

Society for Affective Science

Inaugural Conference • April 24-26, 2014 • Hyatt Regency Bethesda • Washington, DC

Contents:

Poster Session A	1
Poster Session B	21
Poster Session C	41
Author Index.....	61

Poster Schedule:

Poster Session A

Thursday, April 24, 2014

6:15 p.m.-7:15 p.m.	Assemble your poster
7:15 p.m.-8:15 p.m.	Author Present
8:15 p.m.-9:15 p.m.	Take down your poster presentation

Poster Session B

Friday, April 25, 2014

7:30 a.m.-8:30 a.m.	Assemble your poster
8:30 a.m.-9:30 a.m.	Author Present
9:30 a.m.-5:00 p.m.	Poster Viewing
5:00 p.m.-6:00 p.m.	Take down your poster presentation

Poster Session C

Saturday, April 26, 2014

7:30 a.m.-8:30 a.m.	Assemble your poster
8:30 a.m.-9:30 a.m.	Author Present
9:30 a.m.-3:00 p.m.	Poster Viewing
3:00 p.m.-4:00 p.m.	Take down your poster presentation

POSTER A-1

BE HAPPY BUT ALWAYS REMEMBER - THE NEURAL CORRELATES OF AFFECT AND OVERCONFIDENCE

Theresa Treffers¹, Evgeny Gutyrchik², & Kai Fehse²
¹Eindhoven University of Technology, ²University of Munich

Descriptors: overconfidence, affect, fMRI

Overconfidence is a significant cognitive biases that can negatively affect people's judgment and decision quality. We investigate the neural correlates of overconfidence in dependence of neutral and joyful affect in a within-subjects neuroimaging study with 16 males. Subjects' affect was manipulated by presenting pictures from the International Affective Picture System. We measured overconfidence with an incentive-compatible task in which subjects answered general knowledge questions and subsequently made confidence judgments about their performance. Our study reports two findings: First, a higher activation in the anterior cingulate cortex, an area that is active for monitoring and error detection, when answering knowledge questions in a joyful mood compared to a neutral mood. Second, a lower activation in the hippocampus, an area for the storage and retrieval of memories, when making confidence judgments in a joyful mood compared to a neutral mood. Linking our neuronal results to our behavioral measures, we find a negative correlation between overconfidence and activation in the hippocampus and a positive correlation between performance and activation in the hippocampus. Hence, our results imply that people who engage in retrieving and using prior memories and knowledge through the hippocampus when making confidence judgments can reduce their overconfidence and increase their decision performance. The tendency to use prior memories and knowledge through the hippocampus is less likely when people are in a joyful compared to a neutral affective state.

POSTER A-2

AFFECTIVE AND SOCIAL PSYCHOLOGICAL CONSEQUENCES OF HEIGHTENED INFLAMMATION

Mona Moieni, Ivana Jevtic, Michael R Irwin, & Naomi I Eisenberger
University of California, Los Angeles (UCLA)

Descriptors: inflammation, affect, social processes

Prior work has documented an association between inflammation and depression. In an attempt to understand the link between these two constructs, a prior study from our lab found that experimentally increasing inflammation in healthy subjects lead to increases in feelings of social disconnection and depressed mood. However, the study's sample size was small and had limited measures of affective and social psychological changes. Thus, we conducted this study in which participants (n=108) were randomized into receiving endotoxin, an inflammatory challenge, or placebo. Levels of proinflammatory cytokines (e.g., IL-6) significantly increased over time for the endotoxin (vs. placebo) group and peaked at 2 hours post-injection (T2). Compared to the placebo group, those in the endotoxin group reported greater increases in physical symptoms, depressed and anxious mood, feelings of social disconnection, and motivations to socially withdraw from baseline to T2. Those in the endotoxin group, compared to the placebo group, also reported greater decreases in feelings of friendliness from baseline to T2 and showed larger declines in performance on a social cognition task. Within the endotoxin group, women reported greater increases in physical symptoms, depressed mood, and feelings of social disconnection, as well as significantly greater decreases in feelings of friendliness from baseline to T2, compared to men. These results suggest that heightened inflammation can lead to a host of affective and social psychological changes, many of which are especially pronounced for women.

The project described was supported by Award Number R01 MH091352 from the National Institute of Mental Health. The primary author was supported by Award Number T32 GM084903 from the National Institute of General Medical Sciences.

POSTER A-3

NEURAL MECHANISMS UNDERLYING SOCIAL APPROACH: THE ROLE OF INFLAMMATION

Tristen K Inagaki, Michael Irwin, & Naomi I Eisenberger
University of California, Los Angeles

Descriptors: Social Behavior, Close Relationships, Inflammation

Inflammation, the body's first defense against infection, has emerged as a critical mediator in the link between stress and disease. Interestingly, inflammation not only leads to a suite of physical symptoms, but also affects social behavior and perceptions of the social world. That is, we have shown that experimentally inducing an inflammatory response heightens neural threat responding to negative social cues and increases feelings of social disconnection. However, little is known about the effects of inflammation on perceptions of our loved ones. Whereas inflammation may cause us to withdraw from strangers, we may actually approach those we are close to when we feel sick in order to obtain care and help. To examine the possibility that inflammation leads to greater social approach behavior toward our closest loved ones, participants received either placebo or endotoxin, which safely mounts an inflammatory response, and then underwent an fMRI scan to assess neural activity to pictures of a self-identified loved one. As hypothesized, endotoxin (vs. placebo) led to greater activity in affiliation-related regions (e.g. the VS) to pictures of a caring, trusted loved one and reported a greater desire to be around their loved one when under an inflammatory challenge. Furthermore, increases in the proinflammatory cytokine, IL6 (from baseline to after the scan), were associated with greater ventral striatum activity to the loved one. Collectively, these findings highlight neural mechanisms that may be important for sickness-induced social behavior.

POSTER A-4

PREDICTION ERRORS TO EMOTIONAL EXPRESSIONS: THE ROLES OF THE AMYGDALA IN SOCIAL REFERENCING

Harma Meffert¹, Sarah J Brislin², Stuart F White¹, & James R Blair¹
¹National Institutes of Health, ²Florida State University

Descriptors: Emotion, Social referencing, Amygdala

Social referencing paradigms in humans and observational learning paradigms in animals suggest that emotional expressions are important for communicating valence. It has been proposed that these expressions initiate stimulus-reinforcement learning. Relatively little is known about the role of emotional expressions in reinforcement learning, particularly in the context of social referencing. In this study, we examined object valence learning in the context of a social referencing paradigm. Participants viewed objects and faces that turned towards the objects and displayed a fearful, happy or neutral reaction to them, whilst judging the gender of these faces. Notably, amygdala activation was larger when the expressions following an object were less expected. Moreover, when asked, participants were both more likely to want to approach, and showed stronger amygdala responses to, objects associated with happy relative to objects associated with fearful expressions. This suggests that the amygdala plays two roles in social referencing: (i) initiating learning regarding the valence of an object as a function of prediction errors to expressions displayed towards this object; and (ii) orchestrating an emotional response to the object when value judgments are being made regarding this object.

This work was supported by the Intramural Research Program of the National Institute of Mental Health, National Institutes of Health under grant number 1-ZIA-MH002860-08.

POSTER A-5

THE EFFECTS OF REWARD ON STIMULUS PROCESSING

Michelle R VanTieghem, Harma Meffert, & James R Blair
National Institute of Mental Health

Descriptors: Cognitive Neuroscience, Reward

This study investigated how reward effects the processing of different parameters of a visual array. 24 healthy adults performed a visual search task during which they had to locate the unique shape amongst eight objects. Each array contained one uniquely shaped target object and one uniquely colored distractor object. Correct responses were randomly rewarded with \$1 or \$10. A series of regions (including middle cingulate gyrus, precentral gyrus, thalamus, occipital lobe, caudate and the amygdala) showed clear modulation of BOLD signal as a function of reward level. Specifically, these regions showed both: (i) increased responses to trial 2 targets, if trial 2 target color had been the high, relative to the low, rewarded target color on trial 1; and (ii) reduced responses to trial 2 targets, if trial 2 target color had been the high, relative to the low, rewarded distractor color on trial 1. These data indicate that reward level serves to prime features of a visual array such that if those features are associated with subsequent responding, stimulus processing is facilitated (via visual and motor cortex). However, if those features are representational competitors for features associated with subsequent responding, stimulus processing is disrupted.

POSTER A-6

DISSOCIABLE EFFECTS OF INSTRUCTED KNOWLEDGE ON AMYGDALA AND STRIATUM DURING AVERSIVE LEARNING

Lauren Y Atlas, Bradley B Doll, Nathaniel Daw, & Elizabeth A Phelps
New York University

Descriptors: fear conditioning, amygdala, striatum

In humans, expectations about affective events reflect prior experience and instructed knowledge. Yet models of aversive learning make predictions as a function of reinforcement alone. Recent studies of reward learning suggest that when participants are instructed about contingencies, the prefrontal cortex modulates learning in the ventral striatum (VS). We combined a fear conditioning paradigm with a between-groups manipulation to test whether instructed knowledge modulates associative fear learning. All participants went through a task wherein one visual cue was paired with shock on 30% of trials, whereas a second was not paired with shock. Contingencies reversed three times during the task. Participants assigned to an Instructed Group were informed about contingencies prior to learning and upon each reversal, whereas a Feedback Group received no information. We analyzed SCR and fMRI responses to cues, and used quantitative models to assess whether instructions modulate learning. We observed a dissociation between learning signals in the amygdala and VS, such that amygdala tracked feedback-driven associability in both groups, whereas VS prediction errors were observed only in the Feedback group. Differential responses in the VS reversed as soon as individuals were informed about contingency reversals, whereas the amygdala continued to respond to prior contingencies. LDLPFC responses to instructions predicted reversal effects in VS and OFC. These results reveal that instructions influence fear learning but that brain pathways of fear learning show dissociable effects.

POSTER A-7

THE ROLE OF ROSTRAL CINGULATE CORTEX IN ANXIETY AND THE ADAPTIVE CONTROL OF ACTION

Alexander J Shackman¹, & James F Cavanagh²
¹University of Maryland, ²University of New Mexico

Descriptors: ACC, fear and anxiety, event-related potential (ERP)

The rostral cingulate occupies a privileged position in theories of emotion and cognition. On the basis of newly available imaging and anatomical data, we recently proposed the adaptive control hypothesis (TACH), which suggests that MCC activity reflects domain-general control processes that optimize responses when there is uncertainty about actions or their aversive outcomes. TACH proposed that MCC implements control by synthesizing punishment-related information into biasing signals that can modulate action and attention. Here we address two central limitations of TACH. (1) TACH argues that negative affect and cognitive control are integrated in MCC, but provided scant evidence for functional convergence. If MCC implements a domain-general function, then individual differences in negative affect and anxiety should covary with MCC activity elicited by standard 'cognitive' control tasks. (2) TACH also proposes that MCC adjusts behavior in response to negative feedback and other control prompts, but provided scant evidence. Here we use meta-analytic techniques and data from ~1,500 participants to demonstrate that individuals with elevated anxiety show amplified control signals (indexed by well-validated electrophysiological measures of MCC activity, and that these signals predict a more behaviorally inhibited, punishment-avoidant response style. These observations reinforce claims that emotion and cognition are functionally integrated in MCC. More broadly, they set the stage for understanding the maladaptive behavioral profile characteristic of extreme anxiety.

This work was supported by the University of Maryland, and the University of New Mexico. Authors declare no conflicts of interest.

POSTER A-8

HOW DOES THAT MAKE YOU FEEL? THE ROLE OF EMOTIONAL AWARENESS ON EMPATHIC DEFICITS IN AUTISTIC AND SCHIZOTYPAL TRAITS.

Rachel V Aaron, Taylor L Benson, & Sohee Park
Vanderbilt University

Descriptors: alexithymia, empathy, shared network model

Empathy is a multifaceted construct, involving a complex combination of an affective response to another person, cognitive capacity for perspective-taking, and internal monitoring mechanisms (Decety & Moriguchi, 2007). One of the key reasons for empathic deficits might lie in alexithymia, difficulty identifying and describing one's own feelings. The "shared-network" model of empathy supports this connection: the same neural networks involved in processing one's own emotions are involved in representing the emotions of others. The current study examined alexithymia and empathic deficits in relation to autistic and schizotypal traits in a nonclinical sample (n=136). Alexithymia was assessed with Toronto Alexithymia Scale (TAS-20), autistic traits with the Autism Spectrum Quotient (AQ), schizotypy with the Schizotypal Personality Questionnaire (SPQ), and empathy with the Interpersonal Reactivity Index (IRI). Bootstrapped mediation technique revealed that alexithymia mediates the significant correlations between SPQ and IRI, and AQ and IRI. These results highlight the role of alexithymia in empathy in a nonclinical population, and further point to the importance of examining the effect of alexithymia on empathic deficits in autism and schizophrenia.

POSTER A-9

RESILIENCE CORRESPONDS WITH GREATER REGULATORY BRAIN ACTIVITY DURING SOCIAL EXCLUSION

Marlen Z Gonzalez¹, James A Coan¹, & Joseph P Allen²
¹University of Virginia, ²University of Virginia

Descriptors: Resilience, Social exclusion, fMRI

Associations between resiliency and brain areas putatively supporting cognitive emotion regulation derive mainly from quasi-experimental studies of individuals who either did or did not develop a psychiatric disorder following a trauma (e.g., New et al., 2009). We investigated whether a continuous measure of resilience would normatively correspond with similar brain regions during an emotional challenge. Fifty-one participants completed a social exclusion task during functional magnetic resonance imaging (fMRI). Subsequently, participants completed the Resilience Scale (Wagnald & Young, 1987). Resilience scores were de-meaned and entered into a whole brain corrected covariate analysis of the exclusion > inclusion contrast. We found positive associations between resilience scores and exclusion > inclusion activations in the right superior frontal gyrus, paracingulate cortex, precentral gyrus and supplementary motor area -- all areas previously implicated in both emotion regulation and motor planning (e.g., New et al., 2009; Ochsner et al., 2004). These findings offer normative evidence that more resilient individuals more strongly recruit neural systems associated with emotion regulation during social exclusion. Contextually appropriate emotion regulation may be a defining substratum of trait resilience.

POSTER A-10

STRESSFUL LIFE EVENTS AND STRESS-SYSTEM GENES PREDICTING LIMBIC ACTIVITY AND LIMBIC-PREFRONTAL INTERACTIONS IN SCHOOL-AGE CHILDREN

David Pagliaccio, Joan L Luby, & Barch M Deanna
Washington University in St. Louis

Descriptors: Amygdala, Stress, Childhood

As in adults, child with depression and anxiety exhibit hyper-reactivity of the limbic system to emotional stimuli as well as altered interactions between limbic and prefrontal regions. While it is still unclear how and why these alterations arise, stress may be a major factor. Animal studies show that chronic stress or glucocorticoid administration lead to alterations in limbic structure and function. Relatedly, early life stress and variation in stress-system genes are related to increased prevalence/severity of depression. The goal of the current study was to test whether stress-system genetic profile scores and life stress predict limbic reactivity to emotional faces and psychophysiological interactions with prefrontal cortex regions in school age children (N=122) enrolled in the on-going, longitudinal Preschool Depression Study. Genetic profile scores were created to assess additive risk across 4 stress-systems genes - CRHR1, NR3C2, NR3C1, FKBP5. Diagnostic interviews assessed clinical symptoms and the experience of stressful life events across childhood. Functional MRI data assessed activity during gender judgments of emotional faces. The results show that stressful life events and stress-system genetic factors (in interaction with sex and pubertal status) predict increased limbic responsivity to emotional faces and alterations in limbic-prefrontal interactions during task. This may indicate a potential role for stress in individual differences in brain responses to emotional stimuli in children and in the development of neural alterations underlying psychopathology.

This work was supported by grants from the National Institute of Mental Health and a NARSAD award.

POSTER A-11

SPECIFICITY TO EMOTION AND ANIMACY: NEURAL RESPONSE TO THREATENING AND ANIMATE STIMULI.

Zachary T Nolan¹, Stuart F White¹, Christopher Adalio², & James R Blair¹
¹National Institute of Mental Health, ²University of California-Berkeley

Descriptors: Amygdala, Animate, Emotion

The degree of interaction and/or independence of the neural responses to emotional and animacy information remains unclear. Regions like amygdala and ventromedial prefrontal cortex (vmPFC) respond to both emotional and animacy information. However, objects and animate stimuli are represented in medial temporal cortex (mTC) and lateral temporal cortex/superior temporal sulcus (ITC/STS) respectively. We hypothesized: i) vmPFC and amygdala will respond to animate and emotional stimuli, ii) mTC will show greater response to inanimate stimuli, iii) ITC/STS will show greater response to animate stimuli and iv) emotional priming will occur in a category specific pattern within temporal cortex. Subjects (N= 30) viewed threatening or neutral images that could be either animate (facial expressions) or inanimate (objects) in the context of a dot probe task. As predicted the amygdala showed independent responses to both emotional and animacy information, mTC showed increased response to inanimate stimuli and ITC/STS showed increased response to animate stimuli. Category specific emotional modulation was not seen. These results support suggestions that the amygdala is responsive to animate and emotional stimuli. It is possible that a paradigm that requires the utilization of emotion and animacy data for successful task completion would provide evidence of domain-specific modulation of emotion in temporal cortex and vmPFC.

