Peer Processes, Adolescent Depression, and Suicidality

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Why do some bullied youth attempt suicide?
Theoretical Models

Peer Victimization  ☝️  Suicidality
Incidental Model #1

Rudimentary Psychopathology → Peer Victimization → Developing Psychopathology → Peer Victimization → Suicidality

(Heterotypic Continuity)
Incidental Model #2
A “Third Variable” Model

Other Peer Factors

Peer Victimization
Psychopathology

Suicidality
Causal Model #1

Peer Victimization → Peer Victimization

Psychopathology → Peer Victimization

Peer Victimization → Suicidality
Causal Model #2
A Precipitant Model

Peer Victimization

Psychopathology → Peer Victimization → Suicidality
A Transactional Model

Environmental Response (i.e., Peer Experiences)

Behavior/Symptom Development
Effects of Peer Experiences: A Transactional Model

Peer Status; differential treatment by others

Peer Experiences are reified; Behavior rewarded and reinforced

Social Behavior/
Psychological
Symptoms/
Vulnerabilities

Development of different behavior
e.g., Attributional styles,
frustration tolerance,
problem-solving skills

Development of Psychopathology,
variation in responses to an acute stressor
Research Questions

- Are individuals with psychopathology more likely to be bullied?
- Is peer victimization associated with negative cognitions or psychological skills deficits?
- Can peer victimization trigger a diathesis for psychopathology or suicidality?
- Is peer victimization related to other peer constructs that are more closely associated with suicidality?
Research Questions

- Are individuals with psychopathology more likely to be bullied?
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- Is peer victimization related to other peer constructs that are more closely associated with suicidality?
Types of Bullying

- **Physical/Overt Victimization**
  - Verbal threats or physical harm
  - Bullies are more commonly male
  - Victims can be male or female

- **Social/Relational Victimization**
  - Use of relationship or social reputation as vehicle of harm
  - Mixed data on gender differences
  - More common than overt victimization in adolescence

- **Cyber-bullying**
  - Data needed
  - Bullies may be anonymous
  - Potential witnesses may be far greater in number
Are individuals with psychopathology more likely to be bullied?

Prevalence Data:

- 70 – 80% of youth report peer victimization
  - Self-report
  - Few instances for each individual
- Chronic victimization (i.e., on two or more reporting occasions)
  - Approximately 2-6% of youth are chronic victims
  - Victimization over multiple years rare
  - Test-retest correlations for victimization grow stronger with increasing age
Are individuals with psychopathology more likely to be bullied?

- **Chronic Victims**
  - Passive victims
  - Provocative (i.e., Aggressive) Victims

- **Theorized determinants of victimization:**
  - Deviant external characteristic
  - Passivity/Withdrawal
  - Reactive aggression
Project ADAPT
Adolescent Development and Peer/Parent Transitions

- Large scale longitudinal study of transition to adolescence
  - Community and clinically-referred samples
  - 531 adolescents (Baseline grades: 6-8) completed three annual assessments. Adolescent- and peer-report
  - 200 randomly-selected adolescents: Parent-, teacher- report, and physical exam at 3 additional time points
  - 150 Psychiatric inpatients (and parents) completed measures six time points over 18 months following hospitalization

Funded by the National Institute of Mental Health
Community Sample
Participants, Procedure

- **N ~ 550**
  - 50% female; 13% non-White
  - Grades 6 (35%), 7 (30%), 8 (36%)
  - 11% free or reduced-price lunch

- **Three annual time points**
  - Sociometric assessment
    - Victimization (Overt, Relational)
    - Peer acceptance/rejection, popularity, aggression, sad affect, anxious affect, prosocial behavior, physically fit, physical attractiveness
Victimization Groups

- Examined victimization scores in Years 1, 2, 3

- Chronic victims
  - Overt 2.5%
  - Relational 2.5%
    (31% overlap)

- Sporadic victims
  - Overt 6.1%
  - Relational 11.2%
    (22% overlap)
Discriminant Function Analysis: Prediction of Overt Victimization Group

