The Effects of a Sad Mood Induction on Attention Disengagement from Emotional Images in Currently, Remitted, and Never Depressed Women

Stephanie L. M. Korol, M.Sc., Christopher R. Sears, Ph.D., & R. Nicholas Carleton, Ph.D.
Anxiety and Illness Behaviour Laboratory, University of Regina, Saskatchewan
Cognition and Emotion Laboratory, University of Calgary, Alberta

Introduction

- Researchers have found that depressed individuals differ from never depressed individuals in their attention to positive and negative stimuli (e.g., Caseras et al., 2007; Leyman et al., 2011); depressed individuals attend to negative stimuli more than never depressed individuals.
- The impaired disengagement hypothesis posits that depressed individuals may experience more difficulty disengaging attention from negative information, and that this impairment may explain depressive rumination (e.g., Koster et al., 2011). Early eye-tracking studies have supported the impaired disengagement hypothesis (e.g., Sears et al., 2010; Sanchez et al., 2013); however, there are mixed findings to date (e.g., Wisco et al., 2012).
- The latent vulnerability hypothesis suggests that attention biases exist as latent cognitive vulnerabilities for those at risk for depression and can become active under the stressor of a sad mood (e.g., De Raedt & Koster, 2010).
- Conversely, individuals who have never been depressed are thought to possess attentional resilience factors (i.e., positivity bias) that reduce depression vulnerability (e.g., attending to positive stimuli when in a sad mood; Peckham et al., 2010).
- The present study used a novel disengagement task and a sad mood induction (SMI) procedure to test the impaired disengagement, latent vulnerability, and positivity bias hypotheses in a sample of clinical, remitted, and non-clinical adult women.

Methods

- A total of 80 women participated in the study, grouped into the following categories using the SCID-IV-RV: never depressed (ND; n = 20), remitted depressed (RD; n = 27), and currently depressed (CD; n = 33).
- Positive, negative, and neutral images (20 each) rated for valence were used for the attention disengagement task. Images were presented one at a time, with half the images probed with an auditory endogenous cue to prompt disengagement (see Figure 1).
- Eye movements were recorded using an EyeLink-1000 eye-tracking system. Attention disengagement was measured as time (in ms) to shift gaze away from probed images to either fixation marker.
- RD and ND participants also completed a second disengagement task after viewing the SMI. A positive MI was used after the second disengagement task to counteract effects of the SMI. Mood change was measured using the Visual Analogue Mood Scale (VAMS; Luria, 1975) before and after each video.
- Disengagement times (DTs) were averaged across probed images for each image type and analyzed using mixed-model ANOVAs to compare DTs by image type and participant groups, before and after the SMI.
- Hypotheses: CD participants will have the slowest DT from negative images before the SMI; RD participants will have the slowest DT from negative images after the SMI; and ND participants will have the slowest DT from positive images after the SMI.

Results

- Figure 2 displays mean DTs in each group, for each image type, before and after the SMI.
- Before the SMI:
  - There was a marginally significant main effect of Group, $F(2, 74) = 3.03$, $p = .054$, with RD participants having the slowest mean DTs overall.
  - The Group by Image Type interaction was not significant ($p = .754$) suggesting no differences in mean DTs between the groups for each image type (i.e., positive, negative, neutral).
- Before and After the SMI:
  - Analysis of the VAMS ratings showed that the SMI and PMI were effective.
  - VAMS ratings were significantly lower after participants watched the SMI ($p < .001$) and higher after the PMI ($p < .001$; Figure 3).
  - RD participants had significantly slower DTs than ND participants, $F(1, 43) = 7.35$, $p = .010$.
  - The hypothesized interaction between Group, Image Type, and SMI was not significant ($p = .542$). The SMI did not effect the group DTs differently.
  - There was evidence that RD participants who were more affected by the SMI procedure had slower DTs to positive and neutral images ($p < .043$). Follow-up analyses of a four-way interaction was not statistically significant due to insufficient power (Group by Image Type by Sad MI by Block Order; $F(2, 86) = 2.86$, $p = .063$).

