Bullying Gets Under Your Skin: Effects of Bullying on Children and Youth

April 27th, 2015

Meeting Orientation Slide

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Presenter

Tracy Vaillancourt, Ph.D.

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

Vaillancourt et al. (2010a, 2010b, 2013, 2015) suggest that understanding biological underpinnings of peer relations helps legitimize the plight of peer-abused children and youth.

Scope of the Problem—MH

1. 15-20% of children and youth have serious mental health (MH) problems
2. 50-75% of adult MH disorders began in childhood (before 15 years of age)
3. MH problems in childhood and adolescence are the leading cause of health-related burden (UNICEF, 2008)
   - And, according to WHO (2012), depression is the leading cause of disability worldwide.
4. Most children with MH problems do not receive services and if they do, the services are often not evidence-based
   - Evidence-Practice Gap
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
• Systematic abuse of power.

Scope of the Problem— Bullying

• Prevalence rate
  ~ 30% are bullied occasionally
  ~ 7-10% are bullied on a daily basis

Source: Vaillancourt et al., 2010a, 2010b

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 & Vaillancourt, 2015
Temporal Sequence

- Do children and youth become unwell as a consequence of poor treatment?
- 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 & Bulakowski, 1999; Hodges & Perry, 1999; Kumpulainen & Rasanen, 2000; Schwartz, Gorman, Nakamastu, & Tolkin, 2005; Snyder et al., 2003; Sweating, Younger, West & Der, 2006; Ttofi-Gordon & Laidi, 2005; Villacourt et al., 2011; Zwietsynska, Wolke, & Lereya, 2012
  - see also meta-analyses by Reijntjes, Kamphius, Prinstein, & Teleb, 2010; Ttofi, Farrington, Loebl, & Loeber, 2011

Externalizing Problems

- Peer victimization linked to externalizing problems in ensuing years
  - Barker, Arseneault, Brendgen, & Maughan, 2008; Hanish & Guerra, 2002; Laidi & Ttofi-Gordon, 2005; Smith, Talamelli, Covic, Naylon, & Chaushan, 2004; Yeung & Leadbeater, 2010; see also meta-analysis by Reijntjes et al., 2011

Symptom Driven Pathway

- Meta-analytic work supports observation...
  - internalizing challenges can also anteduce peer victimization although the reverse direction is stronger
    - Reijntjes et al. 2010
  - externalizing symptoms are sometimes observed to precede peer victimization
    - 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

MH profile of children who bully

But when controlling for family hardship and childhood psychiatric disorders:

- Victims & bully-victims at greater risk
- poor health, wealth, & social-relationship outcomes in adulthood
- Bullies were not at greater risk for any of these variables.
Why these divergent pathways?

Victims

- Interferes with their fundamental need to belong.

Bullies

- Does not interfere with their fundamental need to belong.
- Linked to high status.

Heterogeneity in MH outcomes

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

- Environmental characteristics
  - Youth with better home environments fare better when bullied than youth with poorer home environments
    - Baldry & Farrington, 2005; Flouri & Buchanan, 2002
  - In classrooms where victimization emerges as central, the negative impact of victimization on mental health outcomes is greater
    - Huitsing et al., 2012

- Personal Characteristics
  - Peer victimization at age 8 was associated with suicide attempts before age 25 for girls/women but not for boys/men (controlling for conduct and depressive symptoms).
    - Klomek et al., 2009
  - Internalizing problems persisted even after the bullying had stopped for girls, but not for boys.
    - Reger et al., 2011

Divergent Pathways

Exposure to Bullying

- Biology?

Poor Outcomes  Better Outcomes

Genetic Evidence

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


In a prospective-longitudinal study of a representative birth cohort, we tested whether stressful experiences lead to depression in some people but not in others. A functional polymorphism in the promoter region of the serotonin transporter (5-HTT) gene was found to moderate the influence of stressful life events on depression. Individuals with one or two copies of the short allele of the 5-HTT promoter polymorphism exhibited more depressive symptoms, diagnosable depression, and suicidality in relation to stressful life events than individuals homozygous for the long allele. This epidemiological study thus provides evidence of a gene-by-environment interaction, in which an individual’s response to environmental stress is moderated by his or her genetic makeup.

18 JULY 2003 VOL 301 SCIENCE www.sciencemag.org
Sero tonin Gene, Experience, and Depression: Age 26

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

Replicated with bullied youth

- Banny et al., 2013
- Benjet et al., 2010
- Iyer et al., 2013
- Sugden et al., 2010
- Kretschmer et al. 2014*

*peer rejection predicting antisocial behaviour

Other cGxE interactions


- “...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.”

Sticks and stones may break my bones but words will never hurt me. SAYS WHO?

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”

Recent neuroimaging studies have shown that parts of the cortical physical pain network are also activated when a person is socially excluded

• Physical & social pain share similar neural structures
• Linked to evolution

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
“Results from this natural experiment provide support for a causal effect of adverse childhood experiences on the neuroendocrine response to stress.”

Telomere

- Telomere—repetitive nucleotide sequence (TTAGGG) at the end of chromosomes which promotes “chromosomal stability and also regulates the cell’s cellular replicative lifespan”.
  - Kiecolt-Glaser et al., 2011, p. 16

Telomere Erosion

- Linked to normal processes like aging and associated with
  - health behaviour e.g., smoking and obesity
  - diseases e.g., cancer, dementia, diabetes, and cardiovascular problems
- Shorter telomere length linked to psychological stress and mortality.

Vaillancourt et al., 2013 for review
Epigenetic Mechanisms

- 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, p. 243-244

- Epigenetic alterations are believed to function as a biological mechanism in which environmental signals are translated into “organismal molecular events”.
  - Bick et al., 2012; see also Vaillancourt et al., 2015

- Recent studies have shown that childhood adversity is linked to changes in DNA methylation which has an effect on later stress reactivity
  - see Vaillancourt et al., 2015 for a review

What does this all mean?

- Found that...
  - higher DNA methylation of the serotonin transporter gene between ages 5 and 10 for bullied twins but not for non-bullied twins, and
  - this was associated with blunted cortisol response to stress.

- Experience of being bullied by peers likely becomes “biologically embedded in the physiology of the developing person” these invisible scars change a person’s capacity to deal with subsequent stressors and modify their health and learning trajectory.
  - Vaillancourt et al., 2013 & see also Bick et al., 2012
• Today, we do not know if the biological scars can be reversed…
  — it seems prudent to fight the root cause directly
  — by encouraging policy makers and practitioners to prioritize the reduction of school bullying.

Questions?

Additional Resources
- Building Capacity to Reduce Bullying - IOM Workshop Summary
- StopBullying.gov website
- StopBullying.gov Blog
- CSN Bullying Prevention Resource Guide

Save the Date

Save the Date
Populations at Increased Risk for Bullying Victimization
May 28, 3:00-4:00 p.m. Eastern Time
Registration coming soon

Contact Information
Children’s Safety Network
Education Development Center, Inc.
43 Foundry Ave, Waltham MA 02453
www.ChildrensSafetyNetwork.org
1-617-618-2178

Thank You!
Please complete this brief evaluation
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