Associations between
bullying involvement in adolescence
and
daily life stress and social experiences in early adulthood

Sam Henry

Department of Psychology

University of Edinburgh

Sam Henry[1], Izabela Zych[2], Ingrid Obsuth[3], Lilly Shanahan[4], Denis Ribeaud[4], Manuel Eisner[5,6], Aja Murray[1]

[1] Department of Psychology, University of Edinburgh, Edinburgh, Midlothian, UK

[2] Facultad de Psicología, Universidad de Córdoba, Córdoba, Spain

[3] School of Health in Social Science, University of Edinburgh, UK

[4] Jacobs Center for Productive Youth Development, Universität Zürich, Zurich, Switzerland

[5] Department of Psychology, University of Zurich, Zurich, Switzerland

[6] Centre for Violence Research, Institute of Criminology, University of Cambridge, Cambridge, UK

Aims for today

1) About me – an introduction

2) What is bullying? Definitions, roles, consequences

3) Present study: plan, methods, and implications

4) Discussion: questions, suggestions, and possible challenges

Who am I?

THE OHIO STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

THE UNIVERSITY *of* EDINBURGH
School of Philosophy, Psychology
and Language Sciences

Scottish Graduate School of Social Science
Sgoil Cheumnaichean Saidheans Sòisealta na h-Alba

z-proso
The Zurich Project on the Social Development
from Childhood to Adulthood

What is bullying?

What is bullying?

- "harmful and repeated actions designed to cause fear, distress, or harm" (Olweus, 1993)

- Not just peer aggression, but requires a power imbalance between bully and victim

- Takes place in schools, neighbourhoods, at home (siblings)

Terminology

- **'Regular' bullying**:
  - Social exclusion
  - Spreading rumors
  - Physical and verbal aggression
- **Cyberbullying**:
  - Harassment
  - Cyberstalking
  - Impersonation
- **Sexual bullying:**
  - Harassment (e.g., unwanted flirting, physical contact)
  - Complex due to issues of gender (e.g., homophobia), legality

- **Bully:** 'pure' perpetator of bullying

- **Victim:** 'pure' sufferer of bullying

- **Bully-Victim:** those who both perpetrate and are victims

- **Bully-Involved:** catch-all term to refer to any of the above

Terminology

- **'Regular' bullying**:
  - Social exclusion
  - Spreading rumors
  - Physical and verbal aggression
- **Cyberbullying**:
  - Harassment
  - Cyberstalking
  - Impersonation
- **Sexual bullying:**
  - Harassment (e.g., unwanted flirting, physical contact)
  - Complex due to issues of gender (e.g., homophobia), legality

- **Bully:** 'pure' perpetator of bullying

- **Victim:** 'pure' sufferer of bullying

- **Bully-Victim:** those who both perpetrate and are victims

- **Bully-Involved:** catch-all term to refer to any of the above

Findings of note

- Regular bullying
  - Prevalence: 36% perpetration, 35% victimization
  - Minimal differences between boys and girls
  - Little association between age and bullying

- Cyberbullying:
  - Prevalence: ~15% for victimization and perpetration
  - Biggest risk factor is cybervictimization
  - Next-highest predictors regular victimisation and perpetration (correlated r ~= .4-.5)

- Bully-victims: higher victimization/perpetration than 'pure' bullies or victims

Kowalski et al., 2014; Modecki et al., 2014; Vivolo-Kantor et al., 2014; Yang & Salmivalli, 2013

What are the consequences of bullying?

Table 4
Outcomes of bullying and cyberbullying.

