

Adult Attachment Security Moderates the Link between Adverse Childhood Experiences and Cellular Aging



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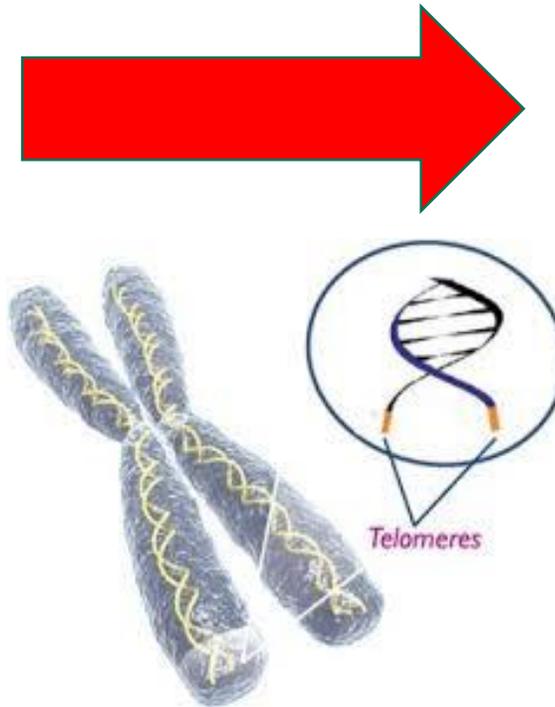


Early Adversity and Adult Health

- Exposure to adversity in the first 18 years of life threatens physical well-being across the lifespan



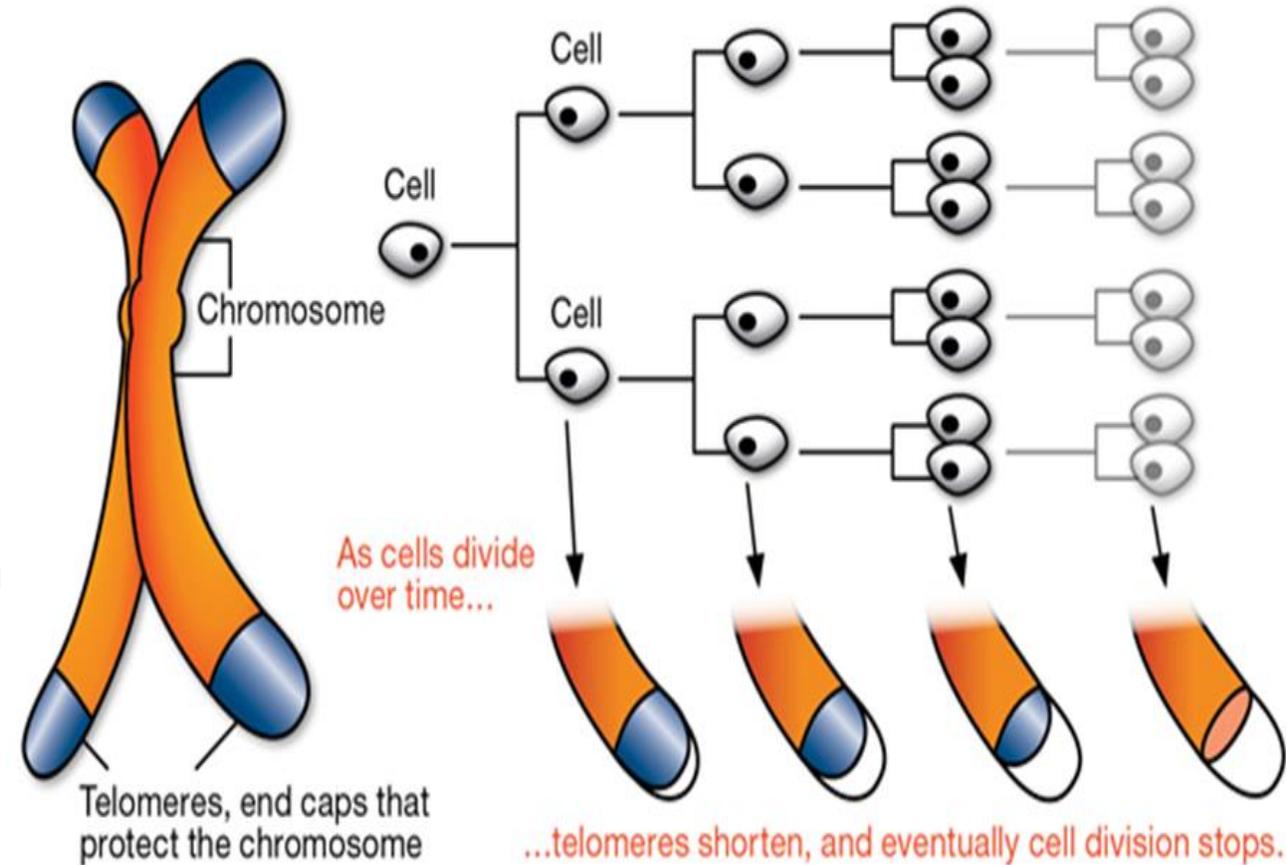
- Emotional/Physical/Sexual abuse
- Parental psychopathology/substance abuse
- Parental divorce/separation
- Physical/Emotional neglect
- Incarcerated parent



