table>
CU Traits and Type of Aggression in a Non-Referred Sample

Frick, Cornell, Barry, Bodin, & Dane, 2003

- Mean Age = 12.35 (1.72)
- Gender = 52% Girls / 48% Boys
- Ethnicity = 21% African-American / 79% Caucasian
- Mean K-BIT Composite = 104.74 (12.98)
CU Traits, Conduct Problems, and Type of Aggression in a Non-Referred Sample

Frick, Cornell, Barry, Bodin, & Dane, 2003

Reactive Aggression
CP: $F(1,86) = 37.78$ ***

Proactive Aggression
CP: $F(1,86) = 22.20$ ***
CU X CP: $F(1,86) = 5.53$ *
Conduct Problem Trajectories

Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005
Self-Report of Delinquency Trajectories

Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005
Property Delinquency Trajectories

Number of Self-reported Property Offenses

Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005
Violent Delinquency Trajectories

Number of Self-reported Violent Offenses

Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005
Cumulative Hazard Curves for Parent-Reported Police Contacts

Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005
Other Evidence for CU Traits being Associated with Severity of Antisocial Behavior in Youth

- Frick & Dickens (2006) Review
  
  ▶ 10 published concurrent studies
    
    - As young as age 3 and 4 (Kimonis et al., 2006)
  
  ▶ 13 published predictive studies
    
    - Gretton et al. (2004) - CU traits in adjudicated adolescents (ages 12-18) predicted more violent offenses and shorter time to violent reoffending over 10 year follow-up
  
  ▶ 5 published studies as negative treatment indicator
    
    - Hawes & Dadds (2005) - predicted poor response to parenting intervention in 4 to 8 year old clinic-referred children
III. Designating a Distinct Developmental Pathway within Childhood-Onset Conduct Disorder
Estimates of Genetic Influences on Conduct Problems with and without CU Traits in 7374 7-year old Twins

Viding, Blair, Moffitt, & Plomin, 2005
CU Traits, Conduct Disorder, and Thrill Seeking

Frick, 1998
Callous-Unemotional Traits and Reward Dominance

Barry, Frick, DeShazo, McCoy, Ellis, & Loney, 2000
Callous-Unemotional Traits and Reward Dominance

Barry, Frick, DeShazo, McCoy, Ellis, & Loney, 2000
CU Traits and Performance on an Emotional Lexical Decision Task

Loney, Frick, Clements, Ellis, & Kerlin, 2003

- **Lexical Decision Task using short concrete words**
  - **Positive words** - cake, glad, play, hope, gift
    - Positive non-words - Ceka, gald, plya, hepo, gfit
  - **Neutral** - box, room, lift, foot, bowl
  - **Negative** - gun, fear, cut, cry, hurt

- **Measures reaction time to recognizing word/non-words**
- **Facilitation index = correct RT neutral - correct RT emotional**
- **Must have at least 70% correct in reading post-test**
CU Traits and Performance on an Emotional Lexical Decision Task

Loney, Frick, Clements, Ellis, & Kerlin, 2003

- 60 male enrollees in juvenile diversion program
- Mean age = 16.04 (sd=1.32)
- 75% African-American
- Mean IQ = 87.00 (sd=10.44)
## Response Time Facilitation to Negative Words

<table>
<thead>
<tr>
<th></th>
<th>beta</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSD CU</td>
<td>-10.92*</td>
<td>-.32*</td>
</tr>
<tr>
<td>PSD I/CP</td>
<td>5.54</td>
<td>.26</td>
</tr>
<tr>
<td>PSD CU</td>
<td>-7.50*</td>
<td>-.28</td>
</tr>
<tr>
<td>ADHD Sx</td>
<td>4.96*</td>
<td>.30*</td>
</tr>
</tbody>
</table>
Examples of Emotional Pictures

Example Threat Slide

Example Distress Slide

Example Positive Slide

Example Neutral Slide
Emotional Processing and CU Traits in a Sample of Community Children

Kimonis, Frick, & Fazekas, 2006

- 50 children (ages 6 -13) of college students
- Mean age = 9.30 (sd=2.00)
- Mean SEI = 54.73 (sd = 23.24)
- 70% Caucasian
- 24% had received mental health services
Emotional Processing and CU Traits in a Sample of Community Children (n=50)

Kimonis, Frick, Fazekas, & Loney, 2006

Beta = -.46, p < .05

Beta = .13, p = n.s.
Emotional Processing and CU Traits in a Sample of Detained Boys (n=88)

Kimonis, Frick, Munoz, & Aucoin, in press

![Graph showing emotional facilitation to distress in response to pictures across different levels of CU traits.](image)

- Low Aggressive: Beta = -.22, p = n.s.
- High Aggressive: Beta = .27, p = n.s.
Emotional Processing and CU Traits in a Sample of Detained Boys

Kimonis, Frick, Munoz, & Aucoin, in press

- 88 adolescent detained boys (13 - 18)
- Mean age = 15.57 (sd=1.28)
- Mean PPVT-III = 85.60 (sd = 13.50)
  - PPVT < 65 excluded
- 68% African-American
Competitive Reaction Time Task

Munoz et al., 2008

- Task goal - press space bar faster than opponent
  - Win - 50 points + take 0-100 points from opponent + record taunt
  - Lose - High Provocation (n=8)
    - Lose 80 to 100 points
    - Severe taunt, “You’re so slow my Grandma could beat you. That’s going to cost you 100 points”.
  - Lose - Low Provocation (n=8)
    - Lost 0 to 20 points
    - Mild taunt, “Nice try! I’ll cut you a break. I’ll only take 10 points this time”.