<table>
<thead>
<tr>
<th>Peer-rated variables</th>
<th>Function 1 (Internalizing and Low Status)</th>
<th>Function 2 (Prosocial and Fit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sad Affect</td>
<td>.77*</td>
<td></td>
</tr>
<tr>
<td>Worry</td>
<td>.63*</td>
<td></td>
</tr>
<tr>
<td>Peer Acceptance</td>
<td>-.60*</td>
<td></td>
</tr>
<tr>
<td>Peer Popularity</td>
<td>-.56*</td>
<td></td>
</tr>
<tr>
<td>Prosocial</td>
<td></td>
<td>.41*</td>
</tr>
<tr>
<td>Fitness</td>
<td></td>
<td>.39*</td>
</tr>
</tbody>
</table>

**Classification**

<table>
<thead>
<tr>
<th></th>
<th>Nonvictim</th>
<th>Sporadic Victim</th>
<th>Chronic Victim</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-.29</td>
<td>1.48</td>
<td>4.86</td>
</tr>
<tr>
<td></td>
<td>.06</td>
<td>-1.09</td>
<td>.94</td>
</tr>
</tbody>
</table>

Wilks’ $\Lambda s = .46 \text{ and } .89$, $p < .0001$; $\chi^2 (13 \text{ and } 28) = 59.41 \text{ and } 410.18$, $p < .0001$

85% correct classification
Discriminant Function Analysis: Prediction of Relational Victimization Group

<table>
<thead>
<tr>
<th>Peer-rated variables</th>
<th>Function 1</th>
<th>Function 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Rejected-Aggressive, Sad)</td>
<td>(Unattractive)</td>
</tr>
<tr>
<td>Overt Aggression</td>
<td>.56*</td>
<td></td>
</tr>
<tr>
<td>Relational Aggression</td>
<td>.52*</td>
<td></td>
</tr>
<tr>
<td>Peer Acceptance</td>
<td>-.47*</td>
<td></td>
</tr>
<tr>
<td>Sad Affect</td>
<td>.43*</td>
<td>-.32*</td>
</tr>
<tr>
<td>Good Looking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Classification**

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<tbody>
<tr>
<td></td>
<td>-.31</td>
<td>.97</td>
<td>4.34</td>
</tr>
<tr>
<td></td>
<td>.08</td>
<td>-.65</td>
<td>.85</td>
</tr>
</tbody>
</table>

Wilks’ $\Lambda_s = .52$ and $.92$, $ps < .0001$; $\chi^2 (13$ and $28) = 44.99$ and $346.85$, $ps < .0001$

77% correct classification
Peer reputations, not symptoms

- No self-reported measures of psychological symptoms (depression, anxiety, deviant behavior) differentiated overt or relational victimization groups.
Clinically-referred Sample
Participants

- N = 143
  - 72% female; 25% non-White
  - Ages 12 – 15 years, $M = 13.51$, $SD = .75$
  - Grades 7 (20%), 9 (40%), 9 (40%)
  - 49% prior suicide attempt
  - Lived with:
    - Both biological parents 27%
    - Mother only 29%
    - Biological mother, step-parent 15%
    - Extended family, foster care 29%
  - Highest Parent education
    - No HS diploma 19%
    - HS diploma 40%
    - Trade degree 14%
    - Some undergraduate education or higher 27%
# Diagnoses at Intake

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Child-Report DISC</th>
<th>Parent-Report DISC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Depression</td>
<td>33.6%</td>
<td>36.8%</td>
</tr>
<tr>
<td>GAD</td>
<td>6.7%</td>
<td>13.2%</td>
</tr>
<tr>
<td>Social Phobia</td>
<td>13.4%</td>
<td>15.8%</td>
</tr>
<tr>
<td>PTSD</td>
<td>14.2%</td>
<td>6.1%</td>
</tr>
<tr>
<td>ODD</td>
<td>27.6%</td>
<td>64.9%</td>
</tr>
<tr>
<td>Conduct Disorder</td>
<td>18.7%</td>
<td>29.8%</td>
</tr>
</tbody>
</table>

Cumulative percentages exceed 100 due to comorbidity.
Procedure

- **Assessments**
  - Baseline and 5 follow-up time points
  - Retention: 93% participated in at least 1 follow-up assessment; 71% participated in final assessment
  - Missing at random

- **Victimization assessed with Revised Peer Experiences Questionnaire**
  - Overt victimization
  - Relational and reputational victimization
Frequencies of Self-Reported Peer Victimization