- Cardiovascular diseases
- Stroke
- Liver diseases
- Obesity
- Diabetes
- Early mortality

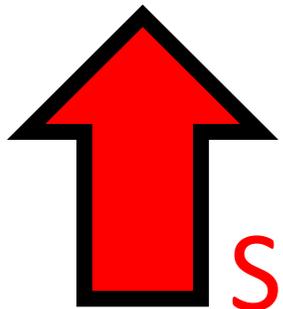
A Biological Mechanism- Telomere Length

- Repetitive sequences of DNA that protect chromosomes from damage during replication
- Considered a marker for biological age
- **Accelerated telomere shortening** is an important indicator of **physical health risk** independent of chronological health

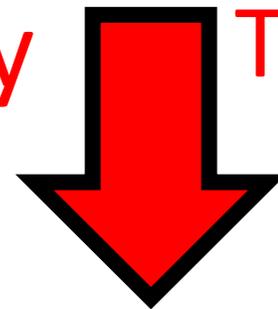


Early Adversity and Telomere Length

- Adults with histories of child maltreatment have **shorter telomeres** than those without such histories
- This follows a **dose-response relationship**:



Severity/Number/Chronicity



Telomere length

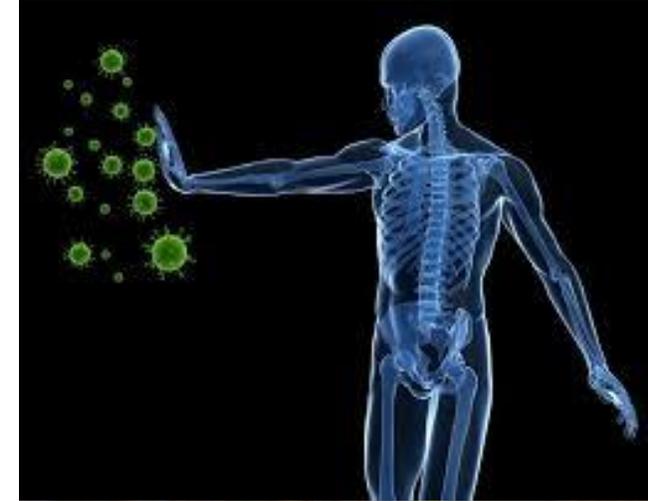
Parental **sensitivity** buffers from cellular aging correlates

- ✓ Link between early adversity and allostatic overload was apparent only among adolescents who experienced low maternal responsiveness (Evans et al., 2007)
- ✓ High-risk children showed reduced telomere length relative to low-risk peers, **but not if they had sensitive parenting** (Asok, Bernard, Roth, Rosen, & Dozier, 2013)



Resilience and Responsive Parenting

- ✓ **Life-long non-supportive parenting predicted reduced telomere length at age 22** (Brody, Yu, Beach, & Philibert, 2015)
 - A six-week program designed to *increase parental emotional support* during late adolescence **moderated** this link
- ✓ Low SES adults who reported **low** (vs. high) **maternal warmth** showed **excess immune and pro-inflammatory activity** (Chen et al., 2011)



Attachment and Health

- Attachment is an evolved behavioral system designed to **regulate infants' proximity to a protector** and thereby **alleviate distress** and maximize chances for survival (Bowlby, 1969)
- A **secure** attachment may provide one with an internal psychological resource that helps **regulate anxiety and promote resilience in the face of trauma**
- When children experience inattentive, hostile, or punitive responses from caregivers in response to their distress, they are likely to develop an **insecure attachment**:
 - ✓ **Insecure-avoidant** attachment, characterized by turning away from one's caregiver in times of need
 - ✓ **Insecure-resistant** attachment, characterized by expressing anger or resistance towards one's caregiving simultaneously with proximity-seeking

Stress Regulation and Adult Attachment

Down regulate
(Deactivation)

Flexible

Up regulate
(Hyperactivation)

Attachment system

**Insecure-
dismissing**

Secure

**Insecure-
preoccupied**

- ✓ Fix attention *away from* attachment relationships
- ✓ Minimizing
- ✓ Idealizing

- ✓ Fix attention strongly *towards* attachment relationships
- ✓ Over-involvement
- ✓ Anger

Ineffective and inflexible strategies for regulating distress

Experience chronic, dysregulated physiological stress responses

The Current Study

How are ACE, attachment patterns, and telomere length associated in adulthood?

