

The Buffering Effects of Self-Regulation on the Relations Between Emotionality and Adjustment in Early Adolescence

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Introduction

Self-regulation, defined as the ability to regulate one's affect, attention, and behavior in ways attuned to contextual demands, has been linked to better psychological and behavioral adjustment (Raffaelli & Crockett, 2003; Rothbart & Hwang, 2005). Emotionality or emotional reactivity, however, has been associated with psychological and behavioral problems (see Rothbart & Bates, 1998) and to prosocial competence (Eisenberg, et al., 1994, 1996), although the direction of association is unclear. Some models (Eisenberg & Fabes, 1992) posit an interaction between emotionality and self-regulation such that individuals with high emotional reactivity but moderate regulation do not experience high levels of internalizing and externalizing problems, whereas highly reactive individuals with very high or very low self-regulation are at risk for internalizing problems and externalizing problems. Most research on self-regulation has focused on young children or adults, but in this study we focus on self-regulation in early adolescence, when such processes might play a role in mortality and morbidity risk. There is also evidence that there are sex differences in emotionality and self-regulation, so the relations among these variables might differ for boys and girls.

Research Goals

- 1) Test the hypotheses that higher levels of emotionality are related to more internalizing and externalizing behaviors and higher levels of self-regulation are related to fewer internalizing and externalizing behaviors.
- 2) To examine the relations of emotionality and self-regulation with prosocial competence in youth.
- 3) Test the hypothesis that self-regulation buffers the negative effects of high emotionality on internalizing and externalizing behavior.
- 4) To explore the potential interactive effects of emotionality and self-regulation on prosocial competence.
- 5) To examine these relations separately for boys and girls.

Method

Participants: The third wave of data of the NICHD Study of Early Child Care and Youth Development was used. Participants (N=894) were in sixth grade, with an almost even gender split and about 80% were white (M age = 11.03, SD = .17)

Measures:

- **Emotionality.** 10 items, ranging from 1 (never) to 5 (always); e.g., "When my child feels an emotion, he/she feels it strongly"; $\alpha=.78$.
- **Self-regulation.** 24 items from the Self-Control subscale of the Social Skills Rating System and the Disruptive Behaviors Disorder Scale were used., e.g., "My child often interrupts or intrudes on others"; $\alpha=.91$. Scale scores were standardized and averaged to create a composite.
- **Internalizing problems.** 31 items from the Child Behavior Checklist (CBCL) ranging from 0 (not true of the child) to 2 (very true of the child); e.g., "My child is too fearful or anxious"; $\alpha=.86$.
- **Externalizing problems.** 31 items from the Child Behavior Checklist (CBCL) ranging from 0 (not true of the child) to 2 (very true of the child); e.g., "My child displays cruelty, bullying, meanness to others"; $\alpha=.89$.
- **Prosocial behavior in the home.** 6 items, ranging from 0 (never) to 2 (very often); e.g., "My child volunteers to help family members with tasks"; $\alpha=.80$.
- **Prosocial competence with peers.** 6 items, ranging from 1 (not true) to 4 (very true); e.g., "My child is kind toward peers"; $\alpha=.77$.

Data Analysis: Using multiple regression analyses, relations among emotionality, self-regulation, and the four outcomes were tested. The main effects of sex, emotionality, and self-regulation were entered along with income to needs ratio as a control in the first step of the model. In the next step, all 2-way interactions between sex, emotionality, and self-regulation were entered. In the final step, the 3-way interaction was entered.

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Results

• Table 1 shows that emotionality was positively correlated with internalizing and externalizing behaviors and negatively correlated with two prosocial measures and self-regulation (all $ps<.01$). Self-regulation was negatively correlated with internalizing and externalizing behaviors and positively correlated with the two prosocial measures (all $ps<.001$). Also at the bivariate level, girls showed more emotionality, self-regulation, and prosocial behavior (all $ps<.05$) than boys. Boys showed more externalizing behavior; there was no significant difference of internalizing behavior.