POSTER A-12

INTERACTION OF VASOPRESSIN AND PATERNAL PARENTING STYLE MODULATES EMPATHIC RESPONSES IN WOMEN

Benjamin A Tabak, Meghan L Meyer, Elizabeth Castle, Janine M Dutcher, Jung Hwa Han, Jayson Luo, Michael R Irwin, Matthew D Lieberman, & Naomi I Eisenberger
University of California, Los Angeles

Descriptors: vasopressin, empathy, personal distress

Although both oxytocin and vasopressin regulate a wide-range of social processes, the vast majority of human research has focused on the effects of intranasal administration of oxytocin, while only a few studies have examined the effects of intranasal vasopressin. In addition, even fewer studies of vasopressin have included female participants, even though oxytocin and vasopressin have sexually dimorphic effects. Recent studies suggest that intranasal vasopressin administration may increase prosocial tendencies in women. In a randomized, double-blind, placebo controlled, between-subjects study, we examined the effects of vasopressin on empathic responding in female participants after watching an empathy-inducing video. There were no main effects of vasopressin on empathic responding, however, among women who reported higher levels of paternal overprotection in childhood, vasopressin decreased ratings of personal distress compared to placebo. Results suggest that much like oxytocin, environmental experiences also appear to moderate the effects of vasopressin on social processes.

POSTER A-13

DEVELOPMENTAL ASSOCIATIONS BETWEEN DEPRESSIVE SYMPTOMS AND AMYGDALA DEVELOPMENT DURING ADOLESCENCE

Sarah L Whittle, Erica M Pyalanda, Alexandra Kline, Julian G Simmons, & Nicholas B Allen
The University of Melbourne

Descriptors: amygdala, adolescence, depression

Adolescence is a critical period for the emergence of depression, and the experience of depression during adolescence is a substantial risk factor for subsequent poor outcomes. As such, an enhanced understanding of biological mechanisms is of paramount importance. Abnormal amygdala function is thought to be associated with depressive symptoms, however, findings of structural abnormalities of the amygdala have been inconsistent in adolescent depression, likely due to the fact that previous research has failed to take account of the marked individual differences in development of the amygdala over the adolescent period. The aim of this study was to investigate whether divergent trajectories of amygdala development across adolescence were related to depressive symptoms. A subset of adolescents from the Orygen Adolescent Development Study completed MRI scans and self-report measures of depressive symptoms at three time points spanning early to late adolescence. Amygdalae volumes were estimated at each time point. Latent growth curve analyses were used to assess the relation between amygdala growth trajectories and both initial and follow-up depressive symptoms. We found that higher depressive symptoms at baseline were associated with smaller initial amygdala volumes and increased amygdala growth across adolescence. These findings suggest that early depressive symptoms may have deleterious consequences for amygdala development during adolescence. Future work is needed to examine whether abnormal amygdala growth trajectories go on to predict case-level depressive disorder.

POSTER A-14

COMMON AND DISTINCT BRAIN REGIONS FOR RESPONSES TO SOCIAL AND NON-SOCIAL INCENTIVES

Bonni K Crawford, Nils Muhlert, & Andrew D Lawrence
Cardiff University

Descriptors: Social incentives, fMRI

It is unclear whether common brain regions are involved in the valuation of social and non-social incentives. Previous studies suggest overlap, with both types associated with increased activity in ventromedial prefrontal cortex (vmPFC) and ventral striatum (Izuma et al., 2008, 2010; Lin et al., 2011, Clithero & Rangel, 2013). This study aimed to identify overlapping and distinct brain regions for social and non-social incentives. We developed a task that incorporates both social and monetary outcomes within the same design. Here we report preliminary results from 23 participants who underwent fMRI at 3T whilst engaged in the task. Significantly greater activity for social compared to monetary outcomes was seen in brain regions involved in theory of mind (ToM), including the amygdala bilaterally, the temporo-parietal junction bilaterally and the left medial prefrontal cortex. In contrast, significantly greater activity for monetary compared to social outcomes was seen in the orbitofrontal cortex (OFC) bilaterally and right medial prefrontal cortex (mPFC), right ventral striatum and right anterior cingulate cortex. Additionally, both social and monetary outcomes were associated with increased mPFC activity compared with a neutral no-feedback condition. Our findings fit with recent work linking social interactions to activity in regions commonly associated with ToM and valuation circuits (Skuse & Gallagher, 2009). In contrast, monetary reward is more closely associated with activity in traditional valuation regions, such as the OFC and ventral striatum.

POSTER A-15

NEURAL CORRELATES OF INTEROCEPTION AND CONCEPTUALIZATION DURING RESPIRATORY LOAD

Ian R Kleckner, Karen S Quigley, & Lisa F Barrett
Northeastern University

Descriptors: Interoception, Respiration, fMRI

Certain emotion theories propose that one's affective state can be understood as a perception of both physiological and exteroceptive sensory input that is formed when this input is conceptualized. Here, we explored the neural circuitry underlying the ability to conceptualize a physiological stressor in different ways. Twenty-one participants completed an inspiratory breathing restriction fMRI task where each participant alternated between thinking about (a) respiratory sensory features (e.g., lungs, throat) or (b) an emotionally evocative scenario (e.g., suffocating) inspired by the fact that it was harder to breathe in for 30 sec. We predicted that both conditions involve networks important for interoception (e.g., insula, somatosensory cortex) and networks important for conceptualization (e.g., mOFC, PCC). As expected, we observed increased BOLD signal in interoceptive regions including the dorsal mid insula and somatosensory cortex during the interoception breathing load compared to the exteroceptive baseline (counting a flashing "X"). Additional analyses will consider behavioral ratings of valence, arousal, and task immersion per trial to reveal how interoceptive sensations were perceived in the two conceptualizations conditions.

NIH F32 NRSA to I.R.K. NIH Director's Pioneer Award to L.F.B.

POSTER A-16

EARLY DAMAGE TO THE AMYGDALA BLUNTS AFFECTIVE REACTIVITY BUT NOT AFFECTIVE LEARNING

Eliza Bliss-Moreau, & David Amaral
University of California, Davis

Descriptors: amygdala, affective learning, nonhuman primate

For twelve years, we followed the affective development of a cohort of rhesus macaques that sustained bilateral, complete damage to the amygdala as neonates for the last twelve years. Compared to controls, animals with neonatal amygdala damage have demonstrated consistently reduced affective reactivity in the presence of novel objects, those thought to engender threat like responding, and affective social signals (Bliss-Moreau et al., 2010; 2011a; 2011b). In the present experiment, we evaluated these animals' capacity to associate affective value with a neutral stimulus via associative learning. Learning of this sort is amygdala-dependent in adult rhesus monkeys (Antoniadis, et al., 2007; 2009). A neutral light was conditioned to have affective value by pairing it with an air-puff to the face. When learning occurs, the light serves to increase the magnitude of startle to a burst of white noise (i.e., "potentiating the startle"). Compared to control animals, amygdala-lesioned animals generated significantly smaller startle responses to the white noise bursts prior to learning. Similarly, amygdala-lesioned animals had significantly smaller startle responses to the aversive air puff to the cheek used in the learning phase of the task. Strikingly, and despite their dramatically blunted affective reactivity, amygdala-lesioned animals were able to learn the association between the light and aversive air puff. These findings suggest that plasticity during neural development is able to account for some, but not all, of the functions normally attributable to the amygdala.

POSTER A-17

ATTENTIONAL CONTROL DEFICITS PREDICT SUBSEQUENT ANXIETY

Jeffrey L Birk¹, Philipp C Opitz², & Heather L Urry¹
¹Tufts University, ²University of Southern California

Descriptors: Attentional Control, Anxiety

Attentional control (AC) deficits are associated with elevated anxiety. A common assumption about this pairing is that anxious moods cause low AC, but a less explored possibility is that low AC may systematically cause anxious moods. In this study we addressed both possibilities by investigating temporal precedence, i.e., whether levels of one construct predicted subsequent levels of the other. AC was measured as distractibility, the efficiency with which participants inhibited the processing of salient colored distractors during a visual search task. Anxiety was measured as the mean skin conductance level (SCL) elicited by a stressor as well as pre-to-post-stressor changes in self-reported cognitive and somatic anxiety. This stressor was a modified version of the Trier Social Stress Test in which participants gave a speech and performed math aloud while being videotaped. Participants completed the AC and anxiety tasks in counterbalanced order before and again after a 10-minute button-pressing task. Across all participants higher AC deficits (i.e., distractibility) at Time 1 predicted higher mean SCL activity at Time 2. However, mean SCL activity at Time 1 did not predict AC deficits at Time 2. Furthermore, larger increases in AC deficits from Time 1 to 2 predicted larger increases in self-reported somatic anxiety from Time 1 to 2. These results suggest that impaired AC can precede the development of anxious mood. Future research should address whether this temporal order reflects a causal effect and whether the reverse temporal order occurs in other contexts.

POSTER A-18

TOP DOWN ATTENTION CONTROL AND EMOTIONAL RESPONDING IN CONDUCT DISORDER

Soonjo Hwang¹, Stuart F White², Zachary T Nolan¹, Stephen Sinclair¹, & James Blair¹

¹National Institute of Mental Health, ²National Institute of Mental Health

Descriptors: Conduct Disorder, Affective Stroop, fMRI

Background: Children and adolescents with conduct disorder are known to have dysfunction in emotional processing. They show reduced empathy and diminished care for the consequences of their behaviors for themselves and others. The goal of the current task was to determine responsiveness to emotional stimuli in CD at the neural level and the extent to which this responsiveness is modulated by top down attention. Participants: 20 healthy children/adolescents and 22 children/adolescents with CD performed affective stroop task. Image acquisition and analysis: BOLD Data were analyzed in AFNI via ANOVA Result: Children and adolescents with CD showed significantly reduced activation in right insula in response to emotional stimuli. Children and adolescents with CD showed significantly reduced activation in right amygdala in response to emotional stimuli, PARTICULARLY in the presence of requirement for cognitive task. Both healthy children/adolescents and children/adolescents with CD recruited area (inferior parietal lobule) required for top-down attention control. Conclusion: Youths with CD show atypical responding in response to emotional stimuli compared to healthy youths. In contrast, they showed appropriate recruitment of regions implicated in top down attention. These data indicate that the core pathophysiology of Conduct Disorder lies in reduced emotional responding – not hypersensitive top down attention control.

POSTER A-20

GOOSEBUMPS, SADNESS, AND TEARS: CULTURAL DIFFERENCES IN REACTIVITY TO A SAD FILM CLIP

Yulia E Chentsova Dutton¹, Alexandra Gold¹, Alyssa Gomes¹, & Andrew G Ryder²
¹Georgetown University, ²Concordia University

Descriptors: somatization, sadness

Research over the last three decades has established that depressed people in North America are relatively more likely to emphasize psychological symptoms, whereas depressed people in China are relatively more likely to emphasize somatic symptoms. If these findings reflect varying cultural models of negative emotions, researchers should be able to detect this variation in non-depressed samples using a standard emotion elicitor. This study examined responses of unselected samples of European American and Chinese American women to a sad film clip. Participants reported on their levels of low arousal negative emotions (e.g., sadness), their somatic sensations (e.g., goosebumps), and their tearfulness. The two groups did not differ in subjective reports of sadness, but European Americans reported less intense somatic sensations and less tearfulness than did Chinese Americans. Subjective experience of emotions, reported somatic sensations, and tearfulness were all significantly intercorrelated in European Americans, whereas subjective reports of emotions were not correlated with the other types of reports in Chinese Americans. These findings suggest that the tendency to emphasize somatic sensations is evident in non-selected people of Chinese origin in response to a standard elicitor of negative emotions. There was no evidence that somatic changes served to mask sadness reports in either group. This study is a first step in linking culture and mental health findings with basic emotion research to better understand how culture shapes emotional reactivity.

CIHR NEW Investigator Award awarded to Andrew Ryder

POSTER A-21

HORMONAL COUPLING IN ADOLESCENCE AND THE MODERATING INFLUENCE OF PRIOR TRAUMA AND AVERSIVE MATERNAL PARENTING.

Julian G Simmons¹, Michelle L Byrne¹, Orli S Schwartz¹, Sarah L Whittle¹, Lisa Sheeber², Michael Kaess³, & Nicholas B Allen¹

¹The University of Melbourne, ²Oregon Research Institute, ³University of Heidelberg

Descriptors: Adolescence, Endocrinology, Stress

Stress early in life can disrupt the functioning of the hypothalamic-pituitary-adrenal and hypothalamic-pituitary-gonadal axes and increase risk for negative health outcomes. The interplay between these axes and the environment is complex, and understanding needs to be advanced by the investigation of the multiple hormonal relationships underlying these processes. The current study examined basal hormonal associations between morning levels of cortisol, testosterone and dehydroepiandrosterone in a cohort of adolescents (15.56 years). The moderating influence of stress was also examined, as indexed by self-reported trauma (at age 14.91), and observed maternal aggressive parenting (at age 12.41). Regression analyses revealed significant associations between hormones that were moderated by both stressors. In females, each hormone was positively associated, but only when levels of trauma and/or aggressive parenting were low, whereas a high level of each stressor was associated with a disruption of the hormonal association. In males, although similar hormonal associations were detected, they were not moderated by stress, except cortisol-testosterone, where the association was only present at high levels of aggressive parenting. These results support associations between adrenal and gonadal hormones and the moderating role of stress, likely driven by feedback mechanisms between the axes. This suggests that hormonal changes may be a pathway through which early life stress alters physiology and increases health risks; however further study is necessary to establish causation.

POSTER A-22

IS ADRENARCHAL STATUS A MODERATOR OF A DEPRESSION-INFLAMMATION RELATION IN CHILDREN?

Faustina Delany, Michelle L Byrne, & Nicholas B Allen
The University of Melbourne

Descriptors: Inflammation, Depression, Adrenarche

Despite consistent findings of an association between depression and inflammation in adult and adolescent populations, this has not yet been conclusively demonstrated in children. Furthermore, studies that have included children have used differing methodologies, yielded mixed results, and have not studied a strictly paediatric population, indicating inaccurate measures and/or presence of a moderator. Adrenarche, the first phase of puberty occurring during late childhood, is a plausible moderator due to its effects on the immune system and psychological wellbeing. Using data from a cross-sectional study, it was hypothesised that 1) a depression-immune association exists in children and 2) this association is moderated by adrenarchal status. Sample size was 115 (65 females, mean age = 9.5, age range: 8.67 – 10.32 years). Participants completed the Childhood Depression Inventory-2 and saliva samples (measuring hormonal data and inflammatory markers C-reactive protein and secretory immunoglobulin A). Using hierarchical regression, evidence for a depression-inflammation association and moderation by adrenarchal status were found for emotional aspects of depression only. This was the first study to investigate an adrenarchal population, using biological samples for hormonal data, and examine both functional and emotional aspects of depression. Findings contribute to existing literature on the depression-inflammation relation in children, as well as extending this research area in previously untested ways.

This study was financed through a grant from the Australian Research Council (DP #120101402, 2012 - 2014), and an internal grant from The Melbourne School of Psychological Sciences, The University of Melbourne.

POSTER A-23

PRESCHOOL POSITIVE EMOTIONALITY PREDICTS NEURAL REACTIVITY TO MONETARY REWARDS AND LOSSES IN MIDDLE-LATE CHILDHOOD

Autumn J Kujawa¹, Greg H Proudfit¹, Margaret Dyson², Thomas Olino³, Ellen M Kessel¹, & Daniel N Klein¹

¹Stony Brook University, ²University of California, San Diego, ³Temple University

Descriptors: temperament, feedback negativity, positive emotionality

Reward sensitivity and positive emotion are key components of the approach motivational system. Individual differences in this system are generally conceptualized within a temperament framework, suggesting that they should be early-emerging and have a neurobiological component. Few studies have directly examined associations between positive emotion and reward sensitivity across development, and it remains unclear the extent to which reward sensitivity is specifically related to individual differences in positive emotion, as opposed to emotional styles linked to the withdrawal system. In this multi-method prospective study, we examined the association of laboratory observations of positive emotionality (PE) at age 3 and self-reported positive affect (PA) at age 9 with the feedback negativity (FN), an event-related potential component sensitive to the relative response to winning vs. losing money, at age 9 (N=382). Greater PE at age 3 prospectively predicted an enhanced FN difference score at age 9. In addition, greater self-reported PA at age 9 cross-sectionally predicted an enhanced FN difference score, and observational PE and self-report PA exhibited unique effects on the FN. Age 3 negative emotionality (NE), age 3 behavioral inhibition, and age 9 negative affect did not predict the relative neural response to gains vs. losses, but age 3 NE was associated with a blunted negativity on loss trials only. Results contribute to understanding the neural processes underlying PE, and suggest that the FN and PE may relate to the same biobehavioral system.

This work was supported by National Institute of Mental Health Grants RO1 MH069942 to Daniel N. Klein, RO3 MH094518 to Greg Hajcak Proudfit, and F31 MH09530701 to Autumn Kujawa.

POSTER A-24

EFFECT OF SOCIAL STRESS AND AGE ON RISK-TAKING IN ANXIOUS CHILDREN

Dana K Rosen, Nilam Patel, Daniel S Pine, & Monique Ernst
NIMH

Descriptors: anxiety, risk-taking, development

Social-stress alters risk-taking behavior, particularly in adolescence. High anxiety has been associated with hypersensitivity to reward and to social evaluation, suggesting that social context might modulate behavior differently in anxious and healthy, and adolescent and child subjects. This hypothesis was tested in 36 clinically-anxious (12.06 ± .41; 17F; 18 adolescents and 18 children) and 27 healthy youths (14 adolescents and 13 children; 12.83 ± .45; 14F), using a child-friendly risk-taking paradigm, the Social Stunt Task. The task consisted of a motorcyclist jumping over a varying number of buses (1-9), with the greater bus number predicting the lower likelihood of success. Participants "bet" if they thought the cyclist would make the jump, and "pass" if they did not. The task was performed twice, in a social-stress (participants were led to believe they were watched by peers through video-feed) and control (alone) condition. The interaction of Condition (social-stress, control) by Age (adolescents, children) by Diagnosis (anxious, healthy) was significant (p < .001). This interaction was driven by reduced betting in the social-stress than control condition in the anxious children, and reduced betting in anxious children than anxious adolescents. No such modulation by age or condition was seen in the healthy group. These findings suggest risk-taking behavior is modulated differently by social-stress in anxious and healthy youths, particularly children, suggesting that anxious adolescents may have developed some adaptive mechanisms to social-stress.