- Never: 1
- About 1/week: 4.5
- A few times: 3
- Once or twice: 2
- A few times/week: 5

Overt vs. Relational
Frequencies of Self-Reported Peer Victimization

- Never
- Once or twice
- A few times
- About 1/week
- A few times/week

![Bar chart showing frequencies of self-reported peer victimization for overt and relational types.](chart.png)
Victimization Groups

- Examined victimization scores at baseline, 9 and 18 months post-baseline

- Chronic victims
  - Overt: 4.8%
  - Relational: 4.8%
  (16% overlap)

- Sporadic victims
  - Overt: 25.3%
  - Relational: 22.6%
  (27% overlap)
Discriminant Function Analyses

- No significant functions predicting overt victimization groups
## Discriminant Function Analysis: Prediction of Relational Victimization Group

### Peer-rated variables

<table>
<thead>
<tr>
<th>Peer-rated variables</th>
<th>Function 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD – youth report</td>
<td>.61*</td>
</tr>
<tr>
<td>GAD – youth report</td>
<td>.58*</td>
</tr>
<tr>
<td>MDD – youth report</td>
<td>.42*</td>
</tr>
</tbody>
</table>

*(No Externalizing Symptoms)*

### Classification

<table>
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<th></th>
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</thead>
<tbody>
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</tr>
<tr>
<td>Sporadic Victim</td>
<td>.41</td>
</tr>
<tr>
<td>Chronic Victim</td>
<td>2.41</td>
</tr>
</tbody>
</table>

*Wilks’ $\Lambda = .60, p < .01$; $\chi^2 (24) = 48.29, p < .01$*

*71% correct classification*
Are individuals with psychopathology more likely to be bullied?

- Negative affect and poor peer relations associated with peer victimization
- No strong evidence to suggest that peer victimization is merely a proxy for pre-existing psychological symptoms
Effects of Peer Experiences: A Transactional Model

Peer Victimization

Social Behavior, Negative Affect
Research Questions

- Are individuals with psychopathology more likely to be bullied?
- **Is peer victimization associated with negative cognitions or psychological skills deficits?**
- Can peer victimization trigger a diathesis for psychopathology or suicidality?
- Is peer victimization related to other peer constructs that are more closely associated with suicidality?
Is peer victimization associated with negative cognitions or psychological skills deficits?

- What cognitions?
Social Information Processing Model

Interpersonal Experiences → Social Stimulus → Social Cognition

Social Cognition → Cue Encoding

Cue Encoding → Depressed Affect

Depressed Affect → Behavioral Enactment

Behavioral Enactment → Peer Experiences

Peer Experiences → Interpersonal Experiences
Social Information Processing Model

Interpersonal Experiences → Social Stimulus → Social Cognition

Peer Experiences → Depressed Affect

Behavioral Enactment → Cue Encoding

Cue Interpretation
Cue Encoding

Peer Victimization

Depressed Affect

Cue Encoding
Cue Encoding: Depression-Distortion

Depression-Distortion Hypothesis

- Mothers’ distorted ratings of children’s behavior problems
- Adolescents’ distorted ratings of peer victimization

- Self-reported peer victimization
- Peer-reported peer victimization – sociometric assessment
- Overt and Relational Forms
- Calculated residual scores
### Residual Scores (Self-Peer Reported Victimization)

<table>
<thead>
<tr>
<th></th>
<th>Overt</th>
<th>Relational</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2$</td>
<td>.03*</td>
<td>.13*</td>
</tr>
<tr>
<td>Adolescent Depression ($\beta$)</td>
<td>.18*</td>
<td>.25*</td>
</tr>
<tr>
<td>Adolescent Aggression ($\beta$)</td>
<td>.02</td>
<td>-.28*</td>
</tr>
</tbody>
</table>

- Depressive symptoms contribute to increases in adolescents’ tendency to report (and encode?) peer victimization experiences
Social Information Processing Model

- Interpersonal Experiences
- Peer Experiences
- Depressed Affect
- Behavioral Enactment
- Social Cognition
- Cue Encoding
- Cue Interpretation
- Social Stimulus
- Cue Encoding
- Peer Experiences
- Behavioral Enactment
Cue Interpretation

Peer Victimization

Depressed Affect

Cue Interpretation
Cue Interpretation
Cue Interpretation
Cue Interpretation
Variation in Responses

“First the red circle leads while the brown one follows. They both stop and ask the green to join. This time the red and green circle team up together and enter the box without the brown one.”