Small effect sizes r = .10–.24, OR = 1.50 to 2.49	Medium effect sizes r = .25–.39, OR = 2.50–4.29	Large effect sizes r > .40 or OR >4.30
Bullying perpetration Holt et al. (2015): - Suicidal ideation (+) Van Geel et al. (2014b): - Weapon carrying (+) Ttofi et al. (2012): - Violence later in life (+) Ttofi, Farrington, Lösel, Crago, and Theodorakis (in press): - Drug use (+)	Holt et al. (2015): - Suicidal behavior (+) Ttofi et al. (2011b): - Offending later in life (+)	
Bullying victimization Nakamoto and Schwartz (2009): - Academic achievement (−) Gini and Pozzoli (2013): - Psychosomatic problems (+) Gini, Pozzoli, Lenzi, et al. (2014): - Headache (+) van Geel et al. (in press): - Sleeping problems (+) Van Dam et al. (2012): - Psychotic symptoms (+) Holt et al. (2015); van Geel et al. (2014c): - Suicidal ideation (+) Van Geel et al. (2014b): - Weapon carrying (+) Reijntjes et al. (2010) - Internalizing problems over time (+) - Externalizing problems over time (+) Ttofi et al. (2011a): - Depression (+) Cunningham et al. (2015): - Psychotic symptoms later in life	Hawker and Boulton (2000) with shared method variance: - General self-esteem (−) - Social-esteem (−) - Loneliness (+) - Generalized and social anxiety (+) Holt et al. (2015); van Geel et al. (2014c): - Suicidal behavior (+)	Hawker and Boulton (2000) with shared method variance: - Depression (+)
Bully-Victim	Holt et al. (2015): - Suicidal behavior (+) - Suicidal ideation (+)	Van Geel et al. (2014b): - Weapon carrying (+)
Cyber-perpetration Kowalski et al. (2014): - Anxiety (+), - Depression (+), - Life satisfaction (−), - Self-esteem (−),	Kowalski et al. (2014): - Drug and alcohol use (+)	
Cybervictimization Kowalski et al. (2014): - Depression (+), - Self-esteem (−), - Anxiety (+), - Loneliness (+), - Life satisfaction (−), - Conduct problems (+), - Somatic symptoms (+), - Emotional problems (+), - Drug and alcohol use (+)	Kowalski et al. (2014): - Stress (+), - Suicidal ideation (+)	

Note: (+) = positive effect, (−) = negative effect.

Zych et al., 2015
doi: 10.1016/j.avb.2015.10.001

Victimization

Victims of regular bullying

Lower:

- academic achievement
- self- and social-esteem

Higher:

- Psychosomatic and psychotic symptoms
- Issues sleeping
- internalizing and externalizing problems
- headache
- depression and anxiety
- loneliness
- suicidal behavior

Cyber-victims

Lower:

- life satisfaction
- self-esteem

Higher:

- conduct and emotional problems
- stress
- depression and anxiety
- loneliness
- suicidal behavior
- drug and alcohol use
- somatic symptoms

Perpetration

Perpetrators of regular bullying

Higher:

- Drug use

- Later-life violence and criminal offending

- Suicidal ideation* and behavior*

- Weapon carrying*

*Also found for bully-victims, who display *higher* levels of maladjustment

Cyber-bullies

Higher:

- depression

- anxiety

- drug and alcohol use

Lower:

- life satisfaction

- self-esteem

Takeaway: bully-involvement is associated with numerous undesirable mental, physical, and social outcomes

How much of an impact does bully-involvement have in the long term?

Table 4
Outcomes of bullying and cyberbullying.

Small effect sizes $r = .10–.24$, $OR = 1.50$ to 2.49	Medium effect sizes $r = .25–.39$, $OR = 2.50–4.29$	Large effect sizes $r > .40$ or $OR > 4.30$

Bullying perpetration
Holt et al. (2015):
  - Suicidal ideation (+)
Van Geel et al. (2014b):
  - Weapon carrying (+)
Ttofi et al. (2012):
  - Violence later in life (+)
Ttofi, Farrington, Lösel, Crago, and Theodorakis (in press):
  - Drug use (+)
	Holt et al. (2015):
	  - Suicidal behavior (+)
	Ttofi et al. (2011b):
	  - Offending later in life (+)	

Bullying victimization
Nakamoto and Schwartz (2009):
  - Academic achievement (−)
Gini and Pozzoli (2013):
  - Psychosomatic problems (+)
Gini, Pozzoli, Lenzi, et al. (2014):
  - Headache (+)
van Geel et al. (in press):
  - Sleeping problems (+)
Van Dam et al. (2012):
  - Psychotic symptoms (+)
Holt et al. (2015); van Geel et al. (2014c):
  - Suicidal ideation (+)
Van Geel et al. (2014b):
  - Weapon carrying (+)
Reijntjes et al. (2010)
  - Internalizing problems over time (+)
  - Externalizing problems over time (+)
Ttofi et al. (2011a):
  - Depression (+)
Cunningham et al. (2015):
  - Psychotic symptoms later in life
	Hawker and Boulton (2000) with shared
	  method variance:
	  - General self-esteem (−)
	  - Social-esteem (−)
	  - Loneliness (+)
	  - Generalized and social anxiety (+)
	Holt et al. (2015); van Geel et al. (2014c):
	  - Suicidal behavior (+)
		Hawker and Boulton (2000) with
		  shared method variance:
		  - Depression (+)

Bully-Victim	Holt et al. (2015):
	  - Suicidal behavior (+)
	  - Suicidal ideation (+)
		Van Geel et al. (2014b):
		  - Weapon carrying (+)

Cyber-perpetration
Kowalski et al. (2014):
  - Anxiety (+),
  - Depression (+),
  - Life satisfaction (−),
  - Self-esteem (−),
	Kowalski et al. (2014):
	  - Drug and alcohol use (+)	

Cybervictimization
Kowalski et al. (2014):
  - Depression (+),
  - Self-esteem (−),
  - Anxiety (+),
  - Loneliness (+),
  - Life satisfaction (−),
  - Conduct problems (+),
  - Somatic symptoms (+),
  - Emotional problems (+),
  - Drug and alcohol use (+)
	Kowalski et al. (2014):
	  - Stress (+),
	  - Suicidal ideation (+)	

Note: (+) = positive effect, (−) = negative effect.

