Emotion Regulation Choice among Undergraduate Students with Posttraumatic Stress Symptoms

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Overview

- Emotion regulation
- Emotion regulation and PTSS
- Regulatory flexibility/Emotion regulation choice
- Emotional Processing Theory
- The current study

Emotion Regulation

- The processes by which individuals influence
  - Type of emotion
  - When it is experienced
  - How it is experienced and expressed
- Domains regulated:
  - Subjective
  - Physiological
  - Behavioral
Emotion Regulation

- Two categories
  - Antecedent: e.g., reappraisal, distraction, avoidance
  - Response-focused: e.g., suppression
- No strategy is inherently good/bad
- Context/goals
- Implicated in psychopathology

Emotion Regulation and PTSS:

- Positive correlation between emotion regulation difficulties and PTSD (e.g., Ehring & Quack [2010]; Tull, Barrett, McMillan, and Roemer [2007])
- Pre-trauma emotion dysregulation predicts greater PTSS (Bardeen et al., 2013)
- In a prospective study, Orcutt et al. (2014) found that less emotion dysregulation appeared to be protective against PTSS
Emotion Regulation

- Bonanno et al. (2004) found that the ability to both enhance and suppress emotional expressions soon after starting college was related to better adjustment by the end of the students’ 2nd year in college.

- Regulatory flexibility (Bonanno and Burton, 2013)
  - Effectiveness will vary (e.g., individual, type of emotion)
  - Three components
    - Context
    - Repertoire
    - Monitor feedback
  - Affects choice of strategy

Emotion regulation choice: A conceptual framework

- In a series of studies, Sheppes and colleagues hypothesized that psychologically healthy adults could flexibly switch between ER strategies (cognitive reappraisal vs. distraction), depending on the intensity (high vs. low) of the situation.

- Healthy individuals are aware of the costs and benefits associated with different emotion regulation strategies in different contexts (Sheppes et al., 2014)
  - Early attentional stage → not yet in working memory, distraction is easier but may affect memory
  - Late semantic meaning stage → need to alter meaning, reappraisal allows for processing/memory, but taxing
Emotion regulation choice: A conceptual framework

- Sheppes and colleagues have found support for their predictions in numerous studies (e.g., Sheppes & Merian, 2007; Sheppes et al., 2011; Thiruchselvam, Blechert, Sheppes, Rydstrom, & Gross, 2011)
  - Psychologically healthy individuals choose distraction in high-intensity negative contexts, and reappraisal in low-intensity negative contexts
  - Furthermore, Sheppes and colleagues have found that participants’ performance on a surprise memory test was significantly more accurate for pictures they had viewed while employing reappraisal than for distraction

Emotion regulation choice & PTSS

- Emotional Processing Theory (Foa & Kozak, 1986; Foa & Riggs, 1993)
  - Trauma creates fear network in one’s memory
  - Any stimuli from network can cause activation
  - Repeated activation of the fear network may lead individuals to adopt an avoidant or disengagement response style (i.e., distraction)
  - Repeated activation of this fear structure without incorporating new, incompatible information may result in PTSS
  - Individuals with PTSD may have a tendency to over-generalize a disengagement regulatory strategy (i.e., distraction)
  - Using emotion processing theory, one may speculate that individuals with PTSS may be more likely to choose distraction for both high- and low-intensity negative pictures
The role of distraction in exposure sessions

- Podina et al. (2013) conducted a meta-analysis with the aim of investigating optimal attentional focus during exposure sessions in specific phobia
- Sought to examine the efficacy of focused exposure (e.g., attending to specific threat stimuli during exposure sessions) versus distracted exposure (e.g., diverting attention away from threat stimuli during exposure sessions)
- Podina et al. (2013) found no differences in efficacy between focused and distracted exposures regarding distress (e.g., self-reports of anxiety) and physiology (e.g., heart rate; skin conductance)
- Distracted exposure proved to be more effective than focused exposure in regard to behavioral outcomes/behavioral approach
  - Perceived control/efficacy

Why participants with high PTSS will be more likely to choose distraction:

- 1) Reduces negative emotions in the short-term
- 2) It is easier than reappraisal
- 3) Increases self-efficacy and perceived control
The Present Study:

- To date, research on emotion regulation choice has focused primarily on healthy individuals who are absent of symptoms of psychopathology (Sheppes & Meiran, 2007; Sheppes et al., 2011).

- There is a wealth of literature suggesting that individuals with PTSS are especially likely to experience emotion regulation difficulties (Bonanno et al., 2004; Orcutt et al., 2014; Tull et al., 2007).

- Theoretical models of PTSD (such as emotional processing theory) suggest that individuals with PTSS may over-generalize a disengagement regulatory strategy, such as distraction.

- In addition, individuals with high levels of PTSS may be more likely to choose distraction because it increases self-efficacy/it is easier.

- Therefore, the aim of the present study was to assess emotion regulation choice (while viewing negative pictures of varying intensity) in undergraduate students with high and low levels of PTSS.