“Red was originally in the lead and brown followed. Then, however, red tagged green, who followed and even gained the lead. Brown was very far behind, and was left out of entering the square because the door closed before he got there.”

“Brown chased the other ones into the box in a violent narcissistic rage, trying to provoke green into a fight. Green was not in the mood for fighting because he was happy and friends with red. Red chilled in the box with green and they slammed the door on Brown”

“Brown is a crazed lover who chases green and red and green (the man in the relationship) tells him off and then he and red leave.”
Cue Interpretation

- Imagine that you are carrying a lot of books on your way into school. All of a sudden, you are bumped from behind by another kid. You stumble and fall into a mud puddle, and your books get muddy. Why do you think the kid bumped into you?

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

The kid was trying to push you down because you are not as good as other kids.
The kid was running down the street and didn’t see you.
The kid was trying to push you down because that kid is mean to others.
Community Sample: Critical Self-Referent Attributions

CSR Attributions Baseline
CSR Attributions Time 2
CSR Attributions Time 3

Intercept
Slope

Depressive Symptoms, Self-Report
Peer-Reported Overt Victimization
Peer-Reported Relational Victimization

\[ \chi^2(5) = 8.54, \text{NS}; \chi^2/\text{df} = 1.71; \text{CFI} = 1.00; \text{RMSEA} = .03 \]
Community Sample:
Hostile Attributions

Hostile Attributions Baseline
Hostile Attributions Time 2
Hostile Attributions Time 3

Intercept
Slope

Peer-Reported Aggression
Peer-Reported Overt Victimization
Peer-Reported Relational Victimization

$\chi^2(5) = 4.17$, NS; $\chi^2/df = .83$; CFI = 1.00; RMSEA = .00
Clinically-Referred Sample: Critical Self-Referent Attributions

CSR Attributions Baseline
CSR Attributions Time 2
CSR Attributions Time 3

Intercept
Slope

DISC – Youth Report Depressive Symptoms
Peer-Reported Overt Victimization
Peer-Reported Relational Victimization

χ²(5) = 9.11, NS; χ²/df = 1.82; CFI = .97; RMSEA = .08
Clinically-Referred Sample: Hostile Attributions

Intercept

Slope

DISC – Youth Report Externalizing Symptoms

Peer-Reported Overt Victimization

Peer-Reported Relational Victimization

\( \chi^2(5) = 4.23, \text{ NS; } \chi^2/\text{df} = .85; \text{ CFI} = 1.00; \text{ RMSEA} = .00 \)
Is peer victimization associated with negative cognitions or psychological skills deficits?

- Depression may be associated with a tendency to perceive higher frequencies of peer victimization experiences.
- Peer victimization may be associated with increases in negative cognitions, particularly depressogenic cognitions.
Effects of Peer Experiences: A Transactional Model

Peer Victimization

More peer victimization Cognitions are rewarded and reinforced

Social Behavior, Negative Affect

Development of Critical Self-Referent Attribution and Hostile Attribution Biases
Research Questions

- Are individuals with psychopathology more likely to be bullied?
- Is peer victimization associated with negative cognitions or psychological skills deficits?
- **Can peer victimization trigger a diathesis for psychopathology or suicidality?**
- Is peer victimization related to other peer constructs that are more closely associated with suicidality?
Cognitive Vulnerability/Diathesis

- Depressogenic attributional styles
  - Negative Events:  Internal, global, stable
  - Positive Events:  External, specific, unstable
Can peer victimization trigger a diathesis for psychopathology or suicidality?
Cognitive Vulnerability-Stress Model
GIRLS

\[ \chi^2(5) = 5.12, \text{ NS; } \chi^2/\text{df} = .43; \ CFI = 1.00; \ RMSEA = .00 \]
Cognitive Vulnerability-Stress: Peer Victimization as a Trigger for Ideation?

Graph showing the relationship between suicide ideation slope, adaptive attributions, and depressogenic attributions for boys with low and high victimization.
Cognitive Vulnerability-Stress: Peer Victimization as a Trigger for Ideation?

![Graph showing the relationship between adaptive attributions, depressogenic attributions, and suicide ideation slope for girls and boys with low and high victimization.](image-url)
Can peer victimization trigger a diathesis for psychopathology or suicidality?

- Yes, peer victimization may be a relevant stressor moderating the association between attributions and suicidal ideation
Effects of Peer Experiences: A Transactional Model

Peer Victimization

More peer victimization
Cognitions are rewarded and reinforced

Social Behavior, Negative Affect

Development of Critical Self-Referent Attribution and Hostile Attribution Biases

Suicidal Ideation, and/or compromised ability to cope with an acute stressor
Research Questions

- Are individuals with psychopathology more likely to be bullied?
- Is peer victimization associated with negative cognitions or psychological skills deficits?
- Can peer victimization trigger a diathesis for psychopathology or suicidality?
- Is peer victimization related to other peer constructs that are more closely associated with suicidality?
Deviant Peer Affiliation?

Peer Victimization, especially Aggressive Victims

Aggressive behavior and depressive symptoms

Suicidality
Deviant Peer Affiliation?

- Peer Victimization, especially Aggressive Victims
- Aggressive behavior and depressive symptoms
- Suicidality
Factors associated with Deviant Peer Affiliation

- Externalizing symptoms
  - Deviance, illegal behavior
- Substance Use
- Other Health Risk behaviors
  - Weight-related behaviors
- Internalizing symptoms
  - Depression
- Self-Injury
  - NSSI
  - Suicidality
Community Sample

- Adolescents’ NSSI
  - Inventory of health risk behaviors
  - Frequency of engagement in self-inflicted bodily harm (without suicidal intent) was assessed
  - 1-6 Response scale (Never – Once a day)
  - 7.4% engaged in NSSI at Time 1

- Friends’ NSSI
  - Peer nominations
  - Best Friend’s actual report of NSSI
Results

Adolescent NSSI Time 1 → Adolescent NSSI Time 2: .09*

Best Friend’s NSSI Time 1 → Adolescent NSSI Time 2: .18**
Clinically-referred sample

- **Adolescents’ NSSI**
  - Five items - frequency of NSSI without suicide intent
    i.e., cut/carved skin, hit self, pulled hair out, burned skin)
    \[(\alpha = .70)\]
  - 1-6 Response scale (Never – Once a day)

- **Friends’ Suicidal Behavior**
  - Peer Behavior Inventory
  - Reported total number of friends
  - Reported number of friends who thought of suicide or engaged in self-harm
  - Proportion score computed
### NSSI in Clinical Sample

<table>
<thead>
<tr>
<th>NSSI</th>
<th>% Endorsed</th>
<th>Mean Frequency (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut/carved skin</td>
<td>54.3%</td>
<td>1.88 (1.07)</td>
</tr>
<tr>
<td>Hit self</td>
<td>36.4%</td>
<td>1.72 (1.14)</td>
</tr>
<tr>
<td>Pulled hair out</td>
<td>25.0%</td>
<td>1.36 (.76)</td>
</tr>
<tr>
<td>Burned skin</td>
<td>29.0%</td>
<td>1.38 (.75)</td>
</tr>
</tbody>
</table>
Results

$\chi^2 (21) = 9.11, \ NS; \chi^2/df = 1.52; \ CFI = .94; \ RMSEA = .07$
Deviant Peer Affiliation

- Are peer influences processes relevant to suicidality as well as NSSI?
Clinical Sample: Prediction of Suicide Ideation and Attempts

- 47.5% Attempts in past year
- 13% Attempted since discharge
- 23% Attempted since discharge

Graph showing:
- Remission Slope:
  - 4% Attempts in past year
- Re-emergence Slope:
  - 3% Attempted since discharge

Timeline:
- Baseline
- 3 Mos
- 6 Mos
- 9 Mos
- … 15 Mos
- 18 Mos
Clinical Sample: Prediction of Suicide Ideation and Attempts

\[
\chi^2 (39) = 41.06, \text{ NS; } \chi^2/df = 1.05; \text{ CFI} = 1.00; \text{ RMSEA} = .02
\]
Ongoing Research
(Funded by NIMH)

- Adolescent Dyads
  - Social Speech Task
  - Biological, Cognitive, Interpersonal Responses
Thanks!

www.projectarch.org
1-855-ARCH-UNC
project.arch@unc.edu