- Main hypothesis:

Attachment classification would **moderate** the *association between #ACE and telomere length*

✓ Insecure (dismissing and preoccupied)

X Secure

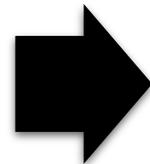
Method

- 78 Young adults ($M = 20.46$, $SD = 1.57$)
- 80% female, 47% Caucasian, 70% middle-high SES

**Adverse
Childhood
Experiences**

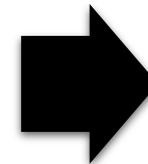
(Self Report)

- ✓ M: 2.05
- ✓ SD: 1.88



**Adult
Attachment
Interview
(AAI)**

- ✓ Secure: N = 50 64%
- ✓ Insecure-dismissing: N = 19 24%
- ✓ Insecure-preoccupied: N = 9 12%



**Telomere
Length
Assessment**



Results

- Hierarchical multiple regression
 - ✓ DV: Telomere length

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- Hierarchical multiple regression
 - ✓ DV: Telomere length

	Model 1
Variables	Demographic
R^2	.13
F (R^2 change)	2.65*

Note. ACE = Adverse Childhood Experiences † $p < .10$ * $p < .05$ ** $p < .01$

Results

- Hierarchical multiple regression
 - ✓ DV: Telomere length

	Model 1	Model 2
Variables	Demographic	+Health-related
R^2	.13	.15
F (R^2 change)	2.65*	.61

Note. ACE = Adverse Childhood Experiences [†] $p < .10$ * $p < .05$ ** $p < .01$

Results

- Hierarchical multiple regression
 - ✓ DV: Telomere length

	Model 1	Model 2	Model 3
Variables	Demographic	+Health-related	+ Attachment, ACE
R^2	.13	.15	.24
F (R^2 change)	2.65*	.61	2.56 [†]