Zych et al., 2015

Table 4
Outcomes of bullying and cyberbullying.

Small effect sizes $r = .10–.24$, OR = 1.50 to 2.49	Medium effect sizes $r = .25–.39$, OR = 2.50–4.29	Large effect sizes $r > .40$ or OR >4.30

Bullying perpetration
Holt et al. (2015):
  - Suicidal ideation (+)
Van Geel et al. (2014b):
  - Weapon carrying (+)
Ttofi et al. (2012):
  - Violence later in life (+)
Ttofi, Farrington, Lösel, Crago, and Theodorakis (in press):
  - Drug use (+)
	Holt et al. (2015):
	  - Suicidal behavior (+)
	Ttofi et al. (2011b):
	  - Offending later in life (+)	

Bullying victimization
Nakamoto and Schwartz (2009):
  - Academic achievement (−)
Gini and Pozzoli (2013):
  - Psychosomatic problems (+)
Gini, Pozzoli, Lenzi, et al. (2014):
  - Headache (+)
van Geel et al. (in press):
  - Sleeping problems (+)
Van Dam et al. (2012):
  - Psychotic symptoms (+)
Holt et al. (2015); van Geel et al. (2014c):
  - Suicidal ideation (+)
Van Geel et al. (2014b):
  - Weapon carrying (+)
Reijntjes et al. (2010)
  - Internalizing problems over time (+)
  - Externalizing problems over time (+)
Ttofi et al. (2011a):
  - Depression (+)
Cunningham et al. (2015):
  - Psychotic symptoms later in life
	Hawker and Boulton (2000) with shared
	  method variance:
	  - General self-esteem (−)
	  - Social-esteem (−)
	  - Loneliness (+)
	  - Generalized and social anxiety (+)
	Holt et al. (2015); van Geel et al. (2014c):
	  - Suicidal behavior (+)
		Hawker and Boulton (2000) with
		  shared method variance:
		  - Depression (+)

Bully-Victim	Holt et al. (2015):
	  - Suicidal behavior (+)
	  - Suicidal ideation (+)
		Van Geel et al. (2014b):
		  - Weapon carrying (+)

Cyber-perpetration
Kowalski et al. (2014):
  - Anxiety (+),
  - Depression (+),
  - Life satisfaction (−),
  - Self-esteem (−),
	Kowalski et al. (2014):
	  - Drug and alcohol use (+)	

Cybervictimization
Kowalski et al. (2014):
  - Depression (+),
  - Self-esteem (−),
  - Anxiety (+),
  - Loneliness (+),
  - Life satisfaction (−),
  - Conduct problems (+),
  - Somatic symptoms (+),
  - Emotional problems (+),
  - Drug and alcohol use (+)
	Kowalski et al. (2014):
	  - Stress (+),
	  - Suicidal ideation (+)	

Note: (+) = positive effect, (−) = negative effect.

