



The Role of Respiratory Sinus Arrhythmia in the Association Between Internalizing Difficulties and Aggression in Preadolescence.

Christopher D. Aults¹, Patrick J. Cooper², Rachel E. Pauletti¹, Nancy Aaron Jones¹, & David G. Perry¹

¹Department of Psychology, Florida Atlantic University ²College of Arts and Sciences, Lynn University

Introduction

Baseline (resting) levels of RSA are thought to reflect greater tonic parasympathetic influences on the heart indices an individual's ability to flexibly modulate their heart rate in response to environmental demands.

According to Porges polyvagal theory, minimal change in RSA from baseline to stimulus (i.e., low RSA reactivity) is associated with an inflexible physiologic system decreasing the organism's capability to self-regulate.

Conversely, more variation and flexibility in changes in RSA have been associated with better physical health and emotional stability. Thus, it has been proposed that higher levels of RSA reactivity provide the ability to modulate arousal and regulate emotions accordingly and may decrease the prevalence of externalizing behavioral problems such as reactive or relational aggression.

Discussion

As shown in Figure 1, hierarchical regression analyses revealed that Internalizing is positively associated with Aggression, especially for girls with low (-1 SD) RSA reactivity ($\beta = 1.00, p = .005$); there was no effect for boys.

These findings contribute to the literature that high RSA reactivity provides a buffer against the association of aggression with internalizing problems but suggest that gender neutral stimuli may be better suited to examine sex differences

For girls with internalizing and externalizing difficulties, it is unknown if minimal change in RSA during conditions is a cause or consequence of these detrimental behaviors, but it does appear that these interactions may be sex specific.

Objectives

Research on externalizing behaviors, mainly aggression as well as internalizing problems such as anxiety and depression have incorporated RSA and RSA reactivity.

However, findings are mixed and often report sex differences in physiological responding during task or stimuli related conditions. We propose that the mixed findings may be confounded by the use of stimuli that affects girls and boys differently (e.g. parent-child conflict, social exclusion) and suggest that the mere anticipation of an aversive stimulus, specifically a benign environmental cue such as a loud noise, may be better suited to reveal if sex differences in physiological reactivity exist.

Method

- Participants were 82 preadolescents (M age = 12.07; 44 girls)
- Baseline RSA measures were recorded for 180 seconds
- Task RSA measures were recorded for 180 seconds during a mild transient aversive stimulus
- The aversive stimulus is a startle response modeled after the "Cool test" (Iacono, 1998) and contains no social, parental, or gender-specific cues. The task requires the participant to remain calm while anticipating a predictable blast of white noise.
- Aggression and Internalizing variables were obtained via peer nomination inventories.

➤ Girls' aggression as a function of the interaction of RSA reactivity and internalizing difficulties

