Harsh Parenting and Affect: Relations with Autonomic Nervous System Functioning

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Introduction

Harsh parenting during childhood and adolescence is associated with numerous negative outcomes in young adults including depression and aggression (Thornett et al., 2005; Springer, Straus, & Hamby, 2007). However, not all youth exposed to harsh parenting develop behavior or emotional problems. Considerable research has explored individual factors that play an important role in development of psychopathology (Furora, Cichetti, & Rogosch, 2005; Man Team & Gordis, 2004). Recent efforts to understand the effect of harsh parenting on long-term adjustment have focused on examining biological and psychological mechanisms that may be responsible for patterns of maladjustment and psychopathology. Interest has centered on patterns of activation of the two parts of the autonomic nervous system (ANS): the sympathetic nervous system (SNS) and parasympathetic nervous system (PNS). SNS activation can be non-invasively measured by skin conductance level (SCL) and PNS activation can be non-invasively measured by respiratory sinus arrhythmia (RSA).

According to the theory of biological sensitivity to context (BSC), some children have biological or genetic predispositions toward high reactivity of stress response systems while others can develop high reactivity over time in response to stressful environments. Subsequently, context-dependent environmental factors can then determine whether high reactivity has a negative or protective effect (Boyes & Ellis, 2005; Ellis & Boyce, 2008). Additionally, it is important to consider the interactive effects of ANS activity as organ systems can be singly or doubly innervated by SNS and PNS. As such, the actions of the SNS and PNS may be reciprocal, nonreciprocal, or unlinked (Bennett, Caracoplos, & Quigley, 1991).

The purpose of the present study was to examine the effect of childhood harsh parenting on young adult’s affect by considering the interactive effects of PNS activation (measured by RSA), SNS activation (measured by SCL), and harsh parenting.

Materials and methods

As part of a larger study examining family violence and measures of SNS and PNS, the 152 college students were recruited from a psychology research pool. Students filled out a number of self-report measures, including the Parenting Style and Tactics Scale (PST), the Parenting Practices and Negative Affect Schedule: Expanded Form (PANASX), and participated in a social stress task while measures of SNS and PNS activity were collected.

The PTSS (a self-report measure designed to measure childhood maltreatment and harsh parenting in terms of 3 social aspects: harsh parenting/punishment aggression; psychological aggression; and emotional punishment), Interview, Family History, Moran & Rorer (1996). The PANASX was collected using a James Lang Company (Toronto, Ont, NV) base-line protocol using a 30 s on and 30 s off breathing pattern. The breathing pattern was monitored by a computerized monitor that tracked the rate and depth of breathing. RSA data was collected using a Synapsys (San Carlos, CA) system that monitors the heart rate variability of the participant. RSA data was recorded as the variation in the time interval between subsequent heartbeats (milliseconds). The RSA data was then calculated in the difference of the two highest and two lowest frequency components in the RSA signal. Skin conductance level (SCL) data was collected using a Synapsys (San Carlos, CA) system that monitors the heart rate variability of the participant. Skin conductance level (SCL) data was recorded as the variation in the time interval between subsequent heartbeats (milliseconds).

Table 1: Descriptive statistics of behavioral affect

<table>
<thead>
<tr>
<th>Measures</th>
<th>Males</th>
<th>Females</th>
</tr>
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<tbody>
<tr>
<td>SCL</td>
<td>0.115</td>
<td>0.110</td>
</tr>
<tr>
<td>RSA</td>
<td>0.118</td>
<td>0.131</td>
</tr>
</tbody>
</table>

Table 1 shows the descriptive statistics for behavioral affect measures. SCL and RSA are both measures of autonomic nervous system function. SCL is a measure of sympathetic nervous system activity, while RSA is a measure of parasympathetic nervous system activity.

Conclusions

Results from this study indicate a gender-specific pattern of childhood harsh parenting on young adult affect. Among females, harsh parenting was associated with higher positive affect and the effect was moderated by SNS activation. Overall, the data from this study suggests that, among females, the moderating effect of baseline RSA was further moderated by baseline SCL. Low baseline RSA exacerbated the effect of childhood harsh parenting at low and high values of SCL. Similarly, high baseline RSA and high SCL exacerbated the effect of harsh parenting. In contrast, a more reciprocal pattern of high baseline RSA and low baseline SCL appeared to have a protective effect. These results are consistent with autonomic theory (i.e. Busselmann, et al., 1999), suggesting that low RSA and low SCL reflect poor coordination of stress response and emotion regulation systems resulting in increased negative affect of anxious experiences. High RSA and high SCL, reflects high reactivity in combination with stressful environments, which is consistent with BSC theory (i.e. Boyce & Ellis, 2005; Ellis & Boyce, 2008). Among males, the data from this study suggests that high levels of baseline SCL may exacerbate existing vulnerabilities to life stressors, resulting in decreased positive affect. These results can be understood in terms of BSC theory (i.e. Boyce & Ellis, 2005; Ellis & Boyce, 2008) such that high reactivity in combination with stress environments results in decreased positive affect. Additionally, low levels of baseline SCL may exert a protective effect against harsh parenting, resulting in increased positive affect.

This study has several limitations which must be noted. We relied on a retrospective recall of harsh parenting which may be subject to recall bias. This sample also represents a predominantly Caucasian, normative, college-age population so the generalization to other ethnicities and clinical populations may be limited. Finally, we relied on an electrodermal measure to index SNS and a heart rate/vagal tone measure to index PNS, which is not exactly how Berntson and colleagues (1991) conceptualized the original concept of co-activation and co-inhibition. Please contact Ari N. Rabkin for more information.