Zych et al., 2015

Long-term consequences of bully-involvement
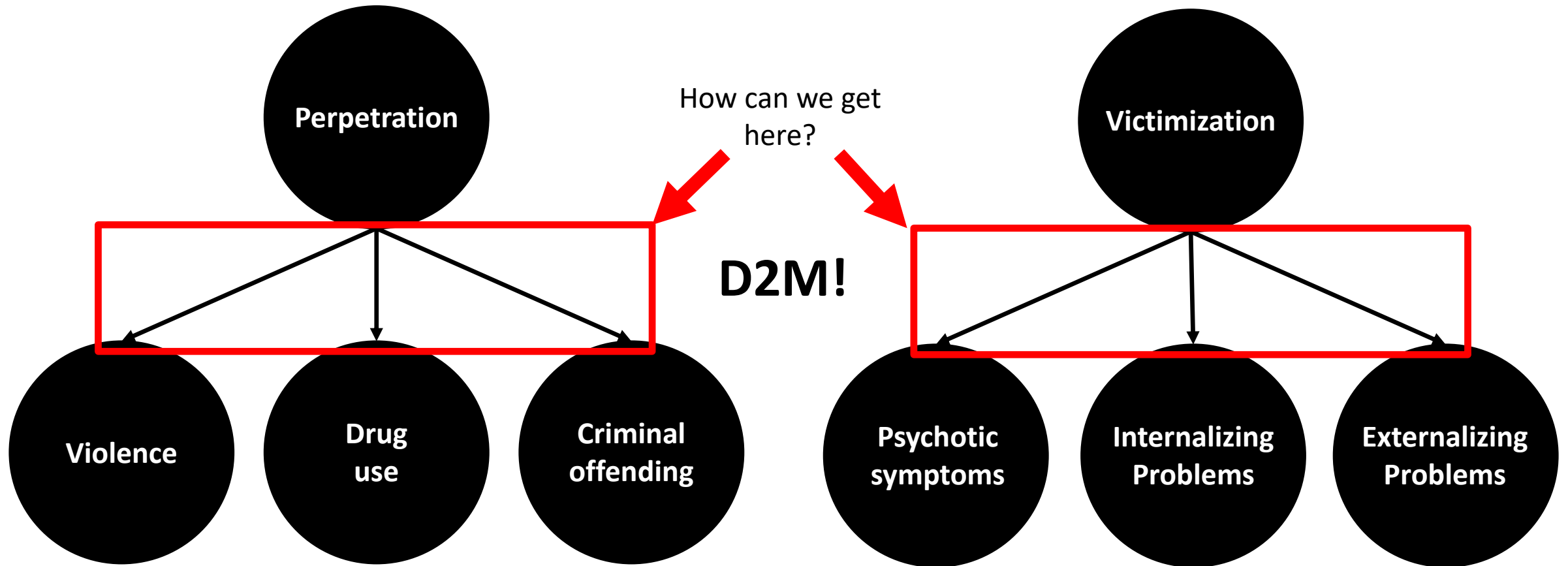
Experience of bullying leads to later intra- and inter-individual problems

"How we spend our days is, of course, how we spend our lives. What we do with this hour, and that one, is what we are doing… Each day is the same, so you remember the series afterward as a blurred and powerful pattern" – Annie Dillard

Present study:

How might past bully-involvement contribute to daily life experiences relevant for later detrimental life outcomes?

Present study:
Combining longitudinal and EMA data

Aim: Use EMA data to investigate whether bully-involvement in earlier adolescence predicts daily experiences of stress, provocations, and aggressive behaviors at age 20, through channels such as:

- Overall levels of stress and aggression

- Stress regulation

- (Aggressive) responses to provocation

Measures

- Ecological momentary assessment (EMA) data (*n*=255) for:
  - Aggressive behavior (4 items)
  - Provocations (4 items)
  - Stress (4 items)
- Bully involvement: Zurich Brief Bullying Scales (ZBBS)
  - 2 scales combined
  - 4 items for each at age 11, 5th added for 13, 15, 17
  - at or on the way to school, out in the evening, at home, on the internet, or in the workplace*
  - Same items for perp and vict

Adolescents can be quite mean to each other sometimes. How about you? In the last year [...] , [h]ow often have you…
…been purposely ignored or excluded?
…been laughed at, mocked, or insulted?
…been hit, bitten, kicked, or had your hair pulled?
…had possessions stolen, broke, or hidden?
…been sexually harassed (hit on, groped)?

Response options:
1) never
2) 1 to 2-times
3) 3 to 10-times
4) about once a month
5) about once a week
6) (almost) every day

Analysis

I. Using DSEM, derive participant-specific measures of:

    (1) Average aggression, provocation, and stress levels across the 2 weeks

    (2) Strength of links of a) provocations and stress with b) subsequent aggression