POSTER A-25

PROSOCIAL ORIENTATION IN A STATE OF PRESENT-CENTERED ATTENTION: MINDFULNESS ENHANCES EMPATHY AND AFFILIATIVE BEHAVIORS TOWARD VICTIMS OF SOCIAL EXCLUSION

Daniel R Berry, Athena K Hensel, Jeff D Green, & Kirk W Brown
Virginia Commonwealth University

Descriptors: Mindfulness, Empathy, Social Pain

Empathy is foundational to human social interaction, promoting prosocial behavior (Batson, 1987). Observing others experience social exclusion increases emotional sharing and affiliative responses toward victims (Masten et al., 2010). Building on this research, the present study asked whether induced mindfulness – a receptive attention of one's present experience (Brown & Ryan, 2003) – could bolster empathy and prosocial behavior toward victims of social exclusion. Consistent with this, mindfulness has predicted more positive responses in social pain contexts (Brown et al., 2012). Participants (N = 66) were randomly assigned to listen to a brief mindfulness audio induction (MI) or a control induction (CI). Then participants observed a software-based ball-tossing game (Cyberball v4.0; Williams et al., 2012), wherein one of the ostensible participants was excluded. MI participants reported higher state empathic concern for the excluded player (p < .01), and wrote more comforting emails to him/her (p = .02), as coded for prosociality (e.g., helpful, comforting) by condition-blinded, trained raters (c.f., Masten et al., 2010). Also, MI participants passed the ball to exclusion victims more frequently during an 'all play' game that followed (p = .01). This study speaks to the potential for mindfulness training to catalyze empathy and prosocial behavior.

POSTER A-26

AUDIENCES ENHANCE THE EXPRESSION BUT NOT EXPERIENCE OF EMOTION

Craig Williams, Erik Nook, Jae-Young Son, & Jamil Zaki
Stanford University

Descriptors: social, expression, perception

The presence of social others has been shown to alter both positive and negative facial displays. These modulations of expression have traditionally been interpreted as indicating changes in emotional experience. However, emotional expressions also serve to communicate affect to others. Accordingly, socially-induced alterations in expression may reflect changes in either emotional experience or communicative effort. The present study tested these two accounts. Thirty-four pairs of close friends were randomly assigned to either solo or presence conditions and, within each dyad, to either 'target' or 'observer' roles. Targets viewed and rated emotion-inducing images but only targets in the presence condition believed the observer could see them. In both conditions, observers monitored targets and rated their emotional experience. Targets in the presence condition reported no change in experience as compared to targets in the solo condition. Nonetheless, these individuals demonstrated relatively greater increases in electromyography (EMG) activity at the zygomatic site in response to positive, neutral, and disgusting images. Observers in the presence condition similarly demonstrated greater accuracy in their ratings of targets's experience than observers in the solo condition. These data provide evidence for the social modulation of emotional expression independent of experience, contradicting the experience model of emotion expression and instead supporting a social communicative account.

POSTER A-27

ATTENTION TO CONTEXT IN EMOTION RECOGNITION IS MODULATED BY RELEVANCE INSTRUCTION

Nhi Ngo, & Derek Isaacowitz
Northeastern University

Descriptors: emotion perception, context congruence, lifespan development

There is evidence that context can influence the perception of facial expressions of emotion. However, the extent to which context affects perception of emotional faces may further depend on how relevant the perceiver judges contextual cues to be. In the current study, younger and older adults (N = 83) were either instructed that the context scene provided relevant cues to the targets' situation, and therefore was important to their judgment of the target, or that the context was randomly generated for each target and the context should be disregarded. Both older and younger adults who received the relevant context instruction had decreased accuracy when the emotion of the contextual scene was incongruent with the emotion of the target face, compared to when the context was congruent. No difference in accuracy between incongruent and congruent trials was detected in the irrelevant context condition. Accuracy for relevant and incongruent trials was higher than irrelevant and incongruent trials. Although older adults were able to inhibit attention to context in the irrelevant context condition, they were still more likely than younger adults to assign the incongruent contextual emotion to the target across instruction conditions. Results from this study demonstrate that context is crucial to emotion recognition in both younger and older adults, but top-down attentional control can determine how much context can influence perception of facial expressions.

POSTER A-28

INTERPRETATION OF MEANING IN NEUTRAL FACIAL EXPRESSIONS

Nancy Alvarado¹, Daniel A Stehr², & Kimberly A Jameson²
¹California State Polytechnic University, Pomona, ²University of California, Irvine

Descriptors: categorization, facial expression, emotion terms

Many studies have used neutral expressions as control stimuli in judgment tasks presenting facial expressions of emotion. They have assumed that a stimulus lacking facial movement conveys an absence of affect, but is that assumption justified? Previous scaling studies have suggested that neutral expressions are not interpreted as neutral by observers because they do not occupy a region of space equidistant from emotional expressions in a perceptual space, but instead occupy their own region of the emotion meaning space. It seemed possible that observers might be attributing a low-intensity affective meaning to neutral expressions (e.g., calm, content, numb, apathetic). This study scaled a variety of potential labels against a neutral expression, to determine: (1) whether certain labels produced consensual agreement, (2) whether neutral expressions were labeled as neutral (lacking in affect), and (3) what dimensions of meaning were most relevant to observer choices. Sets of sad, angry and happy terms were scaled against the same neutral expression, as controls. Results suggested that in the absence of a primary dimension of valence, observers relied on the dimension of intensity (arousal) when assessing terms. They further showed that neutral expressions were interpreted as lacking in emotion in this paired-comparison scaling task, in contrast to triad judgment tasks. Our findings confirm that previous use of neutral expressions as control stimuli is justified and that static features do not cause subjects to attribute emotional states to a neutral stimulus.

POSTER A-29

RE-THINKING FEELING ASSESSMENT FEELING COMPONENTS AND THEIR RELATIONS TO INDIVIDUAL DIFFERENCES IN EMOTION REGULATION AND PERSONALITY: A SIGNAL DETECTION APPROACH

Anat Karmon¹, Gal Sheppes², & Nachshon Meiran¹
¹Ben-Gurion University of the Negev, ²Tel-Aviv University

Descriptors: Feeling, Signal Detection Theory, Emotion Regulation

One of the most important components of emotion is the emotional subjective experience, or "feeling". Contrary to past literature, which has relied mostly on raw self-reports as measures of feelings, we present a novel framework, based on Signal Detection Theory (SDT). SDT enabled us to differentiate between two independent components of feeling: sensitivity (d') to an emotional stimulus, or the degree to which the emotion eliciting stimulus is translated into feeling; and criterion (C), the minimal amount of feeling that is needed in order to be reported as being experienced. We report the results of a preliminary correlational study in which we found differential correlations of C and d' with relevant individual differences constructs, such as emotion regulation strategy choice and emotional clarity.

POSTER A-30

EMOTIONS PREDICT CHANGES IN EMPATHIC ACCURACY: A 20-YEAR LONGITUDINAL STUDY OF MARRIED COUPLES

Sandy J Lwi¹, Claudia M Haase², & Robert W Levenson¹
¹UC Berkeley, ²Northwestern University

Descriptors: Empathic Accuracy, Longitudinal Study, Long-term Marriage

Empathic accuracy (i.e., the ability to accurately judge how someone is feeling) is a critical part of building and maintaining intimate relationships. In married couples, research has rarely examined how the emotional qualities of marital interaction are related to changes in spouses' empathic accuracy over time. We examined associations between objectively coded emotional behaviors and changes in empathic accuracy over a 20-year period in a sample of 88 middle-aged and older long-term married couples. Every 5 years, couples came to the laboratory and engaged in unrehearsed discussions of an area of marital conflict. Emotional behavior during the discussions was coded using the Specific Affect Coding System. Empathic accuracy was examined using a performance-based measure in which spouses' ratings of their partners' emotions were compared with their partners' own ratings. Analyses controlled for initial levels of empathic accuracy, marital satisfaction, cohort and education. Results indicated that higher levels of positive emotional behavior during the initial conflict conversation predicted increases in empathic accuracy over the ensuing 20 years. Similarly, higher levels of negative emotional behavior predicted decreases in empathic accuracy. Examining specific emotions, husbands' affection behaviors and wives' validation behaviors were particularly predictive of increased empathic accuracy. These results indicate that the emotional quality of marital interactions is strongly related to spouses' abilities to recognize each other's emotions over time.

POSTER A-31

THE EFFECT OF VERY BRIEF DISPLAY DURATIONS ON FACIAL EMOTION RECOGNITION

Christoph Tisler, Harald C Traue, & Holger Hoffmann
University of Ulm

Descriptors: facial emotion recognition, display duration

The ability to recognize emotions in others' faces is an essential skill in social interaction. Due to the complexity of emotional processes, the knowledge about factors influencing the recognition accuracy of facial expressions is still scarce. This study investigated the effect of very brief display durations on the recognition accuracy of facial expressions of emotion (happiness, sadness, anger, disgust, fear, and surprise). A total of N=98 healthy subjects participated in the study. They were presented with a total of 42 facially expressed emotions with display durations varying from 12 to 84 milliseconds (12, 24, 26, 28, 60, 72, and 84 milliseconds) and had to classify the respective emotion by clicking on the appropriate label (forced-choice). Stimuli used in this experiment were images from the JACFEE/JACNeuF image set. The results show that display duration significantly influenced recognition accuracy. Initially, the recognition rates increased rapidly. However, recognition accuracy did not differ significantly for display durations longer than 48 milliseconds. Stimuli presented for 12 and 24 milliseconds were recognized significantly worse than stimuli with display durations longer than 48 milliseconds. Interestingly, on the level of single emotions it could be shown, that happiness and surprise reach their saturation region already at display durations of 24 milliseconds and recognition rates do not increase further. Detailed results will be reported and discussed in the poster.

This research was supported in part by grants from the Transregional Collaborative Research Centre SFB/TRR 62 "Companion-Technology for Cognitive Technical Systems" funded by the German Research Foundation (DFG).

POSTER A-32

UNCONSCIOUS AFFECT INFLUENCES FIRST IMPRESSIONS AND PHYSIOLOGY

Lauren T Sears, Jolie B Wormwood, Erika Siegel, Justin Kopec, Lisa Barrett, & Karen Quigley
Northeastern University

Descriptors: Affective Misattribution, Psychophysiology

In this study, we used continuous flash suppression (CFS) to determine if unseen, affective faces influenced trait ratings (trustworthiness, reliability, competence) of perceived, neutral faces as well as the perceiver's own reported valence and arousal. We also recorded participants' physiological responses to determine if unseen, affective information influenced their body states. We hypothesized that when neutral faces were paired with unseen, smiling faces participants would report more positive affect and rate them as having more positive traits than when neutral faces were paired with unseen, scowling faces. We found patterns of results consistent with these hypotheses. Moreover, results from our physiological measures indicate participants' body states change in accord with the affective value of the unseen face. Our findings will add to the literature on the relationship between affect and perception, as well as give insight into the relationship between affect and physiology.

This research was supported by the U.S. Army Research Institute for the Behavioral and Social Sciences (contract W5J9CQ-11-R-0017). The views, opinions, and/or findings contained in this Poster Are those of the authors and shall not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documents.

POSTER A-33

MAPPING EMOTION TO CARDIOVASCULAR THREAT AND CHALLENGE DURING MOTIVATED PERFORMANCE

James L Cox, Ryan Jacobson, Dana Pensoneau, Kruti Surti, Jenny L Morton, Michael Harris, & Bettina J Casad
University of Missouri-St. Louis

Descriptors: Emotion Response, Cardiovascular Reactivity, Biopsychosocial Model

The biopsychosocial model of challenge and threat posits that psychological states can be gleaned from cardiovascular reactivity patterns. This study examined cardiovascular reactivity and the associated emotional responses using fuction action coding. Women science majors (N = 20) participated in a mock graduate admissions interview in which the interviewer made a sexist or neutral comment. Cardiovascular reactivity, including mean arterial pressure (MAP) and respiratory sinus arrhythmia (RSA), were measured. During the interview phase, participants displaying surprise had marginally lower RSA than participants not displaying surprise (p = .075). Participants displaying felt happiness had significantly higher RSA (p = .027) and lower MAP (p = .038) than those not displaying felt happiness. Those displaying negative emotions had slightly higher MAP (p = .062) than those not displaying negative emotions. During the persistence phase, participants showing fear (p = .035), unfelt happiness (p = .053), and negative emotions (p = .075) had lower RSA than participants not displaying these emotions. Participants showing fear (p = .076) and unfelt happiness (p = .052) showed marginally higher MAP whereas those showing felt happiness had marginally lower MAP (p = .072). These results provide some evidence that negative emotions were associated with higher MAP and lower RSA, which are associated with a cardiovascular threat response. Additionally, positive emotions were associated with lower MAP and higher RSA, which are associated with a cardiovascular challenge response.

POSTER A-34

TRAIT POSITIVE AFFECT, NOT POSITIVE EMOTIONAL REACTIVITY OR EMOTION REGULATION, PREDICTS PSYCHOLOGICAL HEALTH

Heath A Demaree, Bethlehem Yimenu, Christine M May, & James Juergensen
Case Western Reserve University

Descriptors: Psychological health, positive affect, emotion regulation

Research suggests that, in addition to greater trait positive emotion, decreased variability in positive emotional experience predicts psychological health. Stability in positive emotion, however, may be achieved through reduced reactivity and/or increased emotion regulation ability following a positive emotional reaction. The present research was designed in part to test each of these two possibilities. Twenty participants completed the Trait version of the Positive and Negative Affect Scales (PANAS) as well as three measures of psychological health. Participants were also administered a fictitious personality inventory and given false, positive feedback. Subsequent to receiving this feedback, participants were given the opportunity to attenuate their positive emotional reaction by claiming familiarity with fewer nonexistent items on the Over-Claiming Questionnaire. The State version of the PANAS was administered three times – before the fictitious personality questionnaire, after the positive feedback, and subsequent to the emotion regulation opportunity. As expected, positive feedback significantly increased participants' positive affect (PA). Regression analyses revealed that a composite measure of psychological health was predicted by self-reported Trait PA, but not by positive emotional reactivity or by emotion regulation attempts following positive emotion response.

POSTER A-35

EMOTION REGULATION BUT NOT IMPLICIT ATTITUDE PREDICTS EMOTIONAL RESPONSES TO IMAGES OF VIOLENCE AGAINST ETHNIC GROUPS

Nakia S Gordon, Samantha A Chesney, & Lauren E Kurten
Marquette University

Descriptors: emotion regulation, implicit attitude, racial groups

In emotional situations, conscious and unconscious regulation allows individuals to control the magnitude and type of emotion they experience and express to others. One unconscious influence is the attitude held about the emotional situation. To fully understand emotional responses, it has been suggested that both explicit (self-report) and implicit (attitudes) data should be evaluated. Research in our lab indicates greater changes in affect when viewing images of violence against ethnic groups (Abu Ghraib tortures (AGT) and African-American lynching (AAL)) compared to standardized violent images (IAPS). Specifically, self-rated guilt, disgust, anger, and sadness are higher for AGT and AAL images. We extended that work by giving 33 undergraduates self-report (DERS/ERQ) and implicit (IAT: sorting white and nonwhite faces) tasks. Participants were then shown AAG, AAL, and IAPS images and rated their affect (VAS; 0-10) with 7 descriptors. Poor emotion regulation predicted higher negative affect at baseline, but smaller changes after AGT and AAL images. Adding IAT bias scores did not improve the prediction of post-viewing VAS changes. These results show that participants who have difficulties in regulation display a blunted emotional response to images of this type of violence. Moreover, emotional responses to images of violence against ethnic groups can be predicted using emotion regulation, but not racial attitudes.

POSTER A-36

FLEXIBILITY IN THINKING AND COPING ENHANCES SPONTANEOUS EMOTION REGULATION FOLLOWING NEGATIVE MOOD PROVOCATION

Jonathan P Stange¹, Nicole D Seligman¹, Christine Yim¹, Allison J Jessar¹, Lucas C Waldburger¹, David M Fresco², & Lauren B Alloy¹
¹Temple University, ²Kent State University

Descriptors: flexibility, emotion regulation, coping

The ability to modify cognitive and behavioral efforts in changing circumstances may protect against the development of affective disorders such as depression (e.g., Kashdan & Rottenberg, 2010), but few studies have evaluated the extent to which flexibility in thinking and coping may facilitate adaptive regulation of dysphoric emotion. In the present study of 53 undergraduate students (N=110 anticipated by the conference), we evaluated associations between cognitive flexibility, coping flexibility, and spontaneous emotion regulation strategies (i.e., uninstructed; e.g., Aldao, 2013) following a negative mood induction. Participants completed self-report measures of trait cognitive flexibility (the ability to perceive alternative solutions to problems) and coping flexibility (the ability to implement alternative coping strategies) and watched a validated film clip to temporarily induce dysphoria. After a two-minute uninstructed recovery period, participants were asked about strategies they had used to regulate their emotions. Cognitive flexibility significantly predicted coping flexibility, as well as greater post-recovery reports of state emotional clarity and success in regulating emotions. Coping flexibility predicted greater use of cognitive reappraisal, less expressive suppression, and greater clarity of emotions during the recovery period. Associations with behavioral and physiological measures of flexibility will also be presented. Findings indicate that flexibility in thinking and coping may facilitate adaptive regulation of negative emotions such as dysphoria.