• As hypothesized, emotionality was positively related to internalizing and externalizing behavior ($p<.05$). Emotionality was also positively related to prosocial behavior in the home ($p<.01$), but not with peers. Also as hypothesized, the main effect of self-regulation was negatively related to internalizing and externalizing behavior ($p<.001$). Self-regulation was positively related to both types of prosocial behavior ($p<.001$). Tables 2 & 3.

• Tables 2 and 3 show there were no significant interactions between self-regulation and emotionality on the outcomes except there was a Sex X Emotionality X Self-regulation interaction effect on internalizing behaviors ($\beta=.07, p=.04$) (Figure 1). For girls, there was no interaction. For boys with low self-regulation, there was a positive association between emotionality and internalizing behavior; internalizing behavior did not vary with emotionality for boys with high regulation. There was also a Sex X Self-regulation interaction, such that the negative relation between self-regulation and externalizing behavior was stronger for girls (not shown).

Table 1. Correlations, Means, and Standard Deviations for Study Variables

Variables	Income: Needs	Emotionality	Self-Regulation	Internalizing	Externalizing	Prosocial in Home	Prosocial with Peers
Emotionality	-.09*						
Self-Regulation	.24*	-.52*					
Internalizing	-.16*	.26*	-.38*				
Externalizing	-.23*	.46*	-.71*	.56*			
Prosocial Behavior in the Home	.07*	-.12*	.39*	-.18*	-.32*		
Prosocial Behavior with Peers	.22*	-.21*	.52*	-.19*	-.39*	.18*	
Means (SD)	4.57 (4.21)	3.31 (.56)	.00 (.73)	1.90 (1.19)	2.06 (1.32)	1.02 (.42)	1.70 (.32)

* $p<.05$

Table 2. Multiple Regressions Predicting Internalizing and Externalizing Behaviors

Variable	Internalizing			Externalizing		
	1	2	3	1	2	3
Ethnicity	.02	.02	.02	.01	.01	.01
Income to Needs	-.07*	-.08*	-.08*	-.07*	-.07*	-.07*
Sex	.10*	.10*	.13*	.00	.00	.00
Emotionality	.08*	.08*	.07*	.11*	.11*	.11*
Self-Regulation	-.36*	-.35*	-.36*	-.65*	-.67*	-.67*
Sex by Emotionality		-.00	-.01	.01	.01	
Sex by Self-Regulation		-.03	-.05	-.07*	-.07*	
Emotionality by Self-Regulation		-.07*	-.06	.04	.04	
Sex by Emotionality by Self-Reg			.07*			.01
R ²	.18*	.19*	.19*	.54*	.55*	.55*

