Mindfulness, Emotion Regulation, and Respiratory Sinus Arrhythmia: A Preliminary Investigation into the Effects of Mindfulness Instruction in a Complex Clinical Sample

Julia Chandler, Sheila E. Crowell, PhD
Department of Psychology

Introduction

Background
• Emotion dysregulation is a risk factor for many forms of psychopathology (Vasilev et al., 2009).
• Mindfulness based therapies, such as Dialectical Behavioral Therapy (DBT) are often effective for treating disorders characterized by emotion dysregulation (Khoury et al., 2013).
• Low respiratory sinus arrhythmia (RSA) is a biological measure associated with psychopathology and emotion dysregulation (Porges, 2007).
• RSA is responsive to environmental input and can change over time (Gross, 2002).
• It is currently unknown whether mindfulness results in improvements in RSA in populations characterized by emotion dysregulation.

Hypothesis
• We hypothesized that symptoms of psychopathology would correlate with emotion dysregulation, that psychopathology and emotion dysregulation would be associated with low baseline RSA, and that a brief mindfulness task would raise RSA.

Methods

Participants
• Six adult females referred to DBT skills group from their individual therapists.
• Age: M=32 (SD=13.8)
• Race: 83% Caucasian, 17% African American
• Income: M=$13,338 (SD=$12,025)

Procedure
• Participants were given the Semi Structured Clinical Interview (SCID) for Major Depressive Disorder (MDD), Borderline Personality Disorder (BPD), Conduct Disorder (CD), and Antisocial Personality Disorder (ASPD).
• Participants completed the Beck Depression Inventory (BDI), and the Difficulties with Emotion Regulation Scale (DERS).
• RSA levels were collected during a 5 min baseline and a 5 min mindfulness task.

Results

Correlation coefficients were calculated among measures of psychopathology (BDI and SCID), emotion dysregulation (sub-scales of the DERS), and RSA.

Table 1. Correlations among subscales of the DERS and symptoms of psychopathology.

<table>
<thead>
<tr>
<th></th>
<th>Impulsive</th>
<th>Nonacceptance</th>
<th>Goals</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression (BDI)</td>
<td>.79</td>
<td>.72</td>
<td>.52</td>
<td>.45</td>
</tr>
<tr>
<td>Depression (SCID)</td>
<td>.72</td>
<td>.62</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BPD (SCID)</td>
<td>.61</td>
<td>.75</td>
<td>.74</td>
<td>.72</td>
</tr>
</tbody>
</table>

DERs subscales: impulse control difficulties, nonacceptance of emotional responses, difficulties engaging in goal directed behavior when distressed, and limited access to emotion regulation strategies.

• Correlations between symptoms of MDD, BPD, and subscales of the DERS are presented in Table 1.
• Correlations were not found between symptoms of ASPD or CD and subscales of the DERS.
• Measures of psychopathology and emotion dysregulation were not correlated to RSA.
• A repeated measures ANOVA was used to analyze changes in RSA between the baseline and mindfulness task.
• RSA was higher during the mindfulness task than the baseline for all participants regardless of symptoms of psychopathology or emotion dysregulation (see figure 2).

Discussion

• Mindfulness has been shown to increase RSA in healthy adult samples.
• Our findings indicate that even brief mindfulness instruction increases RSA in a complex clinical sample as well.
• RSA may be a useful biological indicator of improvements associated with mindfulness based therapies in the complex clinical populations where such therapies are employed.
• Future research should seek to understand how mindfulness improves RSA despite differences in psychological diagnoses and variation in emotion regulation strategies.
• Research should also examine whether improvements due to mindfulness are mediated by improvements in emotion regulation.

Key References


For further information or a complete list of references please contact Julia.D.Chandler@utah.edu

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