Introduction

The undoing hypothesis of the Broaden and Build Theory (Fredrickson, 2004) suggests that positive emotions “undo” the aftereffects of negative emotions.

Folkman & Moskowitz (2000) have proposed that one purpose of this undoing effect is to facilitate adaptive coping.

Positive reappraisal (i.e., focusing on the good aspects of current or past situations) has been identified as a possible coping mechanism through which positive emotions exert their undoing effect.

Using a subset of data from the Notre Dame Study of Health & Wellbeing (NDHWB), the current investigation examined whether positive affect (PA) buffers the stress-negative affect (NA) relationship.

Method

A subset of participants (N = 694) were selected from the NDHWB, a longitudinal study exploring the processes and correlates of stress and well-being.

Wave 7 (collected April 2013 – 2014) daily diary data from the NDHWB was used to assess the direct and interaction effects of perceived stress and PA on daily NA.

For 56 consecutive days, participants completed the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), and the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988).

A multilevel moderation analysis was used to examine the within-, between-, and cross-level moderation effects (Figure 1) of PA on the stress-NA relationship in daily (t = 56) diary burst data.

![Path diagrams of the within-, between-, and cross-level moderation relationship in daily data.](image)

**Level-1 equation**

\[
PA(t_i) = \beta_0 + \beta_1 (Stress(t_i)) + \beta_2 (PA(t_{i-1}) - PA(t_i)) + \epsilon_{1i}
\]

**Level-2 equation**

\[
\begin{align*}
\beta_0 & = \beta_{00} + \beta_{01} \text{Stress(average)} + \beta_{02} \text{PA(average)} + \epsilon_{0i} \\
\beta_1 & = \beta_{10} + \epsilon_{1i} \\
\beta_2 & = \beta_{20} + \beta_{21} \text{PA(average)} + \epsilon_{2i} \\
\epsilon_{1i} & = \beta_{30} + \epsilon_{3i} \\
\epsilon_{2i} & = \beta_{40} + \epsilon_{4i}
\end{align*}
\]

Data analytic strategy

Results

- Results (summarized in Table 1) revealed a significant within-level moderation effect (estimate = -.0092, p < .0001; see Table 1), indicating that the daily within-person effects of perceived stress on NA is significantly attenuated when an individual experiences a higher level of daily PA.

- The between-level moderation effect was also significant (estimate = 0.0089, p < .0002; see Table 1), suggesting that the between-person stress-NA relationship is attenuated more in individuals with a greater average of PA compared to those who experience less PA on average.

- The cross-level moderation was NS.

![Path diagrams of the within-, between-, and cross-level moderation relationship in daily data.](image)

Table 1. Results from Multilevel Moderation Analyses

<table>
<thead>
<tr>
<th>Effect</th>
<th>Estimate</th>
<th>SE</th>
<th>DF</th>
<th>p-value</th>
</tr>
</thead>
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<tr>
<td>Intercept</td>
<td>1.2477</td>
<td>0.0098</td>
<td>398</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Time (Stress)</td>
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<td>0.0096</td>
<td>398</td>
<td>1.11</td>
</tr>
<tr>
<td>Step PA(average)</td>
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<td>0.0008</td>
<td>398</td>
<td>11.11</td>
</tr>
<tr>
<td>Average stress</td>
<td>0.7720</td>
<td>0.0095</td>
<td>398</td>
<td>11.11</td>
</tr>
<tr>
<td>Average PA(average)</td>
<td>0.0096</td>
<td>0.0008</td>
<td>398</td>
<td>11.11</td>
</tr>
</tbody>
</table>

Discussion

- The present study explored the undoing hypothesis by examining whether PA buffers the stress-NA relationship. Using daily-diary data collected across 56 consecutive days, multilevel moderation analyses examined the within-, between-, and cross-level moderation effects of PA.

- Results demonstrated a significant effect for the within-level moderation effect. Significant effects were also found for the between-level moderation effect. However, the cross-level moderation effect was not significant.

- The present findings indicate that the daily within-person stress-NA relationship is attenuated when a person experiences a higher level of PA. Similarly, the stress-NA relationship is attenuated in individuals who experience greater levels of PA compared to those who experience less (i.e., between-person effect).

- Findings from this study indicate that the experience of PA can be used to successfully mitigate the negative emotional impact of stressful life experiences, and thus supports the undoing hypothesis of the Broaden and Build Theory.

- However, due to the longitudinal nature of the present study, it is unknown how PA buffers the relationship between stress and NA. That is, the present study was unable to test whether positive reappraisal served as the coping mechanism through which PA exerts its undoing effects.

Future directions

- Experimental research is needed to determine whether PA attenuates the stress-PA relationship via positive reappraisal.

- Importantly, given that PA has been shown to attenuate cardiovascular reactivity associated with negative emotional arousal, future research should also examine whether PA ameliorates the aftereffects of other physiological systems.

- Particular emphasis should be placed on examining whether PA can attenuate the hypothalamic-pituitary-adrenal (HPA) axis stress response given that altered HPA functioning is associated with impoverished physical and psychological well-being.

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References