- Skin Conductance Response after high and low provocation messages (mn amplitude 1 to 5 secs post stimulus).
### CU Traits and Response to Provocation

**Munoz et al., 2008**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Mn SCR/ Low Prov</th>
<th>Mn SCR/ HI Prov</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ICU</td>
<td>-.25 *</td>
<td>-.25 *</td>
</tr>
<tr>
<td>Callous</td>
<td>-.10</td>
<td>-.13</td>
</tr>
<tr>
<td>Uncaring</td>
<td>-.22 *</td>
<td>-.18</td>
</tr>
<tr>
<td>Unemotional</td>
<td>-.19</td>
<td>-.21 *</td>
</tr>
</tbody>
</table>
31 studies showing different correlates than antisocial behavior or showing it designate a distinct group of antisocial/delinquent youth

- Reduced responsiveness to emotional stimuli (n=10)
- Abnormal responses to punishment cues (n=10)
- Negative correlations with anxiety/neuroticism controlling for level of conduct problems (n=7)
A Developmental Model of Callous-Unemotional Traits

- Fearlessness or low behavioral inhibition
- Poor arousal to misfortune of others
- Insensitivity to parental and societal sanctions
- Ignoring the potential harmful effects of behavior

Callous and unemotional interpersonal style

Especially severe antisocial behavior which includes instrumental aggression
Temperament and Parenting Interactions in Predicting Conscience Development in Pre-Schoolers

Cornell & Frick, 2007

Inhibited (N=43)

Parent-Rated Guilt

Uninhibited (n=44)

Inconsistent Discipline

Std. Beta = .13, p = n.s.

Std. Beta = -.32, p < .05
Temperament and Parenting Interactions in Predicting Conscience Development in Pre-Schoolers

Authoritarian Parenting

Parent-Rated Guilt

Inhibited (N=43) Uninhibited (n=44)

Std. Beta = -.08, p = n.s.

Std. Beta = .38, p < .01
CU Traits and Treatment Response

Hawes & Dadds, 2005

Partial Correlation Between CU traits and Parent Ratings of Ineffectiveness

P < .05

P = N.S

Correlation Between CU traits and Parent Ratings of Negative Affect in Time-Out

Post-Treat

Follow-up

P < .01

P < .01

NOTE: 55 CLINIC-REFERRED BOYS BETWEEN THE AGES OF 4 AND 8 (M=6.29; SD = 1.55)
Characteristics of Antisocial Youth Children without CU traits

- Impulsive, with high rates of ADHD
  - Adjudicated sample (Caputo et al., 1999)
  - Clinic-referred sample (Christian et al., 1997)
  - Community sample (Frick, Bodin, & Barry, 2000)

- Distressed by effects of behavior on others
  - Adjudicated sample (Pardini et al., 2003)
  - Clinic-referred sample (Frick et al., 1999)
  - Community sample (Frick, Cornell, Bodin et al., 2003)

- High levels of emotional reactivity
  - Self-report ratings (Pardini et al., 2003)
  - Emotional words (Loney et al., 2003)
  - Emotional pictures (Kimonis et al., 2006)
CU Traits, Conduct Disorder, Intelligence

Christian, Frick, Hill, Tyler, & Frazer, 1997

Full Scale IQ

Clinic Control (N=39)  Impulsive Conduct (N=29)  CU Conduct (N=11)
CU Traits, Conduct Problems, and Dysfunctional Parenting

Wootton, Frick, Shelton, & Silverthorn, 1997

Predicted Number of ODD/CD Symptoms

Scores on the Dysfunctional Parenting Composite

Beta = -.14, p = n.s.

Beta = .47, p < .01
Developmental Model for Impulsive Conduct Problems

Inadequate socializing environments

Low intelligence

Poor response inhibition

Lack of planning and forethought, and susceptibility to angry arousal

Impulsive and unplanned aggressive acts, often in the context of high emotional arousal
Summary of Conduct Disorder Subtypes

Frick & Dickens, 2006

- Conduct Disorder
  - Childhood-Onset Subtype
    - Primarily Impulsive Type
    - Callous-Unemotional Type
  - Adolescent-Onset Subtype
What are the implications for prevention and treatment?
1. Most youth who commit serious offenses have a history of behavior problems
Need to intervene early for children with behavior problems
2. There are many different risk factors that can place a child at risk for delinquency and violence.
Interventions need to be comprehensive, addressing multiple risk factors
3. The causes of violent and antisocial behavior may differ across groups of children.
Interventions need to be individualized, addressing differing needs across groups