This study was supported by National Research Service Award F31MH099761 to Jonathan Stange from NIMH.

POSTER A-37

NEURAL MECHANISMS OF COMPASSION-BASED EMOTION REGULATION

Haakon G Engen, & Tania Singer
Social Neuroscience Department, Max Planck Institute for Human Cognitive and Brain Sciences

Descriptors: Reappraisal, Compassion, fMRI

Compassion-based mental training and meditation have been shown to improve positive affect, reduce stress and activate brain networks associated with positive feelings and affiliation. While these findings suggest a role of compassion in coping and strengthening resilience, it has not yet been compared to classic emotion regulation strategies. To fill this gap, we used fMRI to investigate the behavioral and neural consequences of Compassion meditation when employed as an emotion regulation strategy and compared this to cognitive emotion regulation via Reappraisal. 15 expert compassion meditators were scanned while using Compassion meditation or Reappraisal to regulate their emotional reactions to short film clips of people in distress. Subjective ratings showed that Compassion meditation primarily increased positive affect while Reappraisal primarily decreased negative affect. Mirroring behavioral results, the Compassion contrasted with Reappraisal showed higher activation in amygdala, insula ventral striatum, mOFC and sgACC. Relatively lower activation was observed in the frontoparietal network and IFG. Our findings show the efficacy of Compassion meditation as an emotion regulation strategy, and that the active regulatory mechanism of Compassion is primarily the up-regulation of positive, rather than the effortful down-regulation of negative affect. Thus, Compassion is markedly different from other coping strategies in relying less on cognitive effortful control when faced with stressors, suggesting it could be a powerful strategy for fostering resilience.

POSTER A-38

EMOTION REGULATION FLEXIBILITY DURING CBT FOR SOCIAL ANXIETY: INTERACTIONS BETWEEN ADAPTIVE AND MALADAPTIVE STRATEGIES PREDICT WEEKLY ANXIETY

Amelia Aldao¹, Hooria Jazaieri², Philippe Goldin², & James Gross²
¹The Ohio State University, ²Stanford University

Descriptors: emotion regulation strategies, social anxiety disorder, treatment

Recent work on emotion regulation in psychopathology suggests that the successful implementation of putatively adaptive strategies (e.g., reappraisal) might be dependent upon the larger configuration of the repertoire of regulation strategies (Aldao, 2013). For example, Aldao and Nolen-Hoeksema (2012) showed that, in a large community sample, the use of adaptive strategies had a negative association with symptoms of psychopathology only when participants also endorsed an elevated use of maladaptive strategies (e.g., avoidance). We expanded upon these findings in three critical ways: 1) we utilized a clinical sample (74 participants with social anxiety disorder), 2) we modeled the weekly associations between strategies and symptoms over the course of 16 weeks, and 3) we focused on a particular context that entails learning new patterns of emotion regulation (i.e., cognitive behavioral therapy). As predicted, adaptive and maladaptive strategies interacted in the prediction of weekly anxiety. However, the direction of such interaction was moderated by treatment phase. During the pre-exposure sessions, adaptive strategies had a negative association with anxiety only when the use of maladaptive strategies was low. Conversely, during the exposure and follow-up phases, adaptive strategies had a negative association with anxiety only when the use of maladaptive strategies was high (p 's < .05). Such findings underscore the importance of systematically modeling contextual factors when seeking to understand the relationships among regulation strategies and psychopathology.

POSTER A-39

AGE DIFFERENCES IN THE USE OF SITUATION SELECTION AND ATTENTIONAL DEPLOYMENT TO REGULATE AFFECT

Molly S Cannon, & Derek M Isaacowitz
Northeastern University

Descriptors: emotion regulation, aging, eye-tracking

Older adults are posited to utilize more proactive strategies of emotion regulation, such as situation selection and attentional deployment, to avoid or limit engagement with high arousal negative stimuli (Charles, 2010). In the current study, 30 younger and 29 older adult participants completed two tasks designed to measure the use of these strategies. In the first task, participants were given choices of affective stimuli to interact with while physiology and gaze were recorded. There was no main effect of age on the total number of positive video clips selected. However, younger adults chose more negative videos $F(1,58)=9.205$, $p=.004$, and older adults chose more neutral videos $F(1,58)=4.409$, $p=.040$, indicating that older adults use their selections to minimize negative affect. Younger adults also selected significantly more moderate arousal videos $F(1,58)=6.071$, $p=.017$, while older adults selected more low arousal videos $F(1,58)=7.213$, $p=.010$ suggesting choice may also be used to regulate physiological reactivity. In the second task, participants viewed emotional images while visual attention was measured. We found age differences in the use of attentional deployment, with younger adults spending significantly more time fixating on the most negative areas of images than older adults, $t(47)=2.320$, $p=.025$. This pattern of results suggests that older adults utilized the strategies of situation selection and attentional deployment which also had important implications for mood and physiological reactivity.

POSTER A-40

CUT! THAT'S A WRAP: REGULATING NEGATIVE EMOTION BY ENDING EMOTION-ELICITING SITUATIONS

Lara Vujovic¹, Philipp C Opitz², Jeffrey L Birk¹, & Heather L Urry¹
¹Tufts University, ²University of Southern California

Descriptors: emotion regulation, process model, SOC-ER

Little is known about the potentially powerful set of emotion regulation (ER) processes that target emotion-eliciting situations. We thus studied the decision to end emotion-eliciting situations in the laboratory. We hypothesized that people would try to end negative situations more frequently than neutral situations to regulate distress. In addition, motivated by the Selection, Optimization, and Compensation with Emotion Regulation framework, we hypothesized that failed attempts to end the situation would prompt either a) greater negative emotion or b) compensatory use of a different ER process, attentional deployment (AD). Fifty-eight participants (18-26 years old, 67% women) viewed negative and neutral pictures and pressed a key whenever they wished to stop viewing them. After key press, the picture disappeared ('success') or stayed ('failure') on screen. To index emotion, we measured corrugator and electrodermal activity, heart rate, and self-reported arousal. To index overt AD, we measured eye gaze. Participants more frequently tried to end high- than low-arousal negative pictures because they were upset. They did the opposite for neutral pictures because they were bored. Nevertheless, participants' negative emotional responding did not increase in the context of ER failure nor did they use overt AD as a compensatory ER strategy. We conclude that situation-targeted ER processes are used to regulate emotional responses to high-arousal negative and low-arousal neutral situations; ER processes other than overt AD may be used to compensate for ER failure in this context.

POSTER A-41

SPONTANEOUS SUPPRESSION AND AMPLIFICATION OF EMOTIONAL FACIAL EXPRESSIONS IN PEOPLE WITH DIFFERENT ATTACHMENT STYLES

Elena Mayville¹, Michelle R Johnson², Madison J Garshaseb², & Michael Ennis²
¹Yale University, ²California State University, Chico

Descriptors: Attachment, Emotional Facial Expressions, Facial Electromyography

Study 1: People with different attachment styles may express negative emotions differently. Those more anxiously attached may use greater emotional expressions to signal their need to be comforted, whereas those more avoidantly attached may decrease their emotional expressions to maintain independence. If facial expressions are used as social signals, these effects should be greater in public conditions and smaller in private conditions. We asked participants to watch a sad movie clip. One group watched in private, whereas the other group believed they were being observed. As predicted, highly anxious participants reported very little suppression of negative facial expressions, especially in the public condition. Also highly avoidant participants reported significantly more suppression of facial expressions, especially in the public condition. Study 2: Although participants with different attachment styles report suppressing or exaggerating their emotional expressions, it is still unknown whether participants actually suppress or exaggerate their emotional expressions. To test this, participants watched a sad movie clip with EMG electrodes attached to their left corrugator muscle to measure negative affect. Participants high in anxiety and those high in avoidance reported similar levels of negative affect, but more anxious participants increased their corrugator activity from baseline, indicating more negative affect. In contrast, more avoidant participants decreased their corrugator activity from baseline, indicating suppression of their facial expressions.

POSTER A-42

EMOTION REGULATION TRAINING FOR SUBCLINICAL WORRIERS

Natali Moyal, Noga Cohen, Avishai Henik, & Gideon E Anholt
Ben-Gurion University of the Negev

Descriptors: Emotion Regulation, Training

The tendency to worry might result from a deficient ability to apply adaptive emotion regulation strategies. The current research was designed to study whether subclinical worriers might benefit from computerized home-based training of different emotion regulation strategies (acceptance, distraction, and reappraisal). Fifty-five participants who scored above 45 in the Penn State Worry Questionnaire were recruited for the study. Participants were randomly assigned to one of the three emotion regulation conditions, and received 10 sessions of training during a two-week period. Training sessions consisted of viewing a series of negative images while engaging in emotion regulation aimed at reducing emotional reaction. Before and after the training, participants performed cognitive task that assessed emotional reactivity and conflict resolution. In addition, symptoms of depression, anxiety and worry were assessed before and after the training. Participants trained to use reappraisal and distraction showed improvement both in their performance in the cognitive task and in clinical symptoms (e.g., depression, anxiety), whereas participants trained to use acceptance showed reduced effects relative to the other groups. Reappraisal was the most efficient training. Efficiency of reappraisal training might be explained by participants learning how to cope with situations in more flexible way and question the validity of their worries. The improvement in clinical symptoms in this study may form the basis for the development of a novel, low-cost intervention for clinical worry symptoms.

POSTER A-43

THE INFLUENCES OF MENTAL EXHAUSTION ON EMOTION REGULATION

David Quispe Escudero, Andrew Davis, Elizabeth Hale, Ambika Mathur, Katherine O'Connell, Monique Ernst, & Christian Grillon
NIMH

Descriptors: Emotion Regulation, Mental Exhaustion, IAPS

Emotion regulation is critical to human survival and, when defective, contributes to the severity of psychopathologies. Emotion regulation relies on executive control, which in turn requires expenditure of effort and depletes cognitive resources. This raises the possibility that individuals who are mentally fatigued ("ego depletion"), such as after solving complicated calculus problems, must have suboptimal emotion regulation. This study examines to what extent mental fatigue influences emotion regulation. Two groups were tested in an emotion regulation (reappraisal) test using negative and neutral images from the International Affective Picture System. The EMG measure of the startle reflex was used to index emotional reactivity. Prior to performing the emotion-regulation paradigm, one group was given a series of difficult cognitive tasks (mental-fatigue group) and the other was given a series of easy cognitive tasks (comparison group). Preliminary results (N=12) show a trend ($p=.15$) for impaired reappraisal (emotion-regulation) in the mental-fatigue group compared to the comparison group. If confirmed, these results would support that mental fatigue in every-day activities can disrupt emotion regulation.

Funding provided by the National Institute of Mental Health

POSTER A-44

MALADAPTIVE EMOTION REGULATION DURING EMBARRASSMENT IN REMITTED DEPRESSION

Franziska K Goer, Aleena C Hay, Elizabeth J Reeves, & June Gruber
Yale University

Descriptors: Emotion regulation, Depression, Embarrassment

Maladaptive emotion regulation patterns in major depressive disorder (MDD) are implicated in both the development and maintenance of the disorder, however, little is known about the role of emotion regulation (ER) in self-conscious emotions such as embarrassment, a social emotion with important implications for socioemotional functioning. The present investigation utilized a validated embarrassment-eliciting karaoke task (e.g., Sturm et al., 2008) to examine emotion regulation during embarrassment in individuals with remitted MDD ($n = 29$) compared to healthy controls (CTL; $n = 25$). Results confirmed that the experimental manipulation of embarrassment was successful across participants, as indicated by significantly increased physiological arousal (e.g. heart rate), subjective embarrassment, and facial expressions of embarrassment, from pre-task baseline levels to the embarrassment task. Though the MDD and CTL groups did not differ on these measures in response to the task, they exhibited significant differences in their choice and implementation of ER strategies. Specifically, the MDD group used the ER strategy distraction significantly more frequently than the control group, which, for the MDD but not CTL group, was positively correlated with self-reported embarrassment. Results suggest that though individuals with MDD employ distraction more frequently during embarrassment, this may be a uniquely ineffective strategy among this population, which may partially contribute to some of the socioemotional functioning deficits observed in MDD.

POSTER A-45

NOT ALL POSITIVE EMOTIONS ARE REGULATED EQUALLY

Cara A Palmer, Meagan A Ramsey, & Amy L Gentzler
West Virginia University

Descriptors: Savoring, Positive Affect, Regulation

Recent research has begun to investigate how individuals regulate positive emotion (PE) by savoring (to increase or maintain PE) or dampening (to inhibit PE; Bryant & Veroff, 2007). However, little is known about how people regulate specific types of PE, which likely differs given that various types of PE have unique purposes, arousal levels, and action tendencies (Fredrickson, 1998). Furthermore, this may differ by gender. Participants completed online surveys ($N=219$) on their regulation using the Emotion Regulation Profile-Revised (Nelis et al., 2011). Six hypothetical vignettes provoked contentment, excitement, joy, awe, pride, or gratitude. Repeated measures ANOVAs were conducted with PE type as a within factor, gender as a between factor, and savoring and dampening as outcomes. Results indicated that savoring differed across the type of PE ($F(4.68, 1016.44) = 28.52, p < .001$). Participants savored more for gratitude compared to all other PEs, followed by joy, and savored excitement more than contentment. Gender differences ($F(1, 217) = 16.79, p < .001$) indicated that overall, women savored more than men, and a significant interaction ($F(4.68, 1016.44) = 3.20, p < .01$) showed that this was the case for all PE types but gratitude. Reported rates of dampening also differed based on the type of PE ($F(4.74, 1029.30) = 9.27, p < .001$), but there were no gender effects. Participants dampened gratitude less than contentment, joy, awe, and pride, and excitement less than awe. This study suggests that PE regulation varies by the specific PE and that this may differ by gender.

POSTER A-46

KNOCKING DOWN HIPPOCAMPAL FGF2 ALTERS THE BEHAVIORAL AND EPIGENETIC PHENOTYPE OF RATS SELECTIVELY BRED FOR A LOCOMOTOR RESPONSE TO NOVELTY

Elyse L Aurbach, Sraboni Chaudhury, Peter Blandino, Cortney A Turner, Stanley J Watson, & Huda Akil
University of Michigan

Descriptors: anxiety, FGF2, epigenetics

Previous work has implicated Fibroblast Growth Factor 2 (FGF2) in the modulation of affective behavior. Here, we ask whether altering FGF2 expression in hippocampus (HC) is sufficient to modify genetically determined differences in emotionality. We selectively bred two lines of rats with different patterns of affective responsiveness, and we have observed corresponding differences in HC FGF2 expression and epigenetic markers. Animals displaying a low response to novelty (bred Low Responders, bLRs) exhibit high anxiety-like behavior, have low HC FGF2 expression, and high levels of the repressive modified histone H3K9me3 in the HC. In contrast, animals displaying a high response to novelty (bred High Responders, bHRs) exhibit low anxiety-like behavior, high HC FGF2, and lower levels of H3K9me3. Administration of FGF2 selectively decreases anxiety-like behavior and reduces HC expression of repressive H3K9me3 in bLRs. In this study, following an injection of a lentivirus containing a short-hairpin RNA against FGF2 bilaterally into the HC, the differences between bHR and bLR anxiety-like behavior on the elevated plus maze were eliminated. FGF2 knockdown selectively reduced expression of H3K9me3 in bHRs, leaving bLRs unaffected. These changes indicate that knocking down HC FGF2 is sufficient to alter the anxiety-like phenotype and epigenetic profile of these rats, supporting a role for FGF2 in individual differences in anxiety-like behavior.

National Science Foundation Graduate Research Fellowship Program, NIDA 5 P01 DA021633, ONR N00014-09-1-0598, Pritzker Neuropsychiatric Disorders Research Consortium

POSTER A-47

CONTROLLING THE UNCONTROLLABLE? PSYCHOLOGICAL HEALTH IMPLICATIONS OF ENTITY BELIEFS ABOUT EMOTION IN THE CONTEXT OF EMOTION CONTROL NORMS.

Brett Q Ford¹, Tchikima S Davis¹, Benjamin Hankin², Amanda J Shallcross³, Allison S Troy⁴, & Iris B Mauss¹

¹University of California, Berkeley, ²University of Denver, ³New York University School of Medicine, ⁴Franklin and Marshall College

Descriptors: Emotion beliefs, Depression

Believing that emotions are controllable is an important ingredient in psychological health. Recent research suggests that deciding to regulate one's emotions hinges on whether one believes that emotions are controllable and thus, believing that emotions cannot be controlled may be a key risk factor for psychological health. But is this always the case? The present research examined the hypothesis that believing emotions cannot be controlled (i.e., entity beliefs) would only be harmful among individuals who have internalized a norm that emotions should be controlled. To test this, we measured beliefs about whether emotions can be controlled, whether they should be controlled, and depressive symptoms in three diverse samples: children aged 9-15 (Study 1), adults with major depressive disorder (Study 2), and socio-economically diverse community members (Study 3). Consistent with our predictions, across all three studies, believing that emotions cannot be controlled (i.e., entity beliefs) were linked with increased depressive symptoms, but only when individuals also believed that emotions should be controlled. This pattern also replicated when beliefs that emotions should be controlled were assessed using an Implicit Association Test (Study 3). These results highlight the importance of considering how multiple beliefs about emotions work in concert to influence critical psychological health outcomes like depression.

