Perceived Stress and Somatic Symptoms in Adolescents: The Role of Emotional Reactivity

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BACKGROUND

- Self-reported psychological and physical health complaints such as pain increase during adolescence (Hagquist, 2010; Friberg, et al., 2012).
- Somatic symptoms during adolescence have both short- and long-term consequences (Bohman et al., 2012; Shanahan et al., 2016).
- Research has consistently indicated that long-term stress is associated with somatic symptoms (Hange et al, 2014; McEwen & Gianaros, 2010; Williams et al., 2017).
  - While a healthy and normal level of stress can be beneficial, excessive stress may have lasting adverse effects on the body (Shonkoff & Garner, 2012).
- Research has indicated that the effect of stress on depressive symptoms, including somatic symptoms, may depend on one's emotional reactivity to stressors (Charbonneau et al., 2009).
  - In addition, research has indicated that boys and girls may react differently to different domains of stress such as academic versus interpersonal stressors (Crick et al., 2002; Prinstein et al., 2005).

OBJECTIVES

- To examine the relationship between perceived stress and somatic symptoms in adolescents.
- To examine the moderating role of emotional reactivity on the relationship between perceived stress and somatic symptoms.
- To examine differences in the relationship between perceived stress and somatic symptoms by gender.

METHODS

Participants:

- 1,288 adolescents in 7th and 8th grade from 5 public middle schools located in southern New England.
- Age: *M* = 12.75, *SD* = .71, range = 11-15 years; 51% girls; 52% Non-Hispanic White, 9% Black or African American, 19% Hispanic/Latinx, 15% multi-racial/ethnic, and 5% other.

Procedure:

- Self-report questionnaires were administered to participating students in school in the fall of 2016 (T1) and the spring of 2017 (T2).

This research was supported by The Alvord Foundation. To obtain a copy of this poster, please visit: https://pandaresearchproject.org

METHODS

Measures:

The following validated self-report measures were administered at T1 and T2:

Construct	Measure	Scales
Perceived Stress	10-item Perceived Stress Scale (Cohen et al., 1983)	5-point Likert sum score (range = 0-40; α_{T1} = .78)
Emotional Reactivity	21-item Emotional Reactivity Scale (Nock et al., 2008)	5-point Likert mean score (range = 0-4; α_{T1} = .96)
Somatic Symptoms	6-item Somatic Symptom subscale of the 20-item Center for Epidemiological Studies Depression for Children (Weissman et al., 1980)	4-point Likert sum score (range = 0-24; α_{T1} = .78; α_{T2} =.81)

Analytic Plan:

Examined perceived stress and emotional reactivity at T1 predicting somatic symptoms at T2 using a path Analysis in M*plus* 8.0.

- Examined gender differences by conducting a multi-group path analysis.
- Examined whether the interaction between perceived stress and emotional reactivity predicted somatic symptoms.

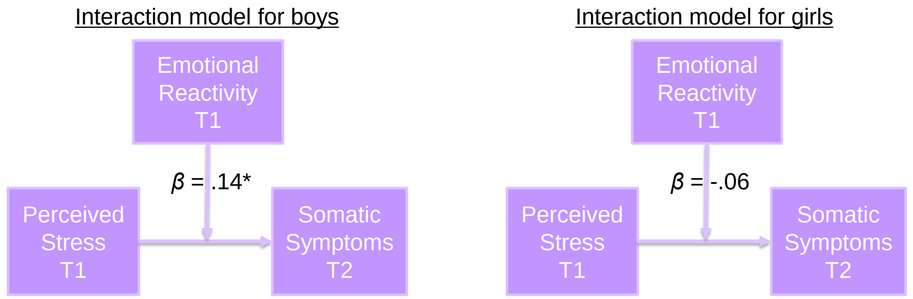
RESULTS

Table 1. ***Multi-group Path Analysis Results, Separately by Gender***

	Boys (n = 626)			Girls (n = 662)		
	β	*SE*	*Est./S.E.*	*β*	*SE*	*Est./S.E.*
Age T1	.02	0.04	0.55	.03	0.04	0.81
Non-Hispanic, White	-.02	0.04	-0.48	.03	0.03	0.74
Somatic Sx T1	.38	0.05	7.56***	.49	0.04	11.44***
Perceived Stress (PS) T1	.09	0.06	1.56	.16	0.05	3.08**
Emotional Reactivity (ER) T1	.05	0.06	0.83	.05	.05	1.02
PS*ER	.14	0.06	2.50*	-.06	0.04	-1.46
R^2	.27			.40		

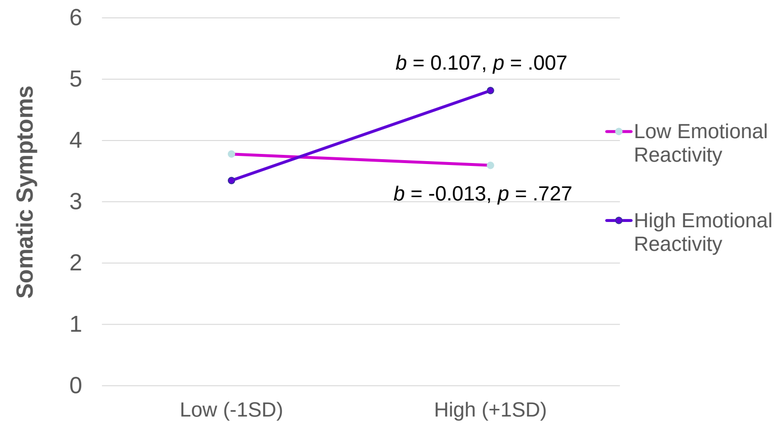
Note. Sx = Symptoms; PS*ER = Interaction between perceived stress and emotional reactivity; Model Fit Indices: $\chi 2(16)=31.85$, p = .011; RMSEA = 0.039; CFI = 0.958; TLI = 0.968; SRMR = .032; *p < .05, **p < .01, ***p < .001.

Figure 1. ***Moderation Model Results for Boys and Girls***



RESULTS

Figure 2. ***Association between Perceived Stress and Somatic Symptoms: The Moderating Role of Emotional Reactivity for Boys***



- For boys, main effects of perceived stress (PS) and emotional reactivity (ER) were not associated with somatic symptoms.
  - The interaction between PS and ER was significantly associated with somatic symptoms, such that when ER was high, PS was positively associated with somatic symptoms.
- For girls, a significant main effect for PS was found, such that higher PS was associated with higher somatic symptoms.
  - The interaction between PS and ER was not significantly associated with somatic symptoms for girls.

CONCLUSIONS

- Findings highlight that low emotional reactivity is protective against high perceived stress for boys. However, emotional reactivity did not moderate the association between perceived stress and somatic symptoms for girls.
  - Perceived stress, regardless of emotional reactivity, is a significant predictor of somatic symptoms for girls.
- Low emotional reactivity may not be a sufficient buffer in the relationship between perceived stress and somatic symptoms for girls.
  - Previous research has suggested that adolescent girls report higher levels of stress in certain contexts than boys (Hankin et al., 2007).
  - Therefore, future research could examine the relationship between perceived stress and somatic symptoms in the context of specific stressors, as adolescent boys tend to perceive higher levels of achievement related stress, whereas adolescent girls report higher levels of familial and peer relationship stress (Hankin et al., 2007).