Hypotheses:

- **H1**: Participants with high levels of PTSS will show a relative preference for distraction for both low-intensity and high-intensity negative pictures, whereas participants with low levels of PTSS will show a relative preference for reappraisal for low-intensity negative pictures and distraction for high-intensity negative pictures.

- **H2**: Given the predictions in H1, it was expected that participants with high levels of PTSS will demonstrate poor recall (i.e., a high proportion of errors) for both low-intensity and high-intensity negative pictures on a surprise memory test. However, consistent with the Sheppes et al. (2011) findings, low PTSS participants were expected to demonstrate poorer recall for high-intensity negative pictures than low-intensity negative pictures.

- Increased use of distraction will mediate the relationship between PTSS and poorer memory performance.
Method:

- Participants
  - 84 undergraduate men and women enrolled in PSYC 102
  - G*Power 3.1 software (Faul, Erdfelder, Buchner, & Lang, 2009) was used to assist with determining the appropriate sample size for the main analyses in the current study (a 2 x 2 mixed repeated measures ANOVA with an interaction)
  - The sample size estimate for 80% power with an alpha level of .05 and an effect size of .20 was 72 participants total (36 in high PTSS group; 36 in low PTSS group)
  - 18 years of age or older/fluent in English
  - Recruited from mass testing pool based on high (vs. low) PTSS scores on the PCL-5
Method

Procedure:

- Participants viewed negative pictures of varying intensity (taken from the IAPS). The procedure for viewing these pictures replicated procedures used by Sheppes et al. (2011; Experiment 2)
  - 4-trial learning period → 2 dist. and 2 reap; 1 low-intensity and 1 high-intensity for each strategy; order of strategies was counterbalanced
  - 8 practice trials → in 4 trials the strategy was pre-determined; in the remaining 4 the participant freely choose which strategy to use
  - 30 “choice” trials
  - Participants talked aloud about their regulation strategy during all trials
  - Surprise memory test of the pictures → 30 trials

Self-report measures:

- The Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2013a) is a self-report measure used to screen for lifetime trauma exposure in accordance with the DSM-5

- The LEC-5 was used in the current study as a trauma history screener. Participants who endorsed exposure to at least one potentially traumatic event on the LEC-5 was asked to complete the PCL-5 (all participants endorsed at least one traumatic event in the current study)
Self-report measures:

- **The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; Weathers et al., 2013b)**
  - 20-item self-report measure of PTSD symptoms according to DSM-5
  - Response options on the PCL-5 are on a 5-point scale (0 = not at all; 4 = extremely)
  - Internal consistency was excellent (alpha = .96)

- According to the National Center for PTSD, a PCL-5 cut-point of 38 appears to be a reasonable value for a provisional PTSD diagnosis
  - Therefore, in the current study, a cut-point of 38 (and above) was used to assign participants to the high PTSS group
    - M = 46.92 (SD = 10.40)
  - Participants with a score of 0-20 on the PCL-5 were assigned to the low PTSS group
    - Participants in the low PTSS group could not endorse any item higher than a 1 (“A Little Bit”)
    - M = 5.47 (SD = 5.02)

Data Analyses:

- One-way ANOVAs were used to examine demographic differences between the high PTSS and low PTSS groups on continuous demographic variables (e.g., age)
  - High PTSS participants were younger in age than low PTSS participants (F[1,71] = 5.35, p < .05, η² = .07; M = 20.22, SD = 1.62 for high PTSS group; M = 21.39, SD = 2.55 for low PTSS group)

- Chi-square analyses were used to examine demographic differences between the high PTSS and low PTSS groups for categorical demographic variables (e.g., race; gender)
  - More females were in the high PTSS group than males (χ²[1, N = 72] = 9.76, p < .01, Cramér’s V = .37)
    - High PTSS group = 28 of 36 identified as female; Low PTSS group = 15 of 36 identified as female
  - No differences in race/ethnicity between high and low PTSS groups (χ²[1, N = 72] = 2.78, p > .05, Cramér’s V = .20)
Results:

- 2 x 2 mixed ANCOVA was used to test Hypothesis 1
  - DV: Proportion of trials on which distraction is selected
  - Intensity level of negative pictures (high vs. low) was the within-subjects factor
  - Level of PTSS (high vs. low) was the between-subjects factor
  - Controlled for age and gender
  - A significant interaction of intensity level x PTSS would demonstrate support for Hypothesis 1

Expectations vs. Reality

Expectations

\[ F = 1.55, \quad p > .05, \quad \eta^2_p = .02 \]
Results:

