Peer victimization and mental health outcomes: Genetic, neurophysiological, and neuroendocrine considerations

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Declaration of Disclosure

• In 2011 I was a paid consultant for Pfizer’s More Than Medication®

• I have no actual or potential conflict of interest in relation to this program.

• I also assume responsibility for ensuring the scientific validity, objectivity, and completeness of the content of my presentation.

Learning Objectives

Examine…

1. link b/w bullying and mental health
2. temporal sequence
3. heterogeneity in MH outcomes considering genetic, neurophysiological, and neuroendocrine evidence
4. best-practice recommendations

What is bullying?

• A person is being bullied if he or she is exposed repeatedly and over time, to negative actions on the part of one or more persons.

• Three Criteria: repeated over time imbalance of power intentionality

Bullying takes many forms

- Physical
- Verbal
- Social
- Cyber
- Racial
- Sexual
Link b/w bullying and MH

“Better Dead than Gay”

- Gay youth are 4 times more likely to attempt suicide than straight youth (Garofalo, et al., 1999; Howard, 1998)

Long term consequences

- academic difficulties
- school truancy/avoidance
- increased absenteeism
- somatic complaints
- stress-related illness
- physical health problems
- low self-esteem
- depression
- social withdrawal/isolation
- social anxiety
- loneliness
- suicide
- aggressive behaviour

see review by McDougall & Vallanoun, 2013

Temporal Sequence

- Do children and youth become unwell as a consequence of poor treatment?
  
  OR

- Are children and youth bullied because they are unwell to begin with?
  
  - Bullied  ➔ poor MH
  - Poor MH  ➔ bullied  ➔ poorer MH
Internalizing Problems

• Peer victimization linked to internalizing problems in ensuing years
  - Arseneault et al., 2006; Goodman, Stormshak & Dishion, 2001; Hanish & Guerra, 2002; Hodges, Boivin, Vitars, & Bukowski, 1999; Hodges & Perry, 1999; Kumpulainen & Rasanen, 2000; Schwartz, Gorman, Nakamoto, & Teobin, 2005; Snyder et al., 2003; Sweeting, Younger, West & Der, 2006; Troop-Gordon & Ladd, 2009; Vaillancourt et al., 2011; Zwierszynska, Wolke, & Lereya, 2012; see also meta-analyses by Reijntjes, Kamphuis, Prinstein, & Telch, 2010; Ttofi, Farrington, Losel, & Loeber, 2011

Externalizing Problems

• Peer victimization linked to externalizing problems in ensuing years
  - Barker, Arseneault, Brendgen, & Maughan 2008; Hanish & Guerra, 2002; Ladd & Troop-Gordon, 2003; Smith, Talamelli, Cowie, Naylor, & Chauhan, 2004; Yeung & Leadbeater, 2010; see also meta-analyses by Reijntjes et al., 2011

Academic Functioning

• Knowledge is more limited and associations less straightforward
  - pathways are often indirect or are not found
    - Beran, 2008; Hanish & Guerra, 2002; Kochenderfer & Ladd, 1996
  - some longitudinal studies show that victimized children fare less well academically and avoid school more over time
    - Buhs et al., 2006; Gastic, 2008; Kochenderfer & Ladd, 1996; Nansel, Haynie, & Simons-Morton, 2003; Schwartz et al., 2005

Symptom Driven Pathway

• Meta-analytic work supports observation…
  - internalizing challenges antecedent peer victimization although the reverse direction appears to be stronger
    • Reijntjes et al. 2010
  - externalizing symptoms are sometimes observed to precede peer victimization
    • Reijntjes et al., 2011

Limitations

• Primary focus is on one-to-one connections
  - Narrowed our comprehension of how peer victimization might have an indirect effect on other constructs
  - No consideration of bidirectional influences and complex transactions
    • Example: Peer victimization, mental health, and academic functioning in consort over time.
Cascade Models

• “... the cumulative consequences for development of the many interactions and transactions occurring in developing systems that result in spreading effects across levels, among domains at the same level, and across different systems or generations” (p. 491).