POSTER A-48

THE BENEFITS OF NATURE EXPERIENCE: IMPACTS ON VERBAL WORKING MEMORY, RUMINATION, ANXIETY, AND MOOD

Gregory N Bratman¹, Gretchen C Daily¹, Benjamin J Levy², & James J Gross¹
¹Stanford University, ²University of San Francisco

Descriptors: Nature Experience, Psychological Ecosystem Services

Nature exposure has long been thought to have both cognitive and affective benefits. The precise characteristics of these benefits, however, have been the subject of ongoing discussion. The present study examined the impacts of nature exposure on a wide range of cognitive and affective outcomes, including: verbal and spatial working memory, impulse inhibition, attention, positive and negative affect, anxiety, and rumination. By noting which of these components are impacted by nature experience, we aim to achieve a more nuanced understanding of its effects, and take a step towards a formulation of a possible causal mechanism underlying these benefits. Thirty-nine individuals with no neurological or psychiatric disorders were randomly assigned to a 46-minute walk in either an urban or natural environment. Participants completed a series of tasks and self-report measures before and after the walk. Difference scores (post minus pre-walk) were computed for each measure. Significant differences between groups indicated a benefit for the nature group with relative increases in verbal working memory and positive affect, and decreases in anxiety and rumination. Our findings replicate and extend prior reports of cognitive and affective benefits of nature experience. In particular, this study demonstrated that nature (versus urban) experience (1) increased verbal working memory and feelings of connectedness to nature, and (2) decreased rumination and anxiety.

POSTER A-49

PREDICTING AFFECTIVE CHOICE

Gaurav R Suri¹, Gal Sheppes², & James J Gross¹
¹Stanford University, ²Tel Aviv University

Descriptors: Affect, Valence, Arousa

Affect is increasingly recognized as central to decision making. However, it is not clear whether affect can be used to predict choice. To address this issue, we conducted 4 studies designed to create and test a model that could predict choice from affect. In Study 1, we used an image rating task to develop a model that predicted approach-avoidance motivations. This model quantified the role of two basic dimensions of affect—valence and arousal—in determining choice. We then tested the predictive power of this model for two types of decisions involving images: preference based selections (Study 2) and risk-reward trade-offs (Study 3). In both cases, the model derived in Study 1 predicted choice and outperformed competing models drawn from well-established theoretical views. Finally, we showed that this model has ecological validity: It predicted choices between news articles on the basis of headlines (Study 4). These findings have implications for diverse fields, including neuroeconomics and judgment and decision making.

POSTER A-50

BEHAVIORAL ACTIVATION SYSTEM (BAS) PREDICTS ANTICIPATED NEGATIVE AFFECT FOLLOWING LOSSES ON A REAL MONEY GAMBLING TASK

Christine May, Bethlehem Yimenu, James Juergensen, & Heath Demaree
Case Western Reserve University

Descriptors: BIS/BAS, gambling, emotion

Behavioral Inhibition and Behavioral Activation System (BIS/BAS) strengths have been used to predict individual differences in risk-taking on gambling tasks, but previous studies have not investigated the role these personality factors in the emotions experienced during actual gambling activity. The present study assessed the role of BIS/BAS in both participants' a) predictions of their anticipated emotions to prospective wins and losses, b) actual emotions felt following realized wins and losses, and c) affective forecasting errors. Participants completed personality questionnaires and gambled with actual money in three versions of a risk-taking task (a "fair" game in which expected value [EV] = 0%, a "loss" game in which EV = -10%, and a "win" game in which EV = +10%). Results suggest that, in all three versions of the game, individuals with greater BAS strength anticipated significantly more negative affect (NA) following future losses. Individuals with higher BAS actually experienced greater NA to losses only in the "fair" game and the data were trending in the "loss" game. In the "win" game, only BIS predicted greater NA to losses. The data also trended to predict that higher BAS individuals anticipated more positive affect (PA) following a win only in the "loss" game. Affective forecasting errors occurred. People higher in BIS trended to overestimate the amount of PA they actually experienced following wins only in the "win" condition. Those with higher BAS underestimated the amount of PA they actually experienced following wins only in the "loss" condition.

POSTER A-51

RESTORING JUSTICE: PUNISHING ON BEHALF OF ANOTHER, BUT NOT FOR ONESELF

Oriel FeldmanHall, Peter Sokol-Hessner, Jay J Van Bavel, & Elizabeth A Phelps
New York University

Descriptors: Justice, punishment, choice

Classic studies from social psychology and experimental economics demonstrate that people have strong other-regarding preferences to punish violations of fairness norms. Here we show that expanding the decision-making space to include other social preferences (e.g. compensation of the victim) reveals that alternative forms of justice restoration are more strongly preferred compared to punitive measures. Furthermore, we find that these other-regarding preferences for justice restoration are differentially deployed depending on the perspective of the deciding agent. When personally targeted by a fairness violation, individuals prefer to compensate themselves and apply no punishment to the transgressor. However, when observing a fairness violation targeted at another, individuals prefer to both compensate the victim and punish the transgressor. These retributive decisions for another were made significantly faster than the compensatory choices made for the self. Together, our results suggest that there are distinct cognitive processes underlying decisions to restore justice for the self, and those made on behalf of others.

POSTER A-52

EMOTION MODULATES NOVELTY SEEKING BUT NOT REWARD LEARNING DURING DECISION MAKING

Vincent D Costa, & Bruno B Averbeck
National Institute of Mental Health

Descriptors: exploration, emotion, impulsivity

Novel and emotional stimuli both garner increased attention in order to motivate approach and avoidance behaviors. This raises a question about how emotional stimuli modulate novelty seeking behavior during decision making. Participants played a three-armed bandit task where they repeatedly chose between three concurrently presented picture options. Each choice was probabilistically rewarded and the goal was to maximize the amount of earned reward. Every 5-12 trials a familiar option was replaced with a novel option drawn from one of three valence categories: pleasant, neutral, or unpleasant. Participants also completed the Barrett Impulsivity Scale. A reinforcement learning algorithm was used to estimate the initial value assigned to novel options and to infer learning rates for each valence category. We found that picture valence and opportunity costs combined to influence novelty drive choice behavior and the initial valuation of novel options. Pleasant novel options were preferred in low reward environments, whereas unpleasant novel options were avoided in high reward environments. Moreover, while hedonic valence modulated initial novelty value it did not affect the rate at which participants learned which cues were most predictive of reward. Attentional impulsivity, and not motor or non-planning impulsivity, was positively correlated with novelty seeking behavior. Together these results imply that emotion regulates novelty driven exploration and that increased impulsivity, particularly distractibility, leads to greater motivational control of novelty seeking behavior.

This work was supported by the Intramural Research Program of the National Institute of Mental Health.

POSTER A-53

MEMORY FOR EMOTIONS OVER TIME: NEGATIVE, BUT LESS SO FOR OLDER ADULTS

Emily J Urban¹, Susan T Charles¹, & David M Almeida²
¹University of California, Irvine, ²The Pennsylvania State University

Descriptors: Affect, Memory, Daily

A series of studies have documented that older age is associated with more positive and less negative emotions. Few studies, however, have examined memories for emotions experienced in daily life. The current study compared levels of affect reported every day to memory of this overall emotional experience. Data came from the National Study of Daily Experiences (NSDE), a part of the Midlife in the United States (MIDUS) study. Participants reported the levels of positive and negative affect they had experienced every 24 hours across 8 days. On the eighth day, participants were asked to recall the average level of the same positive and negative affect items across the past week. Contrary to hypotheses, people of all ages recalled significantly more frequent negative affect than what was indicated by their daily scores averaged across this period ($F(1,605)=27.10, p<.001$). Consistent with our age-related hypotheses, a significant age and type of emotion reported interaction (daily vs. recalled) revealed that the difference between recalled and averaged daily negative affect was smaller for older adults than younger adults ($F(2,605)=13.17, p<.001$). All people recalled higher positive affect than was indicated by daily reports ($F(1,670)=4.16, p=.042$), but levels did not vary by age. Together, results show that older adults have less negative memories of daily emotional experiences than younger adults.

POSTER A-54

COGNITIVE BIAS MODIFICATION: RECALL OF POSITIVE AUTOBIOGRAPHICAL MEMORIES IN DEPRESSION

Kimberly A Arditte¹, Kiara Timpano¹, Rudi de Raedt², & Jutta Joormann³
¹University of Miami, ²Ghent University, ³Northwestern University

Descriptors: Depression, Cognitive Bias Modification, Memory

Major depressive disorder (MDD) is linked with patterns of biased memory that may prolong negative affect and prevent mood repair. Though research has looked to modify other maladaptive biases, little has been done to modify memory biases in MDD. This study trained depressed persons to vividly recall positive memories in order to repair a negative mood. Individuals with MDD were assigned to a training or control condition. Training trials began with the recall of a negative memory used to induce a negative mood. Next, participants recalled a positive memory. Positive memory recall was followed by prompts to improve specificity. Perceived ability to "relive" the memory was assessed following each positive memory. Persons in the control group completed the same procedures except for recalling neutral rather than valenced memories. All participants provided ratings of positive and negative affect after each memory. Results showed that individuals in the training condition had more sadness and less happiness than controls in response to Memory 1 at the beginning, midpoint, and conclusion of the training. Conditions did not differ in sadness or happiness following recall of Memory 2. Among those in the training condition, reliving at each time point related to greater happiness following positive memory recall at that time point and happiness at the midpoint predicted reliving at conclusion of the training. Findings indicate that the training was effective and that the ability to repair negative mood using positive memories may be due to the ability to relive positive memories.

POSTER A-55

MOTIVATED MEMORY: MEMORY FOR GIST AND DETAIL IN COMPLEX POSITIVE IMAGES

Elizabeth A Osborne, & Lani N Shiota
Arizona State University

Descriptors: positive emotion, memory, motivation

Prior research suggests that strong emotions enhance memory for central elements and "gist" of visual images, while impairing memory for peripheral elements. Do different positive emotions have different implications for short-term memory of complex images? Each participant viewed four blocks of photographs (order counterbalanced) aimed at eliciting enthusiasm, nurturant love, awe, or a neutral state. Each photograph contained a central emotion-eliciting target as well as considerable peripheral detail. After a brief distracter task participants were asked to list every photo that they could remember (free recall of "gist"), and answer multiple-choice questions about target and peripheral details of each photo that they had viewed. Free recall of the "gist" of the photographs was enhanced for all three types of positive emotion photographs compared to neutral photographs, $F(3, 144) = 10.32, p < .001$. There were, however, differences in memory for target and peripheral details. Memory for target details of enthusiasm photos was significantly enhanced ($F(1, 48) = 10.11, p = .003$) compared to neutral. Memory for peripheral detail was enhanced for awe photos ($F(1, 48) = 3.99, p < .051$) and impaired for nurturant love photos ($F(1, 48) = 4.09, p < .051$), both compared to neutral. Results are contextualized in terms of functional analyses of each positive emotion.

Funding provided by John Templeton Foundation

POSTER A-56

NEUROBEHAVIORAL CHARACTERIZATION OF MOTIVATION AND ITS REGULATION

Tal Gonen^{1,2}, Eran Eldar³, Gal Raz^{1,2}, & Talma Hendler^{1,2}
¹Tel Aviv Medical Center, ²Tel Aviv University, ³Princeton University

Descriptors: incentive motivation, hedonic value, regulation

Motivation is defined as the drive to facilitate behavior in response to environmental reinforcing cues, which carry both motivational-incentive value and hedonic value of pleasure. In everyday life these two components may contradict each other, raising a conflict considering the preferable behavioral choice. There have been some efforts to neurally dissociate these two components; however, the way they interact in order to regulate goal-directed behavior is yet to be studied. Following the animal based reinforcement sensitivity theory we assumed the behavioral inhibition system, which includes the hippocampus and vmPFC and was previously defined as resolving goal-conflict situations, may have a key role in this regulation. Here we aimed to reveal the motivational regulation system using fMRI while 46 subjects played a novel interactive computer game constructed to dissociate the incentive and hedonic elements in the response to reinforcement by manipulating the subject's control on the outcome. We found that the incentive component included regions related to action (e.g. M1, SMA) and arousal (e.g. hypothalamus, PAG); while the hedonic components included known reward/punishment related regions (e.g. NAC, mPFC, PAG, insula). Using functional connectivity analysis seeded at the hippocampus, we further characterized the regulation system which included the vmPFC and was connected to regions of both incentive and hedonic networks. This suggests that the regulation of motivational behavior is accomplished by linking the incentive and hedonic components of motivation.

POSTER A-57

THE RELATIVE ROLES OF EMPATHY AND DRIVE IN OTHER- AND SELF-ORIENTED FINANCIAL RISK

Conrad Baldner¹, & Gregory S Longo²

¹University of North Carolina, Chapel Hill, ²University of Montevallo

Descriptors: Other-oriented risk, Empathy

Can poor financial decisions be traced back to individual differences, and will individuals risk their own resources in the same manner as others' resources? To help answer these questions, we assessed the relationship between other-focused financial risk, self-focused financial risk, and individual difference variables. 952 university-aged participants completed measures on the Behavioral Activation System Drive subscale (BAS-DR) and dispositional empathy. They were then presented with four self-oriented financial investment scenarios and four other-oriented financial investment scenarios. Scenarios varied in strength, and presented participants with increasing amounts of risk and reward. It was expected that 1) likelihood of self- and other-oriented investment would decrease as scenarios increased in risk, that 2) individuals high in drive would be motivated to increase rewards in stronger other- and self-oriented scenarios, and that 3) individuals high in empathy would be motivated to increase rewards in weaker other-oriented scenarios. Hypothesis 1 was fully supported, however self-oriented scenarios had higher rates of investment. Hypotheses 2 and 3 were partially supported. Empathy was associated with increased investment in weak to moderate other-oriented scenarios. Drive was only associated with decreased investment in stronger other-oriented scenarios. There is evidence that 1) empathy and drive have different effects on individuals' other-oriented investment, and that 2) other-oriented investment could be more aversive than self-focused investment.

POSTER A-58

ANALYSIS OF SOCIALLY AFFILIATIVE LANGUAGE IN INDIVIDUALS HIGH IN SOCIAL ANHEDONIA

Taylor L Fedechko, & Jack J Blanchard
University of Maryland, College Park

Descriptors: Language, Social Anhedonia

The desire to affiliate with others is a fundamental human motivation; yet, some individuals are characterized as high in social anhedonia reflecting a lack of interest and pleasure in social relationships. Our recent lab findings indicate that social anhedonia manifests in poor affiliative behavioral skills (Llerena et al., 2012). To expand this, we analyzed language use within an affiliative interaction using the Linguistic Inquiry and Word Count (LIWC) software. Participants also provided self-reported interest and reactions to the interaction partner. We hypothesized that, compared to controls (n=60), individuals high in social anhedonia (n=49) would use fewer positive valence words, more negative valence words, and fewer social words. We also hypothesized that less interest would be associated with less positive and social words in the social anhedonia group. The results indicated that the social anhedonia group used significantly less positive valence words and less social words than controls, with no group differences of negative emotions or overall word count. Lastly, within the social anhedonia group the use of fewer social words and fewer positive valence words were related to diminished interest in the interaction partner. These results indicate that social anhedonia manifests in language use within a social affiliation task. This suggests the potential for language to provide a further assessment of anhedonia and indicates the need to explore how these language differences may impact interaction partners (e.g., evoking non-rewarding responses).

POSTER A-59

WHERE IN THE BODY ARE DISCRETE EMOTIONS?

Erika H Siegel¹, Molly Cannon¹, Paul Condon¹, Karen Quigley¹, & Lisa Barrett²
¹Northeastern University, ²Northeastern University, Harvard Medical School

Descriptors: Affect, Psychophysiology, Meta-Analysis

Since William James, researchers have debated how emotions are represented in the body. Basic emotion research suggests that emotions are biological types that configure consistently and specifically within the body for each discrete emotion. Constructivist and context-based approaches assert that emotions are more contextual and that bodily responses vary within emotion category. Dimensional approaches suggest that arousal (and to a lesser extent valence) drive changes in peripheral physiology. In this poster, I present data from a meta-analysis of over 500 articles on autonomic nervous system reactivity in emotion. We tested specific, directional hypotheses representing each perspective and each body signal - across and within each emotion category. We found that the body does not configure consistently and specifically for discrete emotions. Rather, the autonomic nervous system appears to configure for core affect (valence and arousal). Consistent with constructivist approaches, secondary analyses revealed that physiological responses can appear consistent and specific within similar experimental contexts but responses vary widely once experimental context changes (within the same emotion).

POSTER A-60

EMOTIONAL REACTIVITY IN ECOLOGICAL MOMENTARY ASSESSMENT AND DAILY DIARY METHODOLOGIES

Alanna Covington, Emily Maher, & Kathleen Gunthert
American University

Descriptors: Reactivity, Ecological Momentary Assessment, Measurement

Daily diaries and ecological momentary assessment (EMA) methodologies allow for the examination of intraindividual differences in mood states and behaviors as they are experienced. These methodologies are used with increasing frequency in the absence of a clear understanding of whether repeated assessments themselves result in measurement reactivity. Research examining the effects of these methodologies on participants' responses has produced mixed results. However, these results are confined to findings in individual samples. Currently, no research analyzes these patterns across multiple datasets. The current project examines reactivity to daily diary and EMA methodologies across multiple datasets in an effort to ascertain whether repeated assessment influences emotion variables commonly included in this type of research. Using Hierarchical Linear Modeling, we evaluated the role of assessment number as a predictor of dependent variables such as negative and positive affect, depressed mood, and anxious mood. We also examined potential moderators of these relationships, including neuroticism, depression, trait anxiety, and positive and negative life events. Results showed a consistent effect of time on positive affect, where the majority of datasets indicated that positive affect significantly decreased as a function of assessment number. Findings suggest little to no reactivity for negative affect, depressed mood or anxious mood. No moderating variables demonstrated consistent effects across datasets.