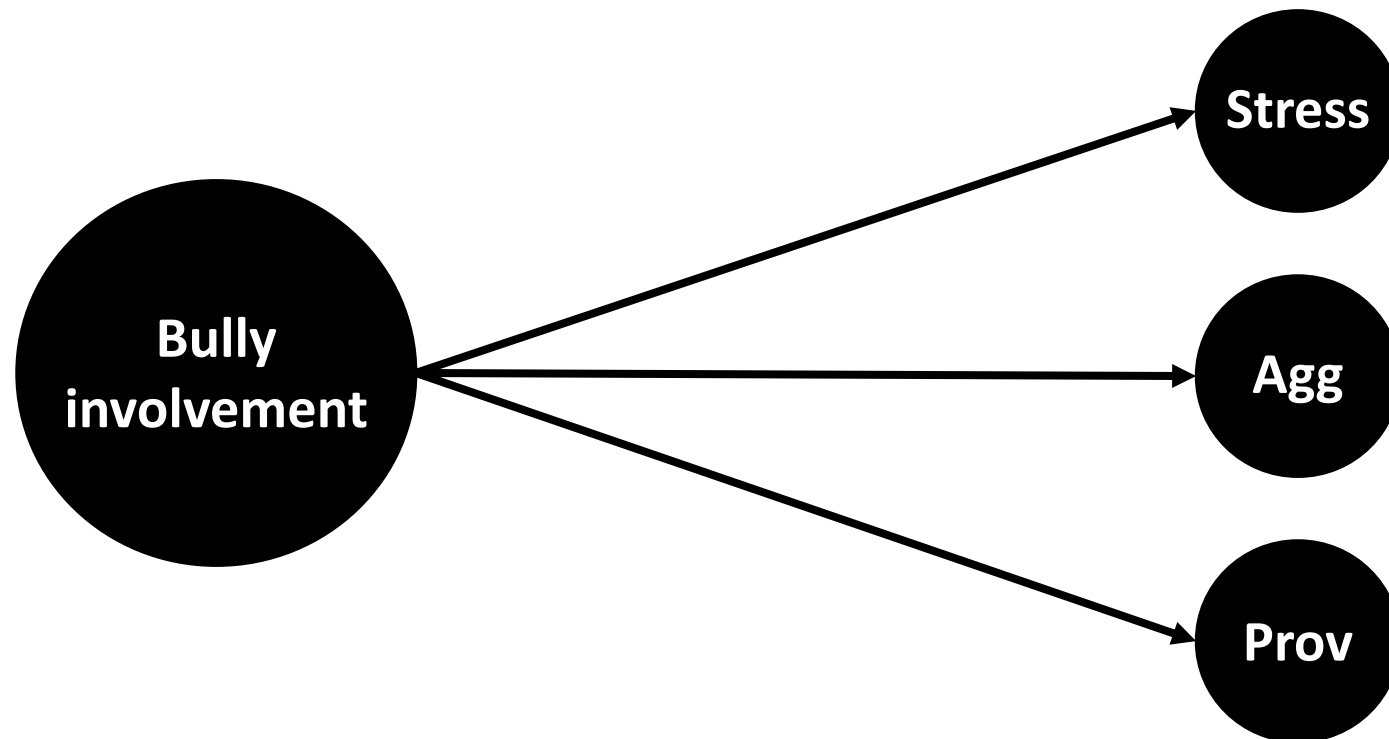II. Examine whether bully-involvement predicts individual differences in (1) and (2)

Analysis

I. Using DSEM, derive participant-specific measures of:

    (1) Aggression, provocation, and stress levels over time

    (2) Strength of links of a) provocations and stress with b) subsequent aggression

II. Examine whether bully-involvement predicts individual differences in (1) and (2)

Analysis

I. Using DSEM, derive participant-specific measures of:

    (1) Aggression, provocation, and stress levels

    (2) Strength of links of a) provocations and stress with b) subsequent aggression

II. Examine whether bully-involvement predicts individual differences in (1) and (2)
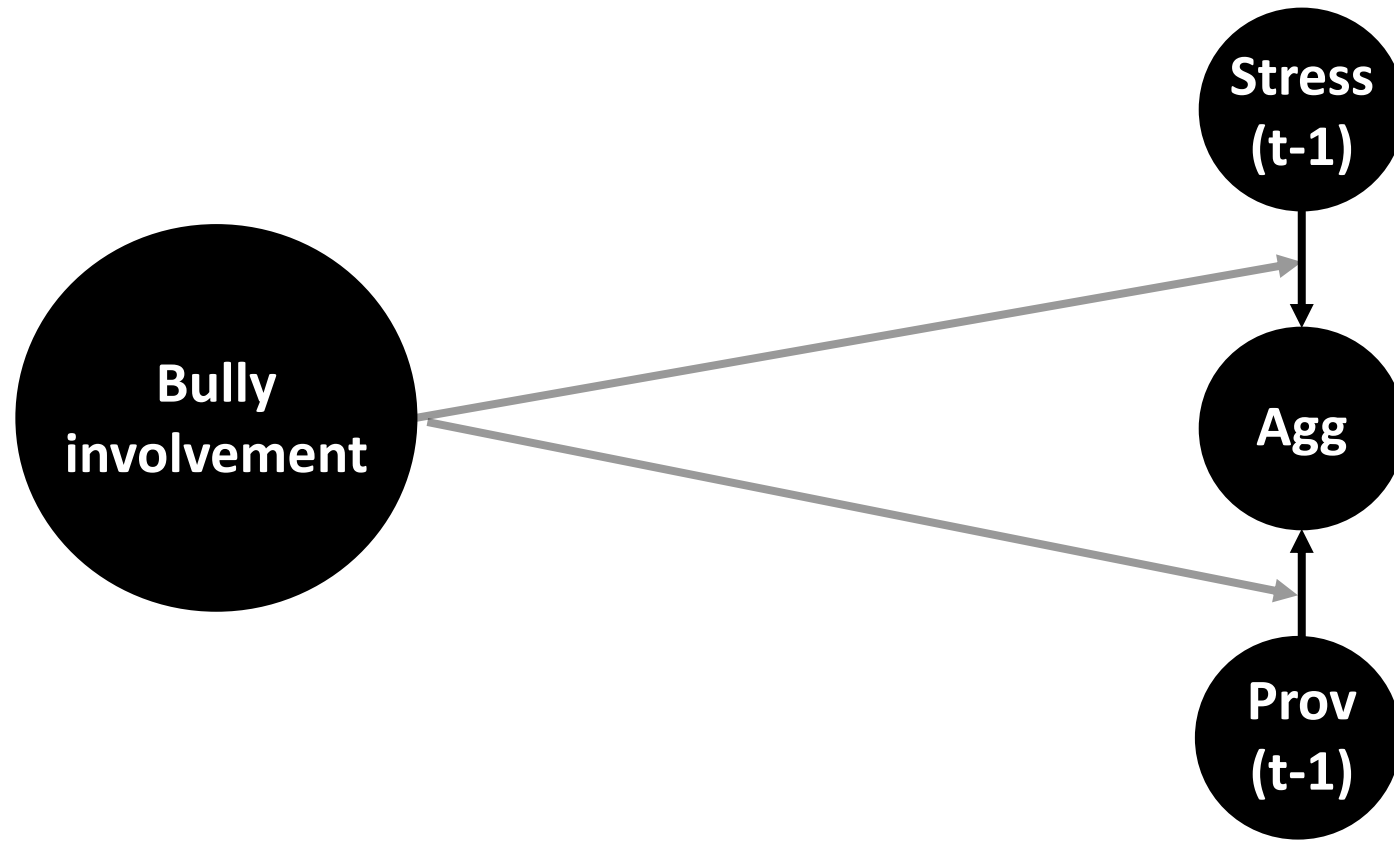
Implications