- A mediational analysis was conducted in order to test Hypothesis 2e (i.e., the path between PTSS and errors on the surprise memory test would be partially mediated by proportion of trials with distraction selected)
  - Conducted using the statistics macro PROCESS (Hayes, 2013)
  - Bootstrapping was used to test the significance of the indirect path
  - IV was PTSS modeled as a continuous variable (PCL-5 sum score)
  - DV was overall proportion of errors on the surprise memory test
  - Mediator was overall proportion of distraction across all trials at both intensity levels of the “choice phase” of the procedure
  - Significance of the indirect effect will be indicated by the absence of zero in the 95% confidence interval for the indirect effect
  - Results = the indirect effect was significant (10,000 bootstrapped CI$_{95} = .0000 - .0009$)

Supplemental Analyses

- Additional analyses were conducted to assess whether measuring PTSS continuously, rather than dichotomously, had any impact on findings in the current study
  - When PTSS was measured as a continuous variable (i.e., PCL-5 total sum), PTSS was significantly positively correlated with total distraction utilized across all conditions ($r = .26, p = .03$)
  - Continuous PTSS was also positively correlated with percentage of distraction used while viewing low-intensity negative pictures only ($r = .32, p = .005$)
  - Continuous PTSS was not significantly correlated with percentage of distraction used while viewing high-intensity negative pictures only ($r = .03, p > .05$)
Supplemental Analyses

- Additional supplemental analyses were conducted using a median split of the high PTSS group (median PCL-5 sum score = 43).
- An ANCOVA was conducted using the median PTSS score as a cut-off for the between groups factor (low PTSS vs. high PTSS), instead of using the recommended PCL-5 cut-off score of 38.
  - 18 participants were in the new high PTSS group; 54 were in the new low PTSS group.
  - The intensity level x PTSS interaction was significant ($F[1,67] = 8.36, p < .01, \eta^2_p = .11$), indicating that preference for distraction across both low-intensity and high-intensity conditions differed as a function of PTSS grouping.

![Percentage of distraction for low and high intensity pictures](image_url)
Supplemental Analyses

- A second ANCOVA using the median PTSS score was conducted to test Hypothesis 2.
- The intensity level x PTSS interaction was significant ($F[1,67] = 7.73$, $p < .01$, $\eta_{p}^2 = .10$), indicating that performance on the surprise memory test across both low-intensity and high-intensity conditions differed as a function of PTSS grouping.
Discussion

- When PTSS was measured dichotomously using PCL-5 cut-off of 38, participants in both the high and low PTSS groups responded similarly on the flexibility task.
  - A majority of participants chose to employ reappraisal during the low-intensity pictures and distraction during the high-intensity pictures.
- Participants in both groups responded similarly on the surprise memory test.
  - Memory was impaired following pictures on which distraction was chosen; memory was not impaired for pictures on which reappraisal was chosen.

Discussion

- When PTSS was measured using a higher PCL-5 cut-off (43), participants in the new high PTSS were more likely to employ distraction while viewing both low-intensity and high-intensity pictures.
  - This was compared to participants in the new low PTSS group, who were more likely to employ distraction while viewing high-intensity pictures and reappraisal while viewing low-intensity pictures.
- Therefore, participants in the new high PTSS group performed worse on the surprise memory test than those in the new low PTSS group.
Conclusions

- PCL-5 cutoff is still a new recommendation
- Symptoms of PTSD may be maintained through the overuse of disengagement emotion regulation strategies (i.e., distraction) in response to negative stimuli
  - The negative stimuli presented during the emotion regulation choice task were not trauma-specific
- Interventions that aim to increase one’s repertoire of emotion regulation strategies, as well as education on the costs and benefits associated with the use of different emotion regulation strategies in different contexts, may be warranted

Limitations

- Sample was recruited from a non-clinical student population
- Prospective participants with high levels of PTSS may have self-selected out of the study
- Engagement in previous trauma-focused treatment was not assessed
Additional limitations

- The current study has no knowledge of participants’ emotion regulation difficulties (or use of various emotion regulation strategies) prior to their exposure to traumatic events.
  - It is possible that some participants experienced emotion regulation inflexibility prior to experiencing a traumatic event.
  - Future prospective studies are needed to determine the true directionality of influence among study variables.
- The emotion regulation choice task assessed the rate at which each strategy (distraction or reappraisal) was chosen, not the efficacy of the chosen strategy.
  - While the underlying goal of each emotion regulation strategy was to decrease negative affect, change in negative affect was not measured.

Next Steps

- Susan is trying to get a study off the ground examining whether veterans undergoing PTSD treatment show increased flexibility on the Sheppes task pre- to post-treatment.
- Extending the supplemental analyses with PTSD and trying to better understand that relationship in our data. For example, examining whether PTSD symptom clusters show a variable relationship with the use of distraction in response to the low intensity pictures.
- Replicating these findings, particularly the PTSD moderation effect observed in the supplemental analyses, is an important next step. We are considering extending measurement of PTSD to include different methods (e.g., CAPS).
- In the present data, do high PTSS participants show similar physiological responses to both the high and low intensity pictures and could that help explain their higher selection of distraction in response to the low intensity pictures?
Thank you!

Questions?