POSTER A-61

EMOTION SUPPRESSION, INTERPERSONAL PROBLEMS, AND STARTLE REACTIVITY

Nicholas Fehertoi, Jonathan DePierro, Steven Freed, & Wendy D'Andrea
The New School

Descriptors: Personality, Emotion Suppression, Physiology

Early work on emotion regulation emphasized the consequences of expressive suppression; namely, suppression in experimental contexts was related to increased cardiovascular responding in affect-inducing situations, and experimentally-directed suppression yielded negative social consequences. Here, we examine the correspondence of trait emotion suppression (as measured by the Emotion Regulation Questionnaire), chronic interpersonal problems (as measured by the Inventory of Interpersonal Problems), and physiological reactivity to an affect-modulated startle task. Trait suppression was correlated with numerous interpersonal problems (vindictive, $r = .34$; cold, $r = .56$, socially withdrawn, $r = .43$) as well as increased heart rate to startle probes. However, the relationship between suppression and startle existed only for startle with no affective modulation component ($r = .45$); similarly, trait interpersonal problems were related to neutral, but not affective, startle probes ($r = .34$ -.48). These findings contrast with those of Dillon et al. (2005), who find that experimentally manipulated suppression impacts affective rather than neutral trials. These findings a) extend the literature on expressive suppression and its physiological correlates to trait interpersonal difficulties; and b) suggest that elevated physiologic reactivity may play a role in interpersonal difficulties associated with affective suppression.

POSTER A-62

A COMPUTATIONAL APPROACH TO STUDY THE INFLUENCE OF DEPRESSED MOOD ON MOTOR-CONTROL

He Crane Huang, Katia Harle, Javier Movellan, & Martin Paulus
UC San Diego

Descriptors: Depression, Computational Model, Reward processing

Motivation deficit towards reward and psychomotor disturbance are two common symptoms among depressed individuals. However, it is unclear whether poor motor performance in goal-directed tasks and motivational deficits in reward processing share a common mechanism. For instance, performance deficits in depression could be due to 1) impaired reward processing, and/or 2) impairments in the sensorimotor system. Elucidating the underlying mechanisms is an important first step to develop more targeted behavioral interventions. Here, we use a computer-simulated driving-task and an inverse reinforcement learning model to relate the degree of depression to performance in continuous time. In task 1, subjects ($0 \leq BDI \leq 40$) pushed a joystick as quickly as possible once they observe motion onset of a virtual car. In task 2, they were instructed to drive a virtual car as quickly as possible and stop it as close as possible to a stop sign. For each subject, we 1) estimated perceptual-motor slowness and 2) recovered the underlying reward function. In addition, we recorded subject's face continuously during the driving tasks (measured with emotion recognition software FACET, Emotient). Initial results suggest, that relative to healthy controls, depressed individuals 1) have longer reaction and movement time, 2) are influenced by a lower accuracy/effort ratio, and 3) showed less joy facial expression. These results show that our approach can quantify in individuals with depression the combination of sensorimotor deficits, impaired target accuracy, and reduced processing of rewarding events.

POSTER A-63

UNNECESSARY STORAGE OF THREAT IN WORKING MEMORY: A PROXIMAL MECHANISM UNDERLYING ANXIETY AND WORRY

Daniel M Stout¹, Alexander J Shackman², Tara A Miskovich¹, & Christine L Larson¹
¹University of Wisconsin-Milwaukee, ²University of Maryland

Descriptors: Anxiety, Working Memory, Cognition-Emotion Interactions

Anxiety disorders are prevalent, difficult to treat, and costly to society. Dispositional or temperamental anxiety is a well-established risk factor for the development of disorders along the internalizing spectrum, particularly anxiety disorders. A hallmark of dispositional and clinical anxiety (e.g., GAD) is excessive worry, apprehension, and distress when threat is absent. However, the neurobiological underpinnings of these symptoms remain poorly understood. Using a multi-method approach, across three studies we will present data showing that worry and intrusive cognitions may reflect difficulties governing threat's access to working memory (WM); where it could continue to bias cognition and disrupt on-going behavior. First, behavioral data demonstrate that dispositional worry and anxiety is associated with difficulties filtering threat-related distracters. Second, event-related potential evidence indicates that difficulties gating threat promote the unnecessary storage of threat-related information in WM. Third, fMRI data show that dispositional anxiety is associated with amygdala reactivity to threat-cues regardless of task-relevance and an increase in pgACC activity to threat distracters. Mirroring the ERP findings, dispositional anxiety was associated with enhanced neural activity in WM load-sensitive posterior parietal regions for threat distracters. Collectively, these findings provide a novel neurobiological framework for understanding the mechanisms underlying excess anxiety when threat is absent and sets the stage for developing improved intervention strategies.

Grant Number: 5K01MH086809-02 Principal Investigator(s): CHRISTINE L LARSON, PHD Project Title: Imaging genetics of extinction of conditioned fear responses in anxiety

POSTER A-64

DECREASED USE OF POSITIVE, BUT NOT NEGATIVE EMOTIONAL DISPLAYS TO INFORM ANTICIPATED PLEASURE FROM SOCIAL INTERACTIONS IN SCHIZOPHRENIA

Timothy R Campellone, Janelle M Caponigro, Jasmine Mote, & Ann M Kring
University of California, Berkeley

Descriptors: Anticipation, Emotional display, Schizophrenia

Anticipatory pleasure is important for guiding everyday decisions and motivation, but is often diminished in schizophrenia. Work in healthy people has shown that during social interactions, anticipation of pleasure can be informed by a partner's emotional display. The overarching goal of this study was to investigate whether the use of emotional displays during a social decision-making task was associated with anticipatory pleasure in people with and without schizophrenia. Thirty-two people with schizophrenia and 29 controls played a trust game where they interacted with dynamic simulated players that were smiling, scowling, or expressing no emotion. At the beginning of each trial, participants rated anticipatory pleasure for the outcome of the interaction. Next, they decided how many points to give to a player, with player behavior (i.e., interaction outcome) predetermined to be either trustworthy or untrustworthy. Compared to controls, people with schizophrenia reported less anticipatory pleasure for the first interaction with a smiling player, but no differences for a scowling player. Further, people with schizophrenia maintained their lower anticipated pleasure over the course of repeated interactions with smiling player. There were no group differences in anticipated pleasure over the course of repeated interactions with a scowling player, suggesting a specific difficulty in using positive emotional displays to inform anticipation of pleasure. These findings have implications for understanding the nature of decreased social engagement in schizophrenia.

POSTER A-65

EMOTION REGULATION IN CHILDREN AND ADOLESCENTS WITH AUTISM SPECTRUM DISORDER

Andrea C Samson¹, Hannah Greenbaum¹, Rebecca W Podell², Jennifer M Phillips¹, Antonio Y Hardan¹, & James J Gross¹
¹Stanford University, ²Columbia University

Descriptors: autism spectrum disorder, emotion regulation, cognitive reappraisal

Although not being a core feature of Autism Spectrum Disorder (ASD), parents and clinicians have long noted the importance of emotion dysregulation in individuals with ASD (e.g., tantrums, meltdowns). In this study, 21 children and adolescents with ASD and 22 typically developing (TD) controls completed the Reactivity and Regulation Situation Task (Carthy et al., 2010). This task assesses first emotional reactivity and spontaneous use of emotion regulation strategies (problem solving, cognitive reappraisal, avoidance, distraction, venting, suppression, and relaxation) in the context of ambiguous and potentially threatening negative scenarios. After the concept of cognitive reappraisal was explained, the scenarios were presented again, and the participants were prompted to use this strategy. Results revealed that individuals with ASD exhibited the same level of reactivity to negative stimuli as TD participants. Furthermore, youth with ASD had a different emotion regulation profile than TD individuals, characterized by using cognitive reappraisal less frequently and by using suppression more frequently. When prompted to use cognitive reappraisal, participants with ASD were less able to implement, but benefitted from this strategy when they were able to generate a reappraisal. Findings suggest that cognitive reappraisal may be useful to individuals with ASD. Therefore, the development of treatments that focus on enhancing the use of adaptive forms of emotion regulation might decrease emotion dysregulation and optimize long-term outcomes in youth with ASD.

POSTER A-66

AN FMRI INVESTIGATION OF APPROACH-AVOIDANCE CONFLICTS IN EXTERNALIZING PSYCHOPATHOLOGY

Allison J Lake¹, Peter R Finn¹, & Thomas W James²
¹Indiana University, ²Indiana University

Descriptors: emotion, approach-avoidance conflicts, externalizing psychopathology

Externalizing psychopathology (EXT) represents the covariance of multiple disorders, including substance use and antisocial disorders, characterized by behavioral undercontrol. In particular, those with EXT display disadvantageous decision-making when approaching immediate reward despite simultaneous cues for adverse outcomes. Individuals with EXT display specific deficits in the behavioral resolution of approach-avoidance conflicts. Studies suggest that behavioral under-control is accentuated by strong affective states, which implies that affective stimuli may be especially likely to engender poor behavioral control in approach-avoidance conflict contexts. To investigate this, the present study examined BOLD activation in response to an emotional approach-avoidance conflict task in a sample of individuals with either high or low levels of EXT. Specifically, participants were instructed to move positive, negative, or neutral images presented on a computer screen towards or away from themselves. This factorial design resulted in emotion-behavior congruent trials (e.g. pushing a negative picture away) or emotion-behavior incongruent trials (e.g. pulling a negative image closer). Broadly, the results revealed that incongruent trials resulted in increased activation in areas associated with attention, including the superior and inferior parietal lobules, as well as decreased activation in areas associated with emotion processing including the orbitofrontal cortex and striatum. These results further clarify the neural mechanisms associated with approach-avoidance conflicts.

POSTER A-67

VISUAL SCANNING OF EMOTIONAL GAITS IN SCHIZOPHRENIA

Joel S Peterman¹, Andrea Christensen², Martin A Giese², & Sohee Park¹
¹Vanderbilt University, ²University of Tuebingen

Descriptors: schizophrenia, biological motion, emotion perception

Emotional deficits are core features of schizophrenia but their etiology remains unspecified. One possibility is that visual processing of affective stimuli may be disrupted. It has been shown that individuals with schizophrenia (SZ) do not attend to the emotionally salient areas of the face (e.g. eyes, mouth) during emotion identification tasks. But bodily cues also provide rich sources of affective information especially in preparation for social interactions. In our earlier work, we showed that SZ are impaired in extracting emotional information from gait. In the present study we hypothesized that SZ would fail to attend to the critical areas of the body during emotion identification. 16 SZ and 16 matched controls (CO) were asked to identify the emotion expressed in an avatar's gait (Happy, Angry, Sad, or Neutral) while their visual scanning patterns were recorded with an eye tracker. SZ performed worse than CO on the explicit emotion identification task. On correct trials, both groups exhibited similar visual scanning patterns of the emotional gaits. Visual scanning indices were positively associated with task performance. This study replicates and extends previous findings of deficits in perceiving emotion from gait in SZ. However SZ showed intact visual scanning of the emotional gaits. These findings contradict previous research indicating aberrant visual scanning of emotional faces leads to emotion recognition deficits.

POSTER A-68

ANXIETY AND GENDER AFFECT PEDIATRIC PERFORMANCE ON THE PINATA TASK, AN ADAPTED MONETARY INCENTIVE DELAY TASK

Julia Dorfman, Dana K Rosen, Daniel S Pine, & Monique Ernst
NIMH

Descriptors: anxiety, pediatric, reward sensitivity

Background: Reward sensitivity varies with development and is altered in multiple psychiatric conditions, including anxiety. Prior research revealed abnormally high sensitivity to rewards associated with high anxiety (Hardin et al., 2006). Methods: A pediatric version of the monetary incentive delay task (MID) (Knutson et al., 2001) was used to compare 18 healthy boys (age 12.6 ± 2.3), 11 healthy girls (11.75 ± 2.99), 25 anxious boys (12 ± 2.4), and 19 anxious girls (12.7 ± 3.1) on reward anticipation, expressed as percent correct responses (accuracy). Higher accuracy indexed higher reward sensitivity. Results: Findings reveal that anxiety status influences accuracy differently in females and males (Group x Gender: $F=4.45$; $p=0.038$). Specifically, anxious youths are sensitive to reward magnitude ($F=6.5$; $p=0.000$), similarly in females and males. In contrast healthy comparisons are not sensitive to reward magnitude, but across reward magnitudes, healthy males are more accurate than healthy females ($F=15.4$; $p=0.001$). Conclusion: This study supports the hypothesis that anxiety increases reward sensitivity (here, accuracy). In addition, novel findings suggest that anxiety affects overall performance differently in males and females. The male advantage in the healthy group disappears in the anxious group. These findings will be discussed as a function of age, puberty, and task parameters.

POSTER A-69

NEGATIVE ATTENTIONAL BIAS IN ANXIOUS PATIENTS DURING A STOOP TASK UNDER THREAT OF SHOCK

Katherine O'Connell, Oliver Robinson, Elizabeth Hale, Andrew Davis, Ambika Mathur, David Quispe-Escudero, Monique Ernst, & Christian Grillon
NIMH

Descriptors: Anxiety, Attentional Bias, Stroop

Studies have indicated that anxiety increases interference from task-irrelevant negative emotional stimuli. Some studies indicate that this is due to a deficit in cognitive control. By comparing performance (RT) on an emotional and a classic Stroop task, we hope to differentiate between emotional attentional bias and a deficit in cognitive control as the mechanisms underlying emotional interference by anxiety. We tested 34 healthy controls and 13 anxious patients on a classic (congruent, incongruent words) and an emotional (positive, negative valence words) Stroop task in two conditions, shock anticipation (threat) and safe from shock (safe). We expected the strongest interference in anxious individuals during threat of shock. In the classic Stroop, the three way interaction of condition (threat, safe), group (anxious, healthy) and conflict (congruent, incongruent) was not significant. However, in the emotional Stroop, the parallel interaction of condition X group X valence was significant ($p = 0.040$): reaction time on negative words was slower in patients than controls in the threat condition. These findings support the influence of threat and anxiety on emotional bias but not on cognitive control. We expect findings to be more nuanced as we reach a full balanced sample.

POSTER A-70

DIFFERENCES IN EMOTION REACTIVITY BETWEEN INDIVIDUALS WITH FEATURES OF BORDERLINE PERSONALITY DISORDER AND DEPRESSION

Nadia Al-Dajani, & Amanda A Uliaszek
University of Toronto Scarborough

Descriptors: Emotion Reactivity, Borderline Personality Disorder Features, Depressive Features

Depression and borderline personality disorder (BPD) are highly comorbid and are both characteristic of affective disturbance. In this study, it is hypothesized that the disorders share a common etiological factor of emotion reactivity. In addition, an investigation of specific emotional experiences that may differentiate the two symptom clusters is undertaken. A mood induction task was used to elicit emotional reactions in a sample of 121 university students. Regression analyses were conducted to examine emotion reactivity as a common factor. Unique associations between specific emotions and features of BPD, depression, and an interaction term (BPDxDep) were investigated. It was found that all models tested were significant, with the exception of joy. Features of BPD were uniquely associated with sadness, guilt, and anger, as were depressive features. BPDxDep symptoms were negatively associated with guilt. A discussion of the findings obtained and their significance in theory and in practice is undertaken.

POSTER A-71

NEURAL EVIDENCE OF DECREASED ATTENTION TO EMOTION IN SOCIAL ANHEDONIA

Elizabeth A Martin¹, Nicole R Karcher², & John G Kerns²
¹VA Pittsburgh/University of Pittsburgh, ²University of Missouri

Descriptors: late positive potential, schizotypy

There is some self-report and behavioral evidence that social anhedonia (SA), a predictor of schizophrenia-spectrum disorders, is associated with decreased attention to emotion. However, it is not known 1) whether neural responses that index attention to emotion differ in SA, and 2) whether using emotional regulation strategies can alter these neural responses. To address these questions, we measured event-related potentials in individuals with elevated SA (n=23) or prodromal-level psychotic symptoms (n=18) and control participants (n=20). Participants viewed neutral, pleasant, and unpleasant IAPS images after they were told to respond naturally to the image (LOOK condition) or to up-regulate (ENHANCE condition) or down-regulate (SUPPRESS condition) their natural emotional response. Results revealed that although participants did not differ in their valence or arousal ratings of the images, there was a significant group difference in the magnitude of the late positive potential (LPP), an index of attention to emotion, in response to the images ($p < .05$). Specifically, in the LOOK condition, SA was associated with an attenuated LPP compared to the control group for both neutral and unpleasant images ($ps < .05$). For the ENHANCE condition, SA was associated with an attenuated LPP compared to the control group for both pleasant and unpleasant images ($ps < .05$). There was no group effect in the SUPPRESS condition ($p = .44$). These results indicate that SA is associated with decreased attention to emotion and that this deficit cannot be easily altered with an emotion regulation strategy.

F31 MH090669

POSTER A-72

META-ANALYSIS OF EMOTION RECOGNITION DEFICITS IN DEPRESSION

Michael N Dalili¹, Ian S Penton-Voak¹, Catherine J Harmer², & Marcus R Munafò¹
¹University of Bristol, ²University of Oxford

Descriptors: emotion, depression, meta-analysis

Over 30 years of research has explored how depression is associated with facial emotion recognition. However, studies have investigated this relationship using various paradigms and multiple stimulus sets, rendering comparisons difficult. There has been little effort to determine the size of this effect and if studies are properly powered to detect it. We conducted a meta-analysis to synthesize findings across studies for the recognition of emotion in depressed individuals compared to controls. Studies of facial emotion recognition that included depressed and control samples were identified up to June 2013 using search engines. Studies using schematic faces, imaging and drug treatment studies were excluded. Meta-analysis of $k = 23$ independent samples indicated impaired recognition of emotion ($k = 23$, $g = -0.16$, 95% CI -0.25 to -0.07 , $p < 0.001$). Critically, this was observed for anger, disgust, fear, happiness and surprise ($ks = 8$ to 23 , $gs = -0.39$ to -0.16 , $ps < 0.08$), but not sadness ($k = 22$, $g = -0.09$, 95% CI -0.23 to $+0.05$, $p = 0.22$). Power analysis indicated that a sample size of 615 cases and 615 controls would be required to detect this association with 80% power at an alpha level of 0.05. These findings suggest that the emotion recognition impairment reported in the depression literature exists across basic emotions except sadness where performance is spared. Moreover, the effect size is small and studies to date have been severely underpowered. There is therefore still a need for large, confirmatory studies to establish whether this association is robust.