Discussion

- The present study did not produce statistically significant support for the impaired disengagement hypothesis. Participants in both the RD and the CD groups produced slower DTs from negative images than participants in the ND group before the SMI; however, the differences were not statistically significant. If robust, the findings are consistent with the claim that attention disengagement from negative information is impaired in depressed individuals.
- RD participants were not slower to disengage from negative images after the SMI; as such, there was not statistically significant support for the latent vulnerability hypothesis.
- ND participants were slower to disengage from positive images after the SMI, but this was not statistically significant; as such, there was not support for the positivity bias hypothesis.
- There was some evidence that, among RD participants, larger SMI effects may have produced delayed disengagement from positive and neutral images, suggesting the possibility of a resiliency process, such as mood repair.
- Taken together, the results from the current novel disengagement task do not offer statistically significant support for the current hypotheses; nevertheless, the trends were promising and suggest that further procedural refinements may be warranted (e.g., larger samples, simple probe cues, idiosyncratic stimuli).

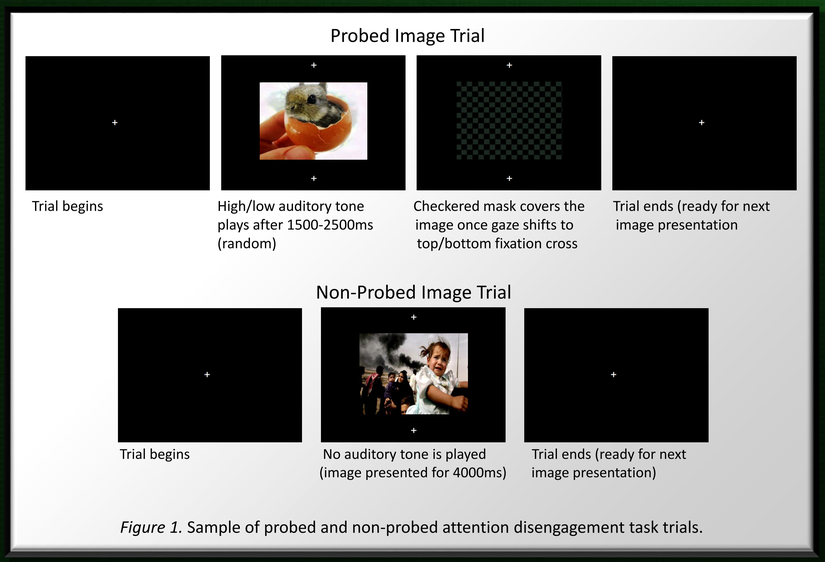

Figure 1. Sample of probed and non-probed attention disengagement task trials.

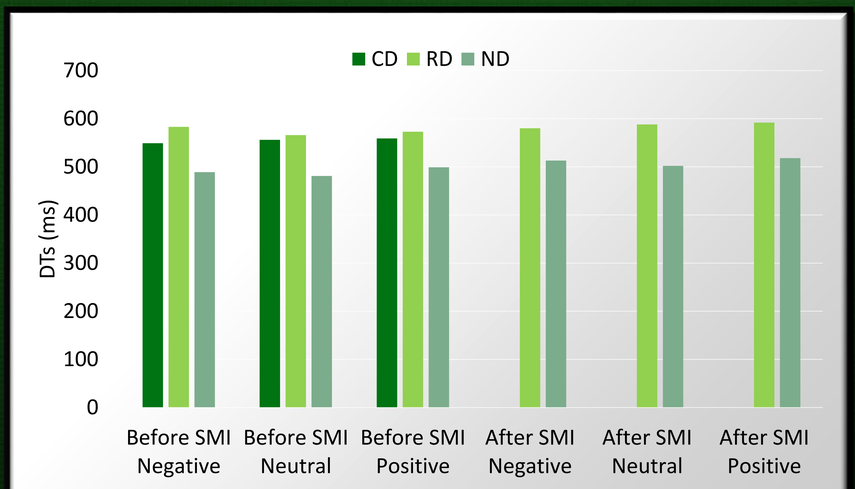

Figure 2. Mean disengagement times (DTs) by group, image type, and time point. SMI = sad mood induction. CD = currently depressed. RD = remitted depressed. ND = never depressed.

Figure 3. Mean VAMS ratings across the four time points for remitted depressed (RD; n = 27), and never depressed (ND; n = 20) participants. SMI = sad mood induction. PMI = positive mood induction.

Connect with the AIBL via Facebook by searching for the Anxiety and Illness Behaviors Laboratory
Contact the first author at: korol20s@uregina.ca

Poster presented at the Anxiety and Depression Association of America Annual Conference
Chicago, IL, March 28th – 31st, 2019