- See in "real time" how pathways between stress, provocations, and aggression unfold across individuals, relate it to past bullying experience, and possibly shed light on the processes that link bullying with and later life outcomes

- Could provide easier, more interpretable intervention targets:
  - if perpetration predicts the link between provocation and aggression, then can target self control among perpetrators
  - if victimization predicts more stress reactivity, may encourage individuals to e.g., cultivate self-awareness to recognize stressful situations

- Better understanding of stress-responsiveness and reactivity can be linked to existing hypotheses and (z-proso) data (e.g., hair sample data – differential cortisol response to stressful situations?)

Discussion/Thoughts/Challenges

- What will be the best wave to use, or should we test each one independently?

- Specific hypotheses: in general, expect bully-involvement to lead to less desirable outcomes, but still not sure about how that may vary across specific bully roles

- Skewed data for provocations and aggression – with 6/8 items have ≥ 94% respondents in lowest response category, rest > 80% (4 stress items not so limited). Will there be signal?

- Stay tuned!

Thank you for listening!

And thanks again (in advance) to:

Sam Henry[1], Izabela Zych[2], Ingrid Obsuth[3], Lilly Shanahan[4],
Denis Ribeaud[4], Manuel Eisner[5,6], Aja Murray[1]

Discussion/Questions/Challenges

- What will be the best wave to use, or should we test each one independently?

- Will be be controlling for other variables in conjunction with bullying?

- Skewed data for provocations and aggression – with 6/8 items have ≥ 94% respondents in lowest response category, rest > 80% (4 stress items not so bad). Will there be signal?

Table 3

Risk and protective factors in relation to bullying and cyberbullying.

Small effect sizes (r = .10–.24, OR = 1.50–2.49, d or g = .20–.49)	Medium effect sizes (r = .25–.39, OR = 2.50–4.29 d or g = .50–.79)	Large effect sizes r > .40 or OR > 4.30 d or g = > .80
Bullying perpetration		
Cook et al. (2010):	Cook et al. (2010):	
- Academic performance (−),	- Externalizing behavior (+),	
- Social problem solving (−),	- Other-related cognitions (−),	
- Internalizing behavior (+),	- Peer influence (−)	
- Social competence (−),	Gini, Pozzoli, and Hymel, (2014):	
- Family/home environment (−),	- Moral disengagement (+)	
- School climate (−),		
- Community factors (−)		
- Peer status (−)		
Mitsopoulou and Giovazolias (2015):		
- Openness (−),		
- Neuroticism(+),		
- Agreeableness (−)		
- Affective empathy (−)		
Bullying victimization		
Cook et al. (2010):	Cook et al. (2010):	
- Externalizing behavior (+),	- Internalizing problems (+),	
- Self-related cognitions (−),	- Social competence (−),	
- Social problem solving (−),	- Peer status (−)	
- Family/home environment (−),		
- School climate (−),		
- Community factors (−)		
Mitsopoulou and Giovazolias (2015):		
- Neuroticism (+)		
Tippett and Wolke (2014):		
- Low socioeconomic status (+)		
- High socioeconomic status (−)		
Reijntjes et al. (2011)		
- Externalizing problems (+)		
Lereya et al. (2013), including cyber-victimization:		
- Parental involvement and support (−)		
- Warmth and affection (−)		
- Negative parenting in general (+),		
- Abuse and neglect (+),		
- Maladaptive parenting (+)		