Note. ACE = Adverse Childhood Experiences [†] $p < .10$ * $p < .05$ ** $p < .01$

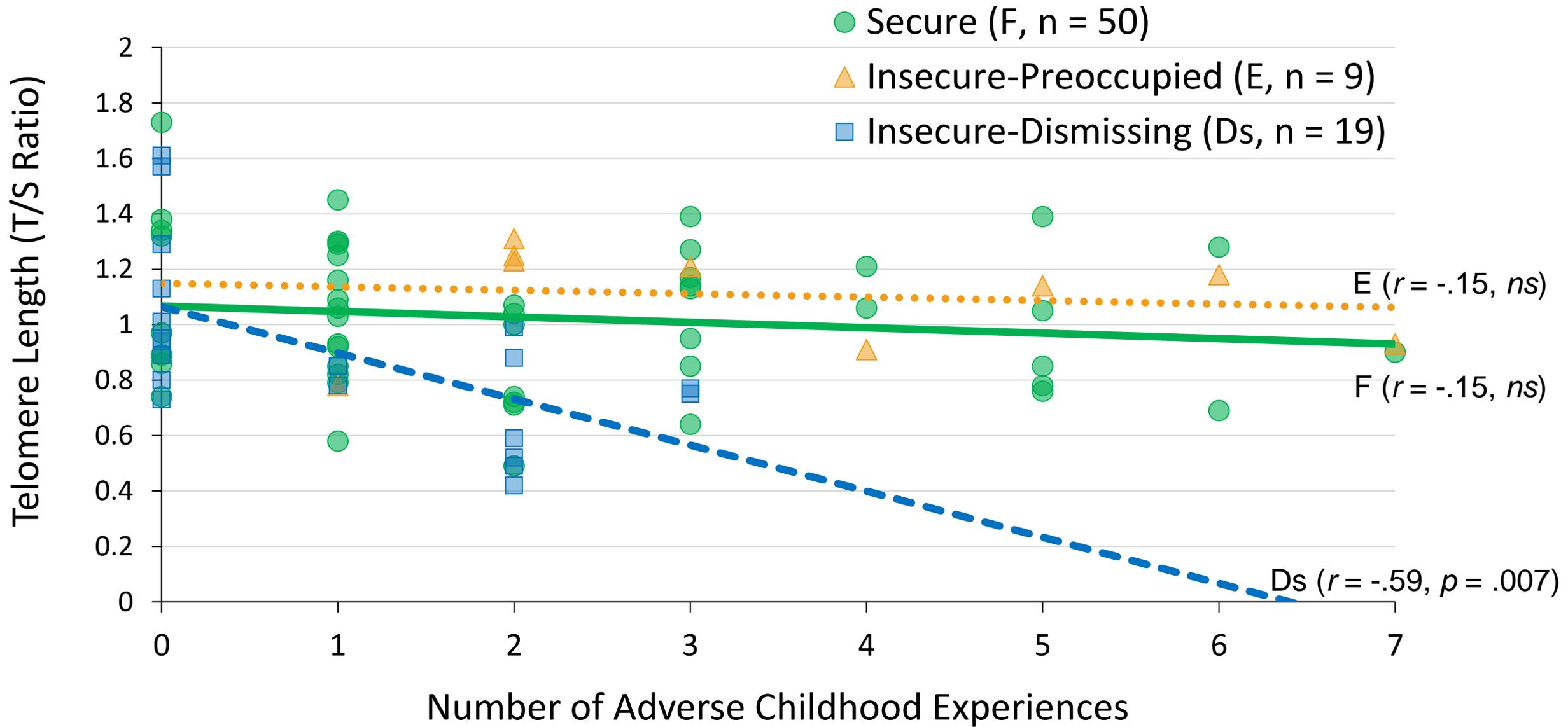
Results

- Hierarchical multiple regression
 - ✓ DV: Telomere length

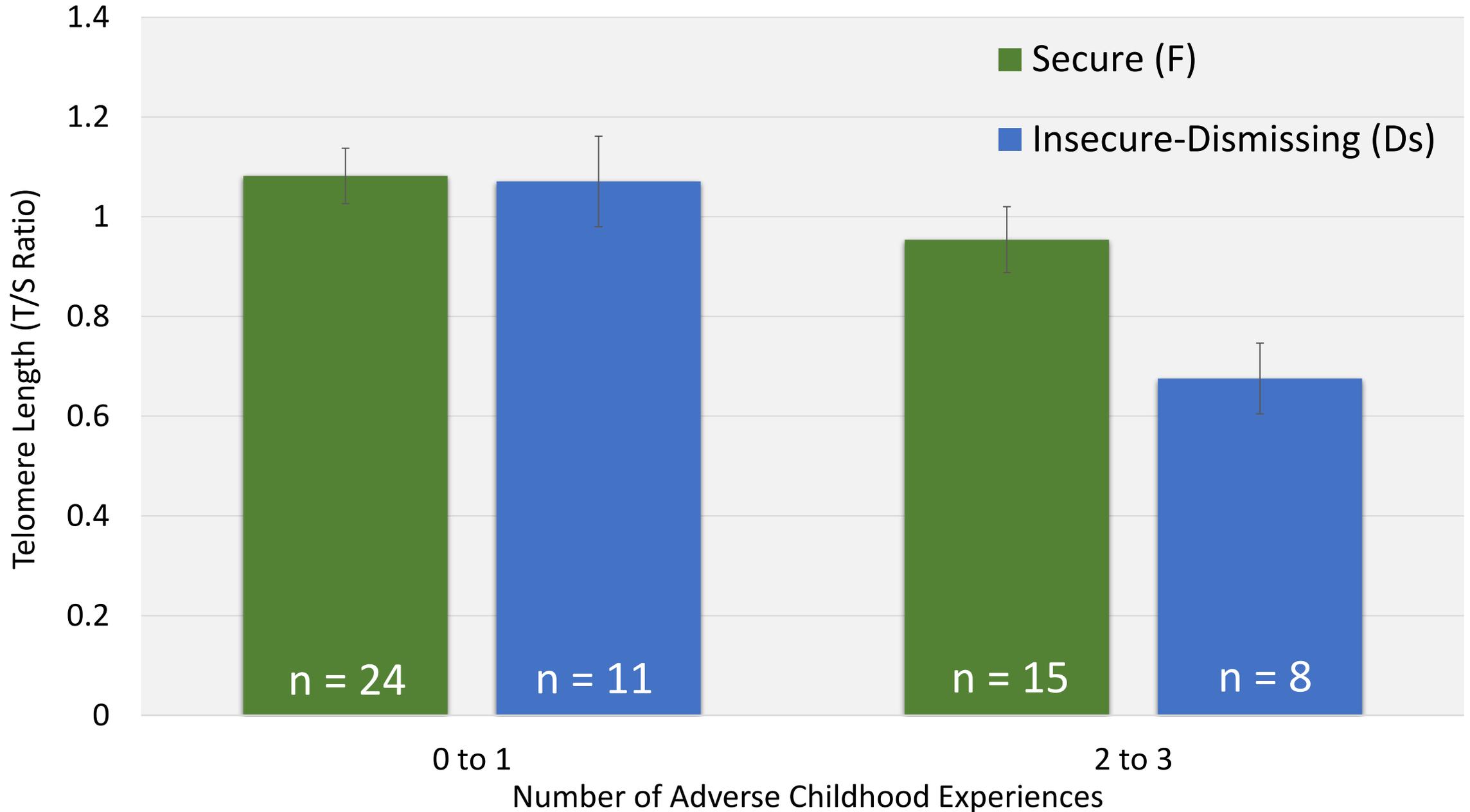
	Model 1	Model 2	Model 3	Model 4
Variables	Demographic	+Health-related	+ Attachment, ACE	+ Attachment X ACE
R^2	.13	.15	.24	.36
F (R^2 change)	2.65*	.61	2.56 [†]	6.27**

Note. ACE = Adverse Childhood Experiences [†] $p < .10$ * $p < .05$ ** $p < .01$

Results

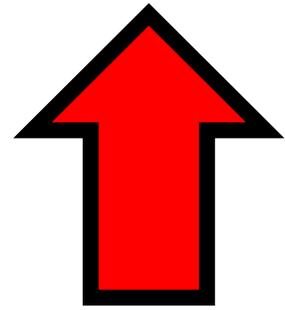


Low ACE sub-sample

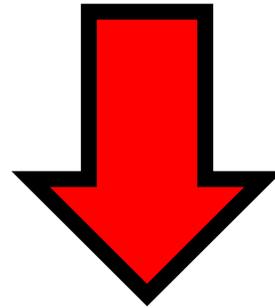


Discussion

- Attachment patterns *moderated* the association between ACE and telomere length in young adulthood



ACE



Telomere length

- ✓ Insecure-dismissing
- X Secure
- X Insecure-preoccupied

Secure Attachment

- Stressors may be perceived as less overwhelming

(Coan, Schaefer, & Davidson, 2006; Eisenberger et al., 2011)

- Openness to social support

(Fortuna & Roisman, 2008)

- Greater flexibility in problem solving



- Reduced systematic inflammation

(Erlich, Miller, Jones, & Cassidy, 2016)

- Lower levels of cumulative physiological wear and tear

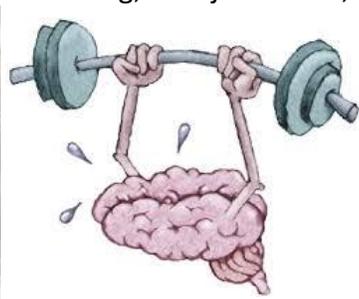


No #ACE- Telomere length association



Insecure Attachment

- How come **insecure-dismissing**, but **not insecure-preoccupied** individuals, are more sensitive to negative health related long term effects of ACE?
- Evidence show that **insecure-dismissing**, but **not insecure-preoccupied**, exhibit significantly higher physiological stress reactivity
 - ✓ Responding to stressful AAI questions
(Dozier & Kobak, 1992; Roisman, Tsai, & Chiang, 2004)
 - ✓ Interacting with mothers in the context of a conflict issue
(Beijersbergen, Bakermans-Kranenburg, Van Ijzendoorn, & Juffer, 2008)



Stress Regulation and Adult Attachment

Down regulate
(Deactivation)

Up regulate
(Hyperactivation)

Attachment system

Avoidance
strategies causing
*maintenance of
their distress*

Engage in social
interaction to
**attenuate or
eliminate their
distress**

Ineffective and inflexible strategies for regulating distress

Experience chronic, dysregulated physiological stress responses

Conclusions

- **Adds to knowledge: Adult Attachment-**
 - ✓ A potential mechanism that link childhood adversity to negative health outcomes
 - ✓ May promote resilience to childhood adversity
- **Future research**
 - ✓ Understanding *what* about different attachment patterns exacerbates risk and promotes resilience
 - ✓ *How* attachment patterns influence biological processes that lead to negative health outcomes
- **Policy implications**
 - ✓ Critical steps toward changing current health care system *from an acute “sick-care” to a preventative “well-care” model*