Examining Neurophysiological Responses to Attachment-Related Stimuli in Grieving Individuals

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Background

Grief: A Ubiquitous Phenomenon
Grief is a common reaction after bereavement that has physical, mental, and social consequences (Freed et al., 2009).

Disruptive & Intense:
- "persistent sadness
- "intrusive preoccupations
- "perceived lack of meaning

Psychological & Physical Effects:
- Associated with greater risk for anxiety, depression, substance abuse, lowered immunity, & disturbed sleep

Cognitive Deficits:
- Decreased performance on cognitive tests; slower info-processing speeds and attentional biases

(Bryant & Bryant, 2010; Saavedra et al., 2014; Ward, Mathias, & Hitchings, 2007)

Bereavement as a Threat to Attachment
- From birth, relationships mold an internal working model about the self in relation to significant others, and can provide a secure base of attachment from which one can explore the world (Bowlby, 1980).
- Perceived threats to this attachment system activate fear modules and elicit proximity-seeking in order to connect to the secure base (Bowlby, 1980).
- Bereavement can be considered a threat to attachment.

Measuring Physiological Indicators of Threat

Electrodermal Responses (EDR): Activation of the sympathetic nervous system creates spikes in skin conductance readings. EDR spikes occur during the presentation of threatening stimuli (Günder, et al., 2003)

Electroencephalography (EEG):
Event Related Potentials: Increased amplitude of P300 waveforms to emotionally threatening stimuli that captures attention (Brown, El-Dereny, & Blanchette, 2012)

Hemispheric Asymmetry: Left hemisphere linked to positive and resting states while right hemisphere linked to negative threat-processing (Rognoni, Galati, Costa, & Crini, 2008)

Grief, Attachment and Threat
- The presentation of emotionally-threatening stimuli to grieving individuals & the presentation of attachment-related stimuli to individuals primed with attachment threats activates attentional biases, elicits physiological responses, and decreases performance on executive functioning tests (Edelstein & Gillath, 2015; Gillath, Giesbrecht, & Shaver, 2009).
- However, no study to date has directly tested whether the presentation of attachment-related information to bereaved individuals activates a threat response and interferes with cognitive performance.

The Current Study

The Big Question
Will grieving individuals demonstrate a threat response to attachment-related stimuli? If so, will this threat response interfere with cognitive control?

Methodology

Sample: ~ 30 English-speaking participants who lost a first-degree relative within the past year

Participants will complete the following questionnaires:
- Demographics Questionnaire
- The Experiences in Close Relationships Revised (ECR-R)
- Grief Processing/Debriefing
- Grief Avoidance (GP/DGA)
- Hogan Grief Reaction Checklist (HGRC)
- The State Trait Anxiety Inventory (STAI-1Y12)
- Connors Adult ADHD Rating Scales (CAARS-SL)
- Beck Depression Inventory-II (BDI-II)

An AREST will be used to present participants with attachment-related stimuli. EEG and EDRs will be used to measure responses to the stimuli. Upon completion of the EST, participants will complete a series of questionnaires to account for possible confounding variables. The effects of these variables will then be assessed through multiple regression analyses.

Hypotheses

Three word categories will be perceived as threatening:
- Negative Non-Attachment Word
- Negative Attachment-Related Words
- Positive Attachment-Related Words

Words perceived as threatening will elicit:
- Delayed Reaction Times
- Decreased Performance: worse accuracy
- Increased skin conductance
- Larger P300 amplitude
- Greater right hemisphere asymmetry

Moderation of effects by attachment style and grief coping style: Anxiety attachment and avoidant coping expected to cause greater interference and larger physiological responses

References


The Attachment-Related Emotional Stroop Task (AREST) Participants will indicate the color of each word by pressing a button with their right hand

Chair
Smile
Revolver
Security
Alone

Coin
Smile
Hardship
Affection
Rejected

Building
Delight
Gloom
Comfort
Neglect

Elated
Gloom
Ulcer
Safe
Helpless

Windshield
Hopeful
Pain
Belong
Isolation

Factory
Promotion

P300 waveforms to emotionally threatening stimuli that captures attention (Brown, El-Dereny, & Blanchette, 2012)