Introduction

How May Rumination Influence Working Memory?

Rumination impacts the focus of attention.
• Rumination is linked to longer-lasting and more severe depressive episodes. Rumination may contribute to depression by sustained focus on a problem (Watkins & Roberts, 2020).

Working Memory
• Working memory is a capacity and time limited process for maintaining goal-related information in the focus of attention. With EEG, the maintenance of information in the focus of attention is often observed by a sustained wave of neural activity during a period where participants must hold objects in memory (McCollough & Machizawa, 2007).

Hypothesis
If rumination is associated with increased sustained attention it may lead to higher WM use and result in a larger slow wave during memory performance.

Methods

Measures
• Beck’s Depression Inventory (BDI)
• Short-form Ruminative Response Scale (RRS)

Participants
• N = 76
• Age: 23.91
• 84% Female

Working Memory Task
• Blue circles appear randomly and locations must be remembered across a short delay.
• Participants respond with Match or No Match to the Probe with a button press

Figure 1: Example of four-item condition

Analysis Range
4 Item
6 Item
Average

Paired Sample T-test

<table>
<thead>
<tr>
<th>Four Item:</th>
<th>Six Item:</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>(M = -1.92, SD = 2.63)</td>
<td>(M = -3.06, SD = 2.84)</td>
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<tr>
<td>n(75) = 3.12, p = .003</td>
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RRS
(M = 20.14, SD = 7.28)

<table>
<thead>
<tr>
<th>Four Accuracy</th>
<th>Six Accuracy</th>
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<tbody>
<tr>
<td>(M = .85, SD = .11)</td>
<td>(M = .76, SD = .12)</td>
</tr>
<tr>
<td>r = .11, ns</td>
<td>r = .01, ns</td>
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</tbody>
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Hemisphere (2) x Condition (2) GLM

RRS
(M = 20.63, SD = 6.71)

F(1,74) = 8.72, p = .004

Controlling for Depression
F(1, 73) = 4.78, p = .03

Discussion

• Rumination is associated with a larger slow wave, but not with increased accuracy, suggesting it independently impacted cognitive efficiency.
• Rumination is often linked to negative attention biases. So future studies will examine the impact of emotion on the degree of processing during WM performance.

References


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