POSTER A-73

EMOTIONAL AND NON-EMOTIONAL CONFLICT PROCESSING IN YOUTH AND ADULT ANXIETY DISORDERS

Andrea L Gold, Dana Rosen, Johanna Jarcho, Daniel Pine, & Monique Ernst
National Institute of Mental Health, National Institutes of Health

Descriptors: Emotional conflict, anxiety

There has been interest in investigating whether anxiety disorders are associated with altered responses to emotional conflict, which may map onto excessive and intrusive worries. An adaptation of the Stroop task has been developed to assess behavioral and neural responses during the detection and resolution of emotional conflict. However, emotional conflict resolution predicts behavioral differences in some prior fMRI studies, but not others. In a clinic setting, we tested conflict detection and resolution. Anxious youth (n=22) and adults (n=21), and healthy youth (n=40) and adults (n=27) completed emotional and non-emotional conflict tasks. For the emotional conflict task, participants showed slower reaction time (RT), $F(1,102)=64.91$, $p < .001$, and lower accuracy, $F(1, 102)=65.67$, $p < .001$ for high (incongruent trials) vs. low (congruent trials) conflict. For the non-emotional conflict task, conflicted detection predicted RT, $F(1,102)=8.53$, $p = .004$, but not accuracy. Neither RT nor accuracy differed for high vs. low conflict resolution conditions. Although we replicated the well-established Stroop effect for both emotional and non-emotional tasks, we did not replicate behavioral differences for conflict resolution, nor did we observe interactions of conflict detection or resolution with anxiety diagnosis. These findings do not support the use of conflict resolution as a neurocognitive marker for anxiety disorders. This failure to replicate may be explained by type of anxiety or the environmental context of the clinic as a more neutral setting compared to the scanner.

POSTER A-74

MEDITATION INCREASES COMPASSIONATE RESPONSES TO SUFFERING

Paul Condon¹, Gaelle Desbordes², Willa B Miller³, & David DeSteno¹
¹Northeastern University, ²Massachusetts General Hospital, ³Harvard University

Descriptors: Compassion, Meditation, Helping behavior

To date, little empirical work examined the beneficial interpersonal effects of meditation practice. The current study employed an ecologically valid situation that exposed participants to a person in visible pain. Following eight-week training courses in meditation or a wait-list control, participants arrived at a lab individually to complete purported measures of cognitive ability. Upon entering the waiting area for many labs, participants seated themselves in the last remaining chair in a row of three; confederates occupied the other two chairs. As the participant sat and waited, a third confederate using crutches and a large walking boot entered the waiting area while displaying discomfort. We assessed compassionate responding by whether participants gave up their seat to allow the confederate with crutches to sit, thereby relieving her discomfort. As expected, participants who completed a meditation course gave up their seat more frequently than did those from the wait-list control.

Mind and Life Institute

POSTER A-75

THE STRUCTURE OF HUMAN PROSOCIALITY: DIFFERENTIATING SUB-COMPONENTS OF PROSOCIAL BEHAVIOR FROM SELF-REPORTS, ECONOMIC GAMES, AND COMPUTER TASKS

Anne Böckler, Anita Tusche, & Tania Singer
Max Planck Institute for Human Cognitive and Brain Sciences

Descriptors: prosociality, social preferences, economic games

Though prosocial behavior is crucial for societies to function its reliable scientific assessment in the lab is still a challenge. The present study integrated paradigms from diverse disciplines in order to identify the overall structure and sub-components of prosociality. To this end, participants (N=187) played anonymous one-shot versions of economic games such as the Dictator Game, the Trust Game, and the 2nd and 3rd Person Punishment Game, engaged in the Zürich Prosocial Game, completed a donation as well as social discounting task and filled in trait questionnaires typically employed to assess prosociality. Results of a factor analyses identified four independent factors: a factor 'Prosocial Motivation' comprises behaviors as diverse as helping, generosity, donations to NGOs, favoring equal distributions, and trust. Factor 2 'Readiness to punish' reflects the inclination to punish violations of distribution norms and choose monetary distributions independent of social distance. Factor 3 'Strategizing' describes the tendency to make decisions dependent on cost-benefit analyses. Finally, factor 4 "Self-Report Measures" is determined by the method of using trait questionnaires and reflects people's personal view on their own prosociality. These findings reveal a more differentiated picture of human prosociality involving meaningful sub-components, one of them being clearly determined by the underlying methods. Such findings may have important implications for research on the determinants of prosociality ranging from genetics to development and plasticity research.

POSTER A-76

TWO TO TANGO: MARITAL SATISFACTION AND DYADIC EMOTION PROCESSES AND REGULATION

Marc S Schulz¹, Robert J Waldinger², & Elaine Lavin¹
¹Bryn Mawr College, ²Harvard Medical School

Descriptors: Couples, Emotional Experience, Emotion Regulation

Emotion is central to interpersonal functioning and well-being. Capturing emotion processes and dyadic influences in couple interactions in reliable and valid ways presents major methodological and analytic challenges. Data from a laboratory-based study of 133 couples were used to capture the dynamic unfolding of emotion processes over the course of couple interactions. Graphical and analytic techniques derived from dynamical systems perspectives were used to examine dyadic patterns of emotional experience (e.g., negative affect reciprocity) that mark distressed couple interactions. Participants completed a marital satisfaction questionnaire and participated in videotaped discussions of upsetting incidents. Cued video recall was used to collect moment-to-moment affective experiences on a dimension from very negative to very positive. Continuous affect ratings were split into 4-second segments for analysis. State-space grid analytical tools (Lamey, Hollestein, Lewis, & Granic, 2004) were applied to graphically represent and analyze unfolding dynamic systems and absorbing states. Results indicate that dyadic-level variables, such as time spent in mutually negative affective states (partial correlation = .21, $p < .05$), explain unique variance in marital satisfaction over and above that accounted for by the cumulative total of negative affect. The length of couples' visits to mutually negative affective space may capture dyadic regulatory dynamics underlying negative affective reciprocity, a known risk factor for marital difficulties.

Funding provided by NIMH, NIA and Bryn Mawr College.

POSTER A-77

EFFECTS OF AWE ON STEREOTYPES ABOUT COMPETENCE

Claire I Yee, & Michelle L Shiota
Arizona State University

Descriptors: awe, stereotyping, positive emotion

Prior research has found that positive mood increases use of cognitive heuristics, including stereotypes. However, theories of awe argue that it promotes accommodative thinking. Thus, awe should tend to reduce one's reliance on heuristics when forming social judgments. Participants were asked to vividly relive an experience evoking awe, enthusiasm, contentment, pride, or neutral affect. They then read profiles of a middle-aged male surgeon and an elderly retired woman. After reading each profile, participants rated the target on a list of bipolar trait items (e.g., warm...cold). Ratings of one target were subtracted from ratings of the other, such that more positive values indicated more stereotype-consistent ratings. Principal components analysis on these difference scores yielded two factors representing competence and warmth; two subscales were formed reflecting mean stereotype consistency on each dimension. The interaction between Stereotype Type and Emotion was significant, $F(4,237) = 2.57, p = .039$. No effects of Emotion on Warmth stereotypes were observed. However, the main effect of Emotion on Competence stereotypes was significant, $F(4,247) = 3.08, p = .017$. Pairwise contrasts indicated that competence ratings for the two targets were significantly less stereotype consistent in the awe condition than in the enthusiasm ($p = .002$) and neutral ($p = .014$) conditions, and directionally lower than pride and contentment as well. Implications for our understanding of the role positive emotions play in the processing of social information are discussed.

John Templeton Foundation

POSTER A-78

THANKFUL IN ALL CIRCUMSTANCES: TRAIT GRATITUDE PREDICTS LESS STRESS DURING A DAILY DIARY VIA SAVORING

Michael Mullarkey, & Anthony H Ahrens
American University

Descriptors: Gratitude, Resilience

Trait gratitude, the ability to experience substantial grateful emotion in response to a variety of situations (McCullough, Emmons, & Tsang, 2002), could influence how people experience stress (Baum, 1990). Indeed, in previous research, initial trait gratitude predicted lower levels of stress retrospectively reported at a subsequent time (Wood, Maltby, Gillett, Linley, & Joseph, 2008). However, retrospective reports can be unreliable (Monroe, 1982). Also, potential mechanisms by which trait gratitude predicts less stress have received little attention. In the current study, participants first completed a measure of trait gratitude and then completed a daily diary for fourteen days. Each day, participants recorded their responses to gratitude-inducing events and how bothered they were by ten separate categories of stressful events. More trait gratitude at time 1 predicted less stress during the diary, even after controlling for time 1 mood. The relationship between trait gratitude and stress on any given day was mediated by how much participants wanted to savor a gratitude-inducing event on that day. An increased tendency to savor gratitude-inducing events may indicate an ability to dwell on aspects of experiences for which one can be thankful. This savoring may help people draw something positive out of difficult situations, reducing overall stress. Future research could examine if grateful people are more resilient by virtue of their ability to find something to be thankful for in a variety of experiences, including negative ones.

POSTER A-79

AUTONOMIC CORRELATES OF SHAME DURING SOCIAL EVALUATIVE STRESS

Steven J Freed¹, Wendy D'Andrea¹, Shuster Victoria¹, Andrea Fortunato¹, & Greg Siegle²

¹The New School for Social Research, ²University of Pittsburgh School of Medicine

Descriptors: Shame, Heart Rate Variability

Shame is one of the "self-conscious emotions" (SCE), theorized to reinforce pro-social behavior and aid in the reparation of social transgressions. Unlike other SCE, shame is associated with social isolation and a range of internalizing psychopathologies, suggesting that shame may be related to poor emotion regulation and an inflexible response style. Consistent with this hypothesis, results from neuroendocrinology suggest that shame is associated with a general threat response, however no studies to date have parsed the relative sympathetic and parasympathetic contributions to this effect. 30 community dwelling adults performed the a challenging speech task while their heart rate and electrodermal activity were monitored. Shame during the task was associated with parasympathetic withdrawal $r(29) = -.48, p < .01$, but not sympathetic activation. These results remained significant after controlling for stress and demographic factors. Parasympathetic withdrawal is consistent with poor emotion regulation and a decreased ability to recognize disconfirmatory social information, providing a potential pathway between shame and internalizing psychopathologies.

Research support was provided by National Institute of Mental Health (NIMH) Grant 1R01MH096334-01

POSTER A-80

SENSE OF BELONGING AMONG INCOMING COLLEGE STUDENTS: IMPLICATIONS FOR NEGATIVE AFFECT, RUMINATION, AND DEPRESSION

Jordan A Booker, & Julie C Dunsmore
Virginia Tech

Descriptors: Belonging, Negative Affect, Depression

Feelings of school belonging and connectivity are important well-being across the lifespan (Goodenow, 1993; Osterman, 2000; Roeser, Midgley, & Urdan, 1996). During major transition periods a sense of belonging to the academic and local community can influence how readily one embraces new settings and adopts new roles. In the college transition, students with lower sense of belonging are prone to academic struggles and are less likely to remain at the same institution through graduation (Scopelliti & Tiberio, 2010; Thurber & Walton, 2012). Responses to belonging and other stressors are also influential in students' adjustment to college. Students who rely heavily on rumination strategies in addressing negative thoughts and experiences are more vulnerable to repeated experiences of broad negative affect (Nolen-Heksema, 2000). With excessive experiences of negative affect, individuals are also at risk for experiences of depressive symptoms (Tellegen, 1985), which can have negative impacts in areas of academic performance, substance abuse, and relationship maintenance (Joiner, Alfano, & Metalsky, 1992; Patcok-Peckham & Morgan-Lopez, 2007; Paul & Brier, 2001). In this study, incoming freshman and transfer students reported on their sense of belonging to college, rumination, negative affect, and depressive symptoms. Transfer students indicated significantly lower sense of belonging than freshmen. For all students, when considered simultaneously, rumination and negative affect positively predicted depression, while sense of belonging negatively predicted depression.

POSTER B-1

DISCORDANT LEVELS OF BDNF AND 5HT ASSOCIATED WITH ENHANCED EMOTIONAL INTELLIGENCE IN MEN

Lauren A Demers, & Nancy S Koven
Bates College

Descriptors: brain-derived neurotrophin factor, serotonin, emotional intelligence

Emotional intelligence (EI), a normally-distributed, multi-faceted construct, encompasses the ability to monitor, identify, and regulate emotions. As low EI is a risk factor for various psychiatric disorders, there is clinical value in understanding the biological contributions of EI. While the neurochemistry of mood disorders, particularly with respect to brain-derived neurotrophic factor (BDNF) and serotonin (5HT), is well studied, the relationship between these neurotransmitters and facets of emotion processing across the full EI continuum is unknown. In this study, we tested for associations between peripheral levels of BDNF and 5HT, as well as behaviorally-relevant BDNF and 5HT interactions, and dimensions of EI in 69 young adults. Neurotransmitter levels, adjusted for creatinine concentration, were determined via enzyme-linked immunosorbent assay of urine samples, and performance-based EI was measured with the Mayer-Salovey-Caruso Emotional Intelligence Test. Results found that BDNF and 5HT levels were uncorrelated and that neither alone predicted EI. However, in men, there were BDNF x 5HT interactions in domains of emotional reasoning, understanding, and management such that superior EI is present in those with discordant combinations of neurotransmitter levels (high 5HT/low BDNF; low 5HT/high BDNF). No interactions were present in women, perhaps due to masking effects of estrous BDNF cycling. Results are discussed in the context of recent evidence of biological epistasis between BDNF and 5HT in the plasticity of neural circuitry underlying emotion processing.

POSTER B-2

EMOTIONAL FUNCTIONING IN TWO KINDS OF FRONTOTEMPORAL DEMENTIA: IMPLICATIONS FOR HEMISPHERIC SPECIALIZATION FOR EMOTION

Alice Verstaen, Sandy J Lwi, Anna Sapozhnikova, & Robert W Levenson
University of California, Berkeley

Descriptors: Emotional functioning, Frontotemporal dementia, Hemispheric specialization

Frontotemporal dementia (FTD) is a neurodegenerative disease that impacts frontal and temporal brain regions and produces changes in language, behavior, and emotion. Two FTD subtypes are: (a) behavioral variant (bvFTD), which affects right frontal and temporal brain regions and presents primarily with social, interpersonal and emotional deficits; and (b) progressive nonfluent aphasia (PNFA), which affects left temporal brain regions and presents primarily with difficulty in speech production. To date, there have been no empirical studies examining emotional functioning in patients with PNFA. We exposed 22 bvFTD patients, 7 PNFA patients, and 16 healthy controls to four emotion-eliciting tasks (film clips that elicit amusement, sadness and disgust, and an acoustic startle task that elicits surprise). Emotional reactivity for each task was measured using physiology, self-report and facial behavior. Examining overall emotional reactivity across the tasks and measures, bvFTD patients showed reduced emotional reactivity compared to controls. In contrast, patients with PNFA did not show significant deficits in emotional reactivity. These findings have implications for theories of hemispheric specialization in emotion, indicating that neural degeneration in the left temporal lobe (i.e. PNFA) is not sufficient to produce emotional deficits in positive or negative emotion reactivity. In contrast, neural degeneration in the right temporal and frontal lobes (i.e., bvFTD) is sufficient to produce emotion deficits in both negative and positive emotion.

National Science Foundation Grant DGE 1106400

POSTER B-3

BEHAVIORAL AND GENETIC CORRELATES OF THE NEURAL RESPONSE TO INFANT CRYING

Jennifer S Mascaro, Patrick D Hackett, Harold Gouzoules, Adriana Lori, & James K Rilling
Emory University

Descriptors: Fathers, Empathy, fMRI

While largely effective in eliciting parental caregiving, infant crying is a known trigger for child abuse. Fathers are more likely to commit abuse in response to cries than are mothers, highlighting the importance of understanding the neural systems supporting optimal paternal responses to cries. To this end, fathers of children aged 1-2 (n = 36) underwent functional magnetic resonance imaging (fMRI) while listening to unknown infant cries. Fathers also provided blood plasma samples for hormone analysis (oxytocin, prolactin, and testosterone) and saliva for genetic analysis, and their partners answered questions about the father's parenting behavior and attitudes. We investigated the relationship between the neural response to cries and hormone levels, variation in the androgen receptor gene (AR), and parental attitudes and behavior. While number of AR CAG trinucleotide repeats was positively correlated with neural activity in brain regions important for empathy (anterior insula and inferior frontal gyrus), restrictive attitudes were inversely correlated with neural activity in these regions and with regions involved with emotion regulation (orbitofrontal cortex). Anterior insula activity had a non-linear relationship with paternal caregiving, such that fathers with intermediate activation were most involved. These results suggest that restrictive attitudes may be associated with decreased empathy and emotion regulation in response to a child in distress, and that moderate anterior insula activity reflects an optimal level of arousal that supports engaged fathering.

Funded by a Templeton Positive Neuroscience award.