Masen and Cicchetti (2010)

Cascade Models

The way a child functions in one domain will have an impact on how he or she functions in other areas.

Heterogeneity in MH outcomes

Why is it that some children seem to be so adversely affected by bullying while others seem to cope better?

Kochel, Ladd, and Rudolph (2012)

Divergent Pathways

Exposure to Bullying

Moderated and/or Mediated
• Nature of abuse
• Social support
• Family structure
• Temperament

Poor Physical and Mental Health

Good Physical and Mental Health

Divergent Pathways

Exposure to Bullying

Poor Physical and Mental Health

Good Physical and Mental Health
Divergent Pathways

Exposure to Bullying

Biology?

Poor Physical and Mental Health

Good Physical and Mental Health


• “...persistent social acceptance of some types of violence against children...”

• “...corporal punishment and other forms of cruel or degrading punishment, bullying and sexual harassment, and a range of violent traditional practices may be perceived as normal, particularly when no lasting visible physical injury results.”

Neurophysiological Evidence

“...I feel like, emotionally, they have been beating me with a stick for 42 years”
• Studies show that people can relive and re-experience social pain more easily than physical pain and the emotions they feel are more intense and painful.
  – Chen, Williams, Fitness, Newton, 2008

• Physical pain is often short lived whereas social pain can last a life time.

Sir Winston Churchill (1874-1965)

“Criticism may not be agreeable, but it is necessary. It fulfills the same function as pain in the human body. It calls attention to an unhealthy state of things”

Neural Alarm

• Rejection is differentiated in less than 500 ms by children
  – Using event-related potentials (ERPs) to study neural activity that occurs when a person is rejected

Crowley et al., 2010

Neuroendocrine Evidence

1. McDougall & Vaillancourt, 2013
2. Kliever, 2006; Knack et al., 2011; Ouellet-Morin et al., 2011; Vaillancourt et al., 2008, 2011
3. Holsboer, 1995; Markopoulou et al., 2009; McEwen 2003; Stoke & Sikes, 1987
4. Horna et al., 1997; Leon-Carrion et al., 2009; Michopoulos et al., 2008
5. Vaillancourt et al., 2011
Results from this natural experiment provide support for a causal effect of adverse childhood experiences on the neuroendocrine response to stress.

Influence of Life Stress on Depression: Moderation by a Polymorphism in the 5-HTT Gene

Caspi et al., Science, 18 July 2003, Vol 301

Serotonin Gene, Experience, and Depression: Age 26

S = Short * Allele, L = Long Allele

*Allele = 1 of 2 or more forms of a gene
DNA Methylation

• “...is an epigenetic mechanism that maintains gene activity or changes gene expression by activating or silencing the gene, resulting in the development of phenotypes that are time-dependent and are not determined by the DNA sequence at that locus” (Vaillancourt et al., 2013).

- Vaillancourt et al. (2010a, 2010b, 2013) suggest, understanding biological underpinnings of peer relations helps legitimize the plight of peer-abused children and youth
- Encouraging policy makers and practitioners to prioritize the reduction of school bullying

Best Practice Recommendations

1. The nature of our anti-bullying programs
2. Targeting a stereotype
3. Need to increase student supervision
4. Need to engage the bystander
5. Teacher Training
6. It is complicated

DNA methylation of the serotonin transporter (SERT) gene between ages 5 and 10 was found for bullied twins. Children with SERT DNA methylation also showed a blunted cortisol response to stress.
The nature of our anti-bullying programs

School-based anti-bullying efforts

- Typically involve universal programs with goal of:
  - Awareness about bullying
  - Bullying behaviour

Smith et al. (2004)
- Negligible to small effect sizes
- In some cases bullying reports ↑

Merrell et al. (2008)
- Yielded similarly disappointing results

Vreeman and Carroll (2007)
- Most promising results reported for whole-school anti-bullying efforts
  - Established school-wide rules and consequences for bullying, teacher training, conflict resolution strategies, and classroom curricula and individual training
- School-wide programs far more effective than classroom curriculum programs or social skills training

Ttofi et al. (2008)
- Showed Olweus Bullying Prevention Programme most effective program

School-wide programs seldom include direct intervention for the perpetrators.
- And when they do target children who bully others, they tend to focus on the stereotype.

May need to target different types of bullying behaviour.

Use the wrong approach to discipline.

Why are whole-school approaches designed to bullying relatively ineffective?

1. Most fail to direct interventions at social ecology that promotes and sustains bullying perpetration, such as peers and families.

2. Many programs do not address changing demographics of communities and fail to incorporate factors such as race, disability, and sexual orientation.
Classification of Bullies

- Created extreme groups based on bully and power nominations
  - High power bullies (90%)
  - Low power bullies (10%)

Targeting a stereotype

- We need to appreciate that all children are capable of bullying
  - Cannot change what we don't acknowledge
Need to supervise

- Students suggest this point as well
- Places to Avoid Study

Need to engage the bystander

- Peers are present in over 85% of the bullying incidents — Yet only intervene about 11% of the time (but in another study 25% of time 😐)
- Peers who regularly see hostile exchanges without sanction are exposed to example of aggression working — They see powerful individuals reinforced — They see that the aggressor is rarely admonished by the peer group and rarely caught by adults

Bystanders

Craig & Pepler, 1995, 1997; Hawkins et al., 2001; Vaillancourt et al., 2009

Places to Avoid: Population-Based Study of Student Reports of Unsafe and High Bullying Areas at School

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Abstract
Students' perceptions of school safety and supervision were linked to patterns of bullying behavior. A 12-week study of 6th grade boys and girls in Grades 9 to 12 examined the relationship between perceptions of safety and peer or adult experiences with bullying. Findings indicated that students who perceived their school as safe and did not over experience with bullying were less likely to report bullying. The study also highlighted the importance of supervision in bullying prevention programs. The results of this study suggest that supervision and supervision training may be effective in reducing bullying behavior.

Bullying occurs most frequently in:
- playground (ES)
- halls (HS)
- cafeteria (HS)
- outside recess (HS)

Difficult to eliminate what works

- Bullying behavior is reinforced
  - 54% of time peers were passively watching
  - 21% actively modeled the behavior
    — O'Connell et al. 1999
- Adults rarely intervene
  — only about 4% of the time
  — bullies are seldom punished and so their behavior goes unimpeded, further devastating their victim
    — Craig & Pepler, 1995, 1997; Salmivalli & Voeten, 2004

BUT when bystanders intervene bullying stops; almost always (and immediately).

Why?

- Need to belong is a fundamental human motivator
- Wired to belong

Craig & Pepler, 1995, 1997; Hawkins et al., 2001; Vaillancourt et al., 2009
Involve Bystanders

- Peer mediation is the most promising approach to reducing bullying
  - Engages students in prosocial behaviour
  - Teaches them conflict resolution skills
  - Increases playground supervision
  - AND is evidence-based

Cunningham, Cunningham et al., 1998

It is complicated

- Sometimes children who get bullied, bully others.
- Even adults have trouble addressing bullying in the workplace.
  - Experimental studies highlight how conformity rules.
  - Calling out bullies carries certain risks.
- We tend to overestimate or underestimate our ability to intervene.

Respect or Fear?

- People with power are held in higher esteem and influence the group more than their less powerful peers
- They are looked at more, validated more, and respected more
  - translates into a perception of approval (respect?)
  - perpetuating the erroneous belief that they are justified in their actions

Moral Disengagement

Fig. 1: The three levels in the moral disengagement theory.

Obermann, 2011

Teacher Training

Contextual Attributes of Indirect Bullying Situations That Influence Teachers' Decisions to Intervene

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STAND UP! DON'T STAND BY
Community-University Research Alliance for the Prevention of Bullying mac-cura.ca

Teachers most influenced by a student's distress