Zych et al., 2015

Bully-Victim

Cook et al. (2010):
- Internalizing behavior (+),
- Other related cognitions (−),
- Social problem solving (−)
- Family/home environment (−)

Tippett and Wolke (2014):
- low socioeconomic status (+)

Lereya et al. (2013), including cyber-bully/victimization:
- Positive parenting in general (−),
- Authoritative parents (−),
- Parental involvement and support (−),
- Supervision (−),
- Warmth and affection (−)
- Overall negative parenting (+)

Cook et al. (2010):
- Externalizing behavior (+),
- Social-competence (−),
- Self-related cognitions (−),
- Academic performance (−),
- School climate (−)
- Peer status (−)

Cook et al. (2010):
- Peer influence (−)

Cyber-perpetration

Kowalski et al. (2014):
- Frequency of Internet use (+),
- Anger (+),
- Risky online behavior (+),
- Narcissism (+),
- Empathy (−),
- School climate (−)
- School safety (−)

Gini, Pozzoli, and Hymel, (2014);
Kowalski et al. (2014):
- moral disengagement (+)
Kowalski et al. (2014):
- Normative beliefs about aggression (+)

Kowalski et al. (2014):
- Cybervictimization (+)

Cybervictimization

Kowalski et al. (2014):
- Frequency of Internet use (+),
- Moral disengagement (+),
- Risky online behavior (+)
- Hyperactivity (+)
- School safety (−)
- School climate (−)

Zych et al., 2015

Note: (+) = positive effect, (−) = negative effect.

Advantages of EMA – covered by Aja? Well design this to make it specific to bullying

- Improves ecological validity: in-context collection, minimizes recall bias by limiting period of time (e.g., 30 minutes)

- Improved reliability: many measurements for each individual (Thai & Page-Gould, 2017)

- Offers opportunity to link EMA data to biological, movement, location, passive sensing data, which in turn can help see "xamining the physi- ological antecedents or consequences of aggression; or of identifying place-based factors that increase risk for aggres- sion. Yoking EMA data collection across participants (e.g., romantic partners) could allow relationship dynamics to be explored in relation to aggression, including intimate part- ner violence. Finally, EMA may provide a useful means of monitoring outcomes in intervention evaluations to reduce aggressive behavior" (p.296).

Possible Mechanisms – not sure if relevant

- 1) HPA Axis: bullying victimization --> blunted salivary cortisol response → social problems, aggressive behaviors (Ouellet-Morin et al., 2011); amoung boys, girls (Vaillancourt et al., 2008), and adolescents in a lab stressful situation (Calhoun et al., 2014); *Some* evidence for 5-HTTLPR (but this is not a well-replicated finding)

- 2) Persistence of health problems from early life into adulthood *e.g., Costello et al., 2003); 75% of adults with psychiatric disorder diagnosed by 18, 50% by 15 (Kim-Cohen et al., 2003):
  - Bullying, though problematic, does not operate in isolation and often is accompanied by other violence/abuse (Finkelhor et al., 2007)
  - Could be mediated by: appraisals of control (Cat- terson & Hunter, 2010), hostile attributions and social perspective awareness (Hoglund & Lead- beater, 2007) and coping self-efficacy (Singh & Bussey, 2010).

Measure: Key findings

- Generally good configural invariance, but had to loosen some restrictiions for both metric and scalar MI.

- Sexual item was consistently low-loading, which may be a sign it serves as an indicator of both bullying (e.g., homophobia) and "flirting" (experimental sexual advances).