POSTER B-4

DEPICTING BRAIN NETWORKS THAT TRACK THE SHARED DYNAMICS OF MUSICAL EMOTIONAL EXPERIENCE: A DATA DRIVEN APPROACH

Neomi Singer¹, Nori Jacobi², Eyal Soreq¹, Gal Raz¹, Lavi Shpigelman³, Donna Abecasis⁴, Eran Pasternak⁴, Ricardo Tarrasch⁵, Roni Y Granot⁶, & Talma Hendler¹
¹Tel Aviv University & Tel Aviv Sourasky Medical Center, ²The Hebrew University of Jerusalem & Bar Ilan University, ³IBM Israel, ⁴Tel Aviv Sourasky Medical Center, ⁵Tel Aviv University, ⁶The Hebrew University of Jerusalem

Descriptors: Emotion, Music, Temporal Dynamics

Music is a universal emotion provoking stimulus and has been shown to induce feelings in a wide range of listeners. Yet, little is known about the common neural systems that are shared across various listeners as they experience music-induced emotions. We addressed this issue in this fMRI study, in which 39 participants listened to two 8 minutes long musical pieces and then rated their emotional experience on a 2D scale of valence and arousal. To inquire the common nature of the musical experience, we indexed a measure of continuous group brain activation in 10 data driven networks and related this index to the ongoing behavioral and musical aspects of the listening experience. Using this approach we discovered that three neural networks - limbic, vigilance and default - finely track the ongoing emotional experience in response to both musical pieces, even though their emotional tone was rather opposite (i.e., positive/negative). Interestingly, this "brain-emotion" relation was specifically related to changes in pleasantness during moments of high arousal. This finding points to the important role of arousal threshold in affective processing. Altogether, our findings provide compelling evidence for a continuous common affective processing of music in designated neural networks, encompassing limbic, brain-stem mid-brain and medial prefrontal structures. This study hence highlights the presence of abstract emotional processing, rooted in affect- and self-related neural networks that may synchronize to some extent across individuals as they experience the same music.

Israeli Council for Higher Education, converging technologies Scholarship Levie-Edersheim-Gitter Institute for Functional Brain Mapping Scholarship

POSTER B-5

ANTICIPATION OF REWARDING OUTCOMES MODULATES FMRI ACTIVITY IN THE AMYGDALA AND VENTRAL TEMPORAL LOBE OF MACAQUE MONKEYS

Peter M Kaskan, Julie A Zemskova, Vincent D Costa, Andrew R Mitz, David A Leopold, Leslie G Ungerleider, & Elizabeth A Murray
NIMH / NIH

Descriptors: Reward, Amygdala, Anticipation

The amygdala is part of a circuit critical for learning about biologically significant stimuli. In an effort to bridge a gap between rodent and human models of affective processing, we developed an fMRI paradigm to reveal BOLD responses to visual images that signal reward. Monkeys learned associations between images and reward in choice and viewing trials. Half of the images predicted a high probability of water reward; half predicted a low probability. To measure reward expectation we compared fMRI responses from viewing-only trials of images that had been paired with high probability of reward to those that had been paired with low probability. Monkeys chose high probability images following two days of training on about 90 percent of choice trials. We found significantly greater BOLD responses to the high probability images relative to low probability images in the amygdala. Other regions responsive to reward expectation included inferior temporal cortex, the head and tail of the caudate nucleus, putamen, substantia nigra / ventral tegmental area, anterior insula, PFO area 11, PFV area 12, and medial prefrontal area 32. Areas responsive to receipt of reward included the nucleus accumbens and ventral pallidum, the anterior insula, and PFO areas 13 and 14. These results corroborate fMRI findings in human studies and establish our ability to record event-related BOLD responses in cortical and subcortical structures in behaving monkeys. More importantly, the data provide the foundation for identification of key region(s) responsible for signaling positive emotional events.

This research was supported by the Intramural Research Program, NIH.

POSTER B-6

INDEPENDENT EFFECTS OF NOVELTY AND VALENCE ON THE AMYGDALA BOLD RESPONSE

Walker S Pedersen, Nicholas L Balderston, Tara A Miskovich, Emily L Belleau, Doug H Schultz, Fred J Helmstetter, & Christine L Larson
University of Wisconsin - Milwaukee

Descriptors: Human Amygdala, Novelty Detection

Novelty detection may serve a critical role in memory encoding and vigilance toward novel stimuli (Tulving et al., 1996). Balderston et al. (2011) found independent effects for the valence and novelty of visual stimuli on the amygdala BOLD response. In a separate study, Balderston et al. (2011) found a larger amygdala response for novel vs. repeated human images, but not for novel vs. repeated scenes. To extend these findings, 93 subjects were shown images that varied along three factors: novelty (novel vs. repeated), valence (negative vs. neutral) and content (human images vs. scenes). These factors were explored with an ANOVA on BOLD data extracted from anatomical amygdala ROIs. Consistent with Balderston et al. (2011), we found a main effect for novelty ($p < .001$) and valence ($p = .007$), but no novelty by valence interaction ($p = .61$). We also found a main effect for content, with human images eliciting more amygdala activation than scenes ($p = .006$). However, while Balderston et al. (2011) found a novelty effect for humans, but not scenes, we found a greater effect of novelty for scenes than for humans ($p = .049$). This discrepancy may be due to different types of scenes being used in the current study. Additionally, we found no interaction between valence and content ($p = .401$), suggesting that the amygdala response to emotional stimuli is not limited to a specific image type. These findings provide further evidence that the amygdala may play a role in novelty detection and supports past findings that the effects of novelty and valence on amygdala activation are independent.

Funded by an NIH K01 awarded to Dr. Christine Larson (MH086809)

POSTER B-7

INCREASED MID ANTERIOR CINGULATE LOCAL GYRIFICATION IN PSYCHOPATHS

Jessica L Hanson¹, Tara A Miskovich¹, Joseph P Newman², Arielle R Baskin-Sommers², Michael R Koenigs², Daniel M Stout¹, Nicholas L Balderson¹, Kent A Kiehl³, & Christine L Larson¹

¹University of Wisconsin- Milwaukee, ²University of Wisconsin- Madison, ³University of New Mexico

Descriptors: Psychopathy, Local Gyrification Index

Psychopathy is a personality disorder characterized by poor behavioral control, lack of empathy or remorse, and anti-social behavior. This disorder is associated with a number of functional and structural brain abnormalities (Yang & Raine, 2009). To our knowledge no one has explored cortical complexity, a putative indicator of early neurodevelopmental abnormalities. To assess cortical complexity we used the local gyrification index (LGI), a measure that has been used to assess abnormal gyrification patterns in neurodevelopmental and psychiatric disorders (Schaer et al. 2008). Structural MRI scans were collected for 55 male inmates, 23 psychopaths and 32 controls defined based on the Psychopathy Checklist-revised (Hare, 1991). We found that compared to nonpsychopaths, psychopaths had greater local gyrification in the mid-anterior cingulate cortex (mACC) ($p = 0.005$, controlling for age), a region that has previously been associated with cortical thinning in psychopaths (Ly et al., 2012). Further analysis showed that the observed increase in mACC LGI was significantly associated with decreased cortical thickness in this area ($p = 0.006$). As the mACC has been shown to be involved in flexible control over goal-oriented behavior, these results are consistent with psychopathy-related deficits in these processes, and suggest that neurodevelopmental structural abnormalities should be considered as a possible mechanism underlying this dysfunction.

POSTER B-8

THE REGULATORY IMPACT OF HANDHOLDING ON THREAT RELATED HYPOTHALAMIC ACTIVITY VARIES BY RELATIONSHIP STATUS

Casey L Brown¹, Lane Beckes², Allen P Joseph³, & Coan A James³

¹University of California, Berkeley, ²Bradley University, ³University of Virginia

Descriptors: social support, relationships, stress buffering

Associations between mortality risk and relationship status suggest social relationships may buffer against the deleterious effects of stress. But little is known about the differential stress buffering effects of different types of relationships. We investigated the interaction of relationship status and social support within the hypothalamus during a task that blends a mild threat with supportive handholding. Using functional magnetic resonance imaging (fMRI), 110 participants were scanned during a threat of shock paradigm involving various levels of social support (cf. Coan et al., 2006), including handholding by a familiar partner, handholding by a stranger, and no handholding at all. Participants and their familiar partner were either friends, dating, cohabiting, or married. During supportive handholding, hypothalamic activity was lower than during the alone condition in all couples except for those cohabiting, and hypothalamic activity was higher during supportive handholding among cohabiting couples relative to married couples and friends. These results highlight a difference in the degree of threat reduction experienced by individuals of different relationship statuses when holding hands with their partners. Findings suggest that on average cohabiting individuals may not buffer activation of the hypothalamus during stress as strongly as married partners or friends. This may be due to the perceived reliability among relational partners.

POSTER B-9

WHY SOCIAL PAIN LIVES ON: DIFFERENTIAL PREFRONTAL MECHANISMS ASSOCIATED WITH RELIVING SOCIAL VERSUS PHYSICAL PAIN

Meghan L Meyer¹, Kipling D Williams², & Naomi I Eisenberger¹
¹UCLA, ²Purdue University

Descriptors: social pain, social memory

Although social and physical pain recruit overlapping neural activity in regions associated with the affective component of pain, the two pains can diverge in their phenomenology. Most notably, feelings of social pain can be relived, even when the painful episode has long passed, whereas feelings of physical pain are difficult to relive once the painful episode subsides. Here, we observed that the facility for reliving social pain, relative to physical pain, reflects the recruitment of different neurocognitive pathways to elicit the pain. Social pain reliving recruited a mental state processing mechanism (dorsomedial prefrontal cortex), which functionally correlated with affective pain system responses. In contrast, physical pain reliving recruited a body state processing mechanism (inferior frontal gyrus), which functionally correlated with activation in the sensory pain system. These results update the theory of social-physical pain overlap: while overlapping mechanisms support live social and physical pain, distinct mechanisms guide internally-generated pain.

UCLA

POSTER B-10

MULTIVARIATE META-ANALYSIS: SEARCH FOR CONSISTENT MIND-BRAIN CORRESPONDENCE ACROSS THE NEUROIMAGING LITERATURE

Shir Atzil¹, Anjali Krishnan², Ajay B Satpute¹, Derek Beaton³, Luka Ruzic², Hervé Abdi³, Tor D Wager², & Lisa F Barrett¹
¹Northeastern University, ²University of Colorado at Boulder, ³The University of Texas at Dallas

Descriptors: Neuroimaging, Meta-Analysis

For decades, psychologists have explored how the brain creates the mind using neuroimaging methods. Faculty psychology approach views the mind as divided into modular mental categories and brain regions as exclusively attached to unique functions. In contrast, the neural context approach understands mental features as arising from combinations of neural networks. We sought to investigate these two approaches to mind-brain correspondence across the neuroimaging literature. We meta-analyzed neuroimaging data across the psychology literature in search of consistent and meaningful neural patterns to characterize functional domains. We collected 2661 contrast maps from individual experiments across 25 databases of published meta-analyses studying 12 different domains in psychology. We then compiled one multi-domain database and performed Multi-Kernel Density Meta-analyses for the different domains to produce observed domain maps. Then, we used Barycentric Hellinger Discriminant Analysis to examine the similarities and differences across contrasts within observed domain maps. We obtained 6 components that map the domains within one psychological reference space. These components do not respect the modularity of original domains, supporting the neural context approach and pointing to a non localized functional organization in the brain. We show how a multivariate analytic approach provides a new space to explore the relationship between neural activations and relevant psychological features.

This work is funded by the ARI contract W5J9CQ-11-C-0046

POSTER B-11

AMYGDALA TASK-EVOKED ACTIVITY AND TASK-FREE CONNECTIVITY INDEPENDENTLY CONTRIBUTE TO FEELINGS OF AROUSAL

Alexandra Touroutoglou¹, Kevin Bickart², Bradford C Dickerson¹, & Lisa Feldman Barrett¹

¹Harvard Medical School, ²Boston University

Descriptors: resting state connectivity, amygdala, feelings of arousal

Individual differences in the intensity of feelings of arousal while viewing emotional pictures have been associated with the magnitude of task-evoked blood-oxygen dependent (BOLD) response in the amygdala. Recently, we reported that individual differences in arousal are associated with task-free (resting state) connectivity within the salience network. There has not yet been an investigation of whether these two types of functional magnetic resonance imaging (MRI) measures are redundant or independent in their relationships to affective behavioral responses. Here we tested the hypothesis that a combination of task-evoked amygdala activation and task-free amygdala connectivity within the salience network relate to individual differences in feelings of arousal while viewing of negatively potent images. In 25 young adults, results revealed that greater task-evoked amygdala activation and stronger task-free amygdala connectivity within the salience network each contributed independently to feelings of arousal, predicting a total of 45 % of its variance. Individuals who had both increased task-evoked amygdala activation and stronger task-free amygdala connectivity within the salience network had the most heightened levels of arousal. Task-evoked amygdala activation and task-free amygdala connectivity within the salience network were not related to each other, suggesting that resting-state and task-evoked dynamic brain imaging measures may provide independent and complementary information about affective experience, and likely other kinds of behaviors as well.

POSTER B-12

WHAT ROLE DOES LANGUAGE PLAY IN EMOTION? NEW INSIGHTS FROM A NEUROIMAGING STUDY.

Dalal Alhomaizi, Ajay B Satpute, Christy Wilson-Mendenhall, Ian Kleckner, Erika Siegel, Eric Anderson, & Lisa Feldman-Barrett
Northeastern University

Descriptors: Interesting

Background: What is an emotion? Some have suggested that emotions like feeling "awe" or "excitement" are innate 'basic' neural modules. An alternative perspective suggests that different emotions are learned over time, often by using language to pull together loose patterns of physiology, behavior, and contexts into a concept. This view suggests that emotion words are a constitutive component for an emotion. Methods: We tested whether emotion words play a constitutive role by priming participants (n=30) with emotion words ("amused", "awe" or "excited") prior to images that tended to evoke different positive emotions. The word-image pairings were manipulated to either more coherent conditions (providing increased conceptual coherence) or less coherent conditions (requiring greater conceptual demand). Results: Increasing conceptual demands also lead to greater activation in regions associated with concept retrieval and also with regulation of body representations, including the right anterior insula and right lateral prefrontal cortex. Conclusion: The behavioral and neuroimaging findings suggest that emotion concepts may indeed shape affective responses. These results support models of neuroscience and emotion that characterize emotions as mental states that emerge from interactions between regions regulating the body and those involved in language and semantics.

POSTER B-13

RESTING STATE NETWORKS DISTINGUISH HUMAN VENTRAL TEGMENTAL AREA FROM SUBSTANTIA NIGRA

Vishnu P Murty¹, Maheen Shermohammed², David V Smith³, R Mckell V Carter², Scott A Huettel², & R Alison Adcock²

¹New York University, ²Duke University, ³Rutgers

Descriptors: Dopamine, Resting State, Network Connectivity

Dopamine modulates neural processing across a spectrum of function from perception to action to learning. Multiple organizational schemes based on rodent functional anatomy propose a functional boundary between the ventral tegmental area (VTA) and substantia nigra (SN). However, because this traditional subdivision is based on anatomy and function in rodent midbrain, which differs from primate midbrain in important ways, its utility for humans has been questioned. We asked whether functional networks identified within the human dopaminergic midbrain recapitulate this traditional anatomical topology. First, hand-drawn VTA and SN regions-of-interest (ROIs) were constructed for 50 participants, using individually-localized anatomical landmarks. This individual segmentation was used in seed-based functional connectivity analysis of resting-state functional MRI data. In a separate analysis, we constructed a probabilistic atlas comprising of the VTA and SN from individual hand-drawn ROIs. The probabilistic atlas was then used for connectivity-based dual-regression segmentation in two independent, resting-state datasets (n=69 and n=79). Across both studies, results recapitulated the traditional anatomical connectivity of the VTA versus SN. Specifically, the SN was more strongly connected with sensory/motor cortices, whereas, the VTA was more strongly connected with ventral striatum and ventromedial prefrontal cortex. This study accelerates the integration of rodent models of brain function with human neuroscience to inform patient diagnosis and treatment.

POSTER B-14

PROCESSING OF MONETARY GAINS AND LOSSES WITH TROOPS DEPLOYED TO WARS IN IRAQ AND AFGHANISTAN

Craig A Marquardt¹, Lindsay D Nelson², Edward M Bernat³, & Scott R Sponheim⁴

¹University of Minnesota-Twin Cities, ²Medical College of Wisconsin, ³University of Maryland-College Park, ⁴Minneapolis VA Medical Center

Descriptors: ERP, risk processing, veterans

Accurate assessment of risk is crucial for effective navigation of dangers and rewards in the world. Humans are sensitive to performance feedback as indicated by increased risk taking after receiving information of loss due to one's choices (Gehring & Willoughby, 2002). Curiously, event-related potential (ERP) measures during loss-gain feedback reveal frontal negativity to absolute loss compared to absolute gain regardless of the relative utility of the decision (e.g., selection of the lesser of two losses). Additionally, the application of time-frequency data processing has revealed additional feedback-related ERP differences in the delta band (below 3Hz) as expressed in the P300 component (Bernat et al., 2011). The present study investigated neural responses and relationships to psychopathology using gain-loss feedback in a cross-sectional sample of veterans recently deployed to wars in Iraq and Afghanistan. Using a monetary reward gambling task (Gehring & Willoughby, 2002), we observed increased risk-taking behavior following loss compared to gain. Furthermore, feedback-related negativity was greater for loss versus gain trials and later time-frequency delta P300 feedback-related activity was greater for gain versus loss. Although analyses suggest that gain-loss effects are independent of deployment-related psychopathology, additional analyses will further evaluate these factors as well as mediating effects of mild traumatic brain injury (mTBI).

This research was funded by the Congressionally Directed Medical Research Program and the Department of Defense, Grant #PT074550. Also, this research was supported by the National Institutes of Health under Ruth L. Kirschstein National Research Service Award 5T32HD007151 from the NICHD.

POSTER B-15

SOCIAL TOUCH REINFORCES INTERPERSONAL BONