Home is a Haven:

Exaggerated HPA-Axis Recovery After a Bad Day at School

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Introduction

Background

- The stress and coping literature has devoted much attention to stress reactivity, yet far less research has focused on stress recovery, with even less exploring end-of-day recovery
- Moreover, the majority of research examining recovery has focused on adults, with a paucity of studies examining this process in children

Research Questions

The present study used a within-person design to address the following three research questions:

1. **Do day-to-day fluctuations in the experience of negative events at school predict affective reactivity at school?**
2. **How do children recover affectively from a stressful day at school?**
3. **How do children recover physiologically from a stressful day at school?**

Method

Data were collected by the UCLA Center on Everyday Lives of Families (CELF), a center funded by the Alfred P. Sloan Foundation

Participants Twenty-three ethnically diverse children (12 females) between the ages of eight and 12 (M = 9.2)

Procedures

Samples Taken on Three Weekdays

	Wake	Before Lunch	Before leaving school	Bedtime
Salivary Cortisol	✓	✓	✓	✓
Mood* (positive, anxious, and depressed)	✓	✓	✓	✓
Negative school events*		✓	✓	

* Mood and negative school events were reported using the Youth Everyday Social Interaction and Mood (YES I AM) scales (Repetti, 1996; Repetti & Wood, 2000); all items were rated using a four-point scale (1 = definitely false, 2 = mostly false, 3 = mostly true, and 4 = definitely true).

Analyses

- Cortisol values were log transformed and time-adjusted evening cortisol values estimating children's cortisol levels at 7pm were computed
- Multilevel modeling techniques were carried out using HLM and final estimations of fixed effects with robust standard errors are reported

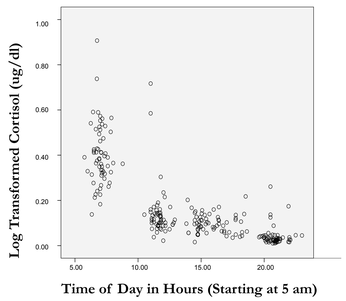
Results

Descriptives

Children's self-reported mood and negative school events averaged across all sampling occasions

	M	SD	Range
Positive Mood	3.2	0.65	1 - 4
Depressed Mood	1.2	0.42	1 - 3.7
Anxious Mood	1.3	0.46	1 - 3.7
Negative School Events	1.4	0.44	1 - 3.3

Children's diurnal cortisol over three days



We observed the expected diurnal decline in children's cortisol, with collection time accounting for 71%, of the variance in cortisol levels

1. Affective Reactivity

Higher Reports of Negative School Events Predicted Within-Person Increases in Depressed and Anxious Mood

Fixed Effect	Coefficient (S.E.)	t ratio
Outcome: School Depressed Mood		
Intercept	0.49 (0.24)	2.09**
Slope (change in school depressed mood per unit change in negative events)	0.53 (0.19)	**2.80****
Outcome: School Anxious Mood		
Intercept	0.49 (0.14)	3.44**
Slope (change in school anxious mood per unit change in negative events)	0.55 (0.14)	**3.85*****
Outcome: School Positive Mood		
Intercept	3.38 (0.20)	16.51***
Slope (change in school positive mood per unit change in negative events)	-0.05 (0.12)	-0.43

$^{**}p < .01$, $^{***}p < .001$

2. Affective Recovery

Higher Reports of Negative School Events Predicted Marginally Significant Within-Person Increases in Children's Positive Mood at Bedtime

Children's Reports of Negative School Events were Not Associated with Their Reports of Anxious or Depressed Moods

Fixed Effect	Coefficient (S.E.)	t ratio
Outcome: Bedtime Depressed Mood		
Intercept	0.80 (0.38)	2.11*
Slope (change in bedtime depressed mood per unit change in negative events)	0.35 (0.28)	1.27
Outcome: Bedtime Anxious Mood		
Intercept	1.02 (0.21)	4.79***
Slope (change in bedtime anxious mood per unit change in negative events)	0.22 (0.16)	1.34
Outcome: Bedtime Positive Mood		
Intercept	3.02 (0.21)	14.36***
Slope (change in bedtime positive mood per unit change in negative events)	0.22 (0.12)	1.83†

$^{\dagger}p < .10$, $^{*}p < .05$, $^{***}p < .001$

3. Physiological Recovery

Higher Reports of Negative School Events Predicted Within-Person Decreases in Children's Estimated Cortisol Levels at 7pm

Fixed Effect	Coefficient (S.E.)	t ratio
Outcome: Children's Cortisol at 7pm		
Intercept	0.10 (0.02)	5.07***
Slope (change in cortisol at 7pm per unit change in negative events)	-0.03 (0.01)	-2.92**

$^{**}p < .01$, $^{***}p < .001$

Summary and Conclusions

- As expected, on days when children rated their experiences of negative events more highly, they reported higher levels of concurrent depressed and anxious moods while they were at school compared to days when they reported experiencing lower levels of negative school events.
- Unexpectedly, when children rated their experiences of negative events more highly, they reported higher levels of positive mood at bedtime than they did at the end of the day following less stressful school days.
- Moreover, on days characterized by more school stress (that is, on days when children's ratings of negative school events were higher), children's end-of-day cortisol levels were significantly lower than they were on less stressful school days.
- Our results are consistent with effects observed in adult women following a stressful workday (Saxbe, Repetti & Nishina, 2008) and suggest that for children, too, returning home after a stressful day is associated with an "exaggerated" physiological and affective recovery compared to less stressful days.
- Our observation that cortisol levels were lower and positive mood was higher on evenings preceded by a more stressful school day suggests that perhaps children are particularly sensitive to the security of their homes and/or the social support received from family on those days and as reflected in more pronounced positive moods and physiological regulation on those days

Contact Information

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