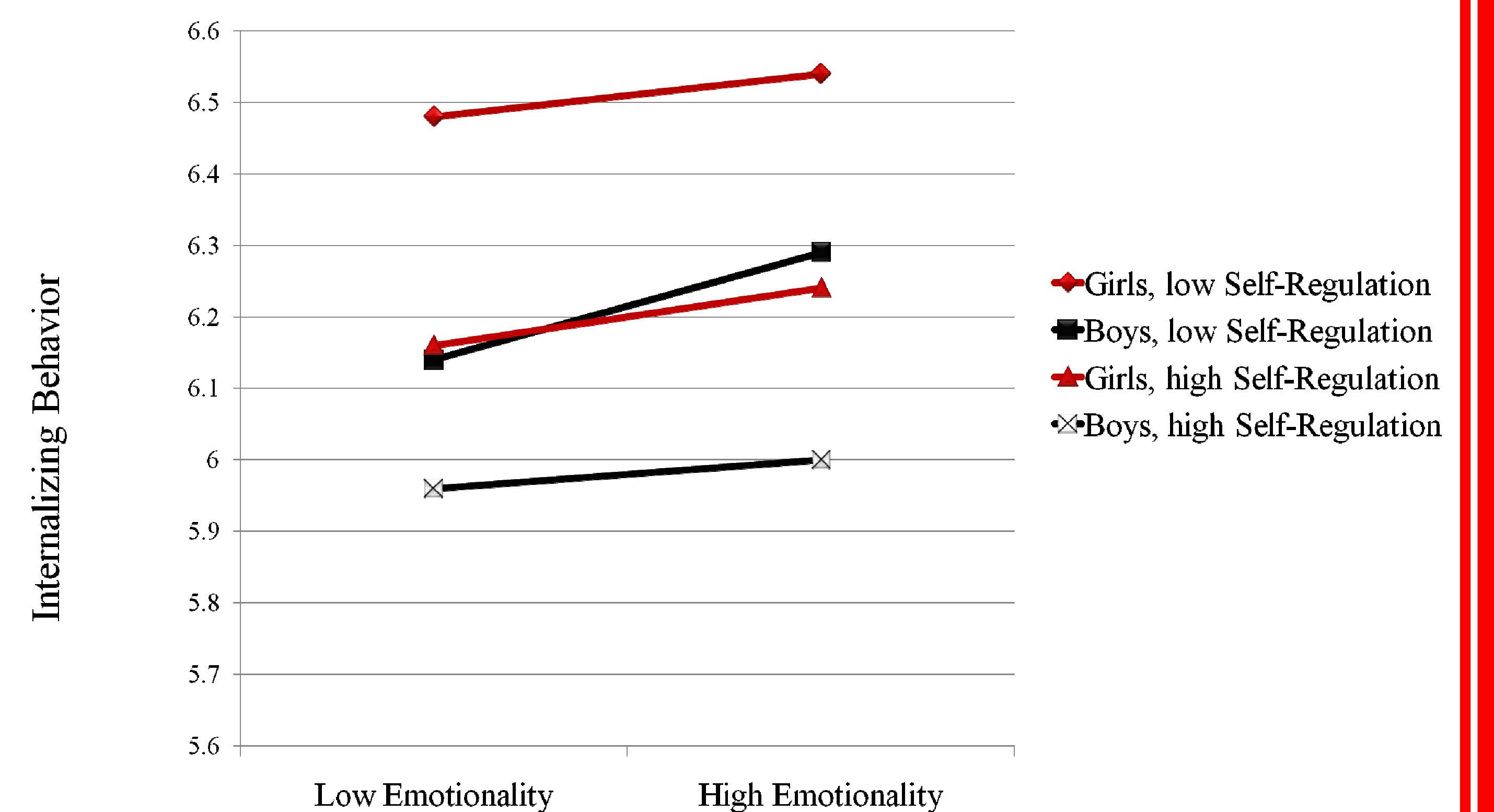
* $p<.05$, standardized regression weights shown

Table 3. Multiple Regressions Predicting Prosocial Behavior

Variable	Home		Peers	
	1	2	1	2
Ethnicity	-.03	-.03	.08*	.08*
Income to Needs	-.02	-.02	.10*	.10*
Sex	.00	.01	.01	.01
Emotionality	.11*	.11*	.03	.03
Self-Regulation	.48*	.49*	.49*	.50*
Sex by Emotionality		-.02		-.01
Sex by Self-Regulation		.04		.00
Emotionality by Self-Regulation		.00		-.03
R ²	.19*	.20*	.54*	.55*

* $p<.05$, standardized regression weights shown

Figure 1. Three-Way Interaction between Sex, Emotionality and Self-Regulation



Discussion

The purpose of this study was to determine the effects of emotionality, self-regulation and their interaction on internalizing, externalizing, and prosocial behavior as well as possible sex differences in these relations.

The two hypotheses that emotionality would be positively related whereas self-regulation would be negatively related to internalizing and externalizing behavior were fully supported. Self-regulation was related to both types of prosocial behavior and emotionality was only related prosocial behavior in the home.

The hypothesis that self-regulation would moderate the negative effect of emotionality was partially supported. A 3-way interaction was found for internalizing behavior in which self-regulation did buffer the negative effect of emotionality for boys, not girls.

The findings suggest that emotionality and self regulation are independently associated with psychosocial adjustment and that these processes might account for the reported increases in externalizing and internalizing behaviors, and the decreases in prosocial competencies in adolescence. Future studies should examine whether age-related changes in these processes account for age-related changes in psychosocial adjustment.