- Residual co-variance between item 1 and 2 for both victimisation and perpetration (both dealt with social stuff: exclusion, insults)

- Females tended to use social exclusion, while males used physical aggression – similar to previous findings (Shaw et al., 2013)

- Decrease in physical aggression loading over time; simply could indicate the physical aggression becomes less indicative of bullying perp/vict overall over time

Effects of Bullying

- Brunstein Klomek, Sourander, & Elonheimo, 2015; McDougall & Vaillancourt, 2015; Wolke & Lereya, 2015
- Long-term: mental and physical health problems, poorer educational attainment, empoloyment problems, and difficulties forming and maintaining social and romantic relationships in adulthood.
- increased risk of antisocial beahvior, delinquency in later life .
- After controlling for gender, parental SES, and IQ, being bullied predicts: new diagnoses of mental health problems, esp anxiety and depression (e.g., Stapinski et al., 2014)
- Adolescence: increased risk of psychotic experiences
- Short-term distress: (demotivated, sleep problems, tearful, irritable)
- Unhappy at school, poor school adjustment and perceptions, loneliness and isolation, academic difficulties
- Psychopathology: self-harm, suicidal ideation, esp with history of maltreatement or other mental health problems
- Use of twin studies suggests possible causal effects:
  - MZ twins bullied at age 7 = more emotional problems at 10 after controlling for emotional problems at age 5 (Arseneault et al., 2008)
  - Differences in victimization predicted diff in anxiety after controlling for previous anxiety; paranoid thoughts and cognitive disorganization (Touton et al., 2002)
  - Bullied MZ twins more likely to have social anxiety, separation anxiety in childhood, suicidal ideation in YA (Silberg et al., 2016) than non-bullied?

Protective/Risk Factors?

- Higher anticipatory salivary cortisol response predicts depression 1 year after victimization (Rudolph et al., 2011)

- Self-harming people more likely to have family member commit suicide, be physically mistreated, have conduct disorder, borderline, depression, and psychotic symptoms (Fisher et al., 2012)

- Children who self-blame show higher emotional problems post-victimization (Perrent et al., 2013)

- Supportive families, warm atmosphere predicts positive adjustment, fewer emotional problems (Bowes et al., 2010)

Longitudinal studies

- NCDS in UK (Power & Elliot, 2006): victimization associated high distress at 23 and 50; also showed higher depression, anxiety in mid-life

- Chirstchurch CDS (Fergusosson et al., 1989): n = 1265, assessed at 13,14,15; later mental health = increased anxiety, but others no after controlling for confounds

- Epidemiological Multicenter Child Psychoiatric Study (Almqvist et al., 1999), Finland: 8yo victimization = 1) F: higher rates of suicide (attempts); M: more anxiety, smoking

- Great Smoky Mountain Study (Costello et al., 1996), NC: 9-16 assessments; Victims – increased agoraphobia, depression, anxiety, panic disorders, and suicidality

Physical health, criminal & SES problems

- Physical: poor general health (Takizawa et al., 2014), higher inflammation, and obesity at age 50 (Takizawa et al., 2015), also age 19-21 (Baldwin et al., 2016; Copeland et al., 2014).

- Criminal: (Victims) Increase risk of repeat offending (16-20, 23-26 yo, Sourander et al., 2007, 2011); more felony charges (Wolke et al., 2013); property offending (Gibb et al., 2011)

- SES : Difficulty keeping jobs (e.g., Wolke et al., 2013); lower education (Takizawa et al., 2014)

- Social relationships: Lower social support, no spouse/partner, well-being (Takizawa et al., 2014)

D2M – *already covered by Aja*

- Measured: (negative) emotions, aggression (Murray et al., 2022), provocations, substance use, activities, stress, people

- N = 255 from z-proso

- 14 days, 4 assessments per day (max 56 per person), 50 CHF for ≥70% completion

- Also have hair sample for n > 1000, could use to examine biomarkers of stress

Even then, we're still looking at single data points per person per measurement interval to account for years worth of change. Which begs the question, how does bullying really affect us in everyday life?

How does it affect us in everyday life?

After all, our daily behavior is, of course, how we live our lives

What are the consequences?

- Perpetration: increased suicidal ideation and behavior, criminal offending, violence, drug use, and weapon carrying
- Cyber-perpetration: increased anxiety depression, lower life satisfaction, self-esteem, drug and alcohol use

- Victims: Lower academic achievement, self-esteem, social-esteem; higher psychosomatic problems, headache, sleeping, psychotic, internalizing and externalizing problems, depression and anxiety, loneliness, suicidal behavior
- Cyber-victims: increased depression, stress, anxiety, suicidal ideation, conduct and emotional problems, somatic symptoms, drug and alcohol use, lower life satisfaction and self-esteem

- Bully-Victims
  - Higher suicidal behavior, ideation, and weapon carrying
  - Bully-victims vs 'pure' bullies or victims show distinct patterns and higher levels of maladjustment.

Thank you!

Associations between
bullying involvement in adolescence
and
daily life stress and social experiences in adulthood

Sam Henry[1], Izabela Zych[2], Ingrid Obsuth[3], Lilly Shanahan[4],

Denis Ribeaud[4], Manuel Eisner[5,6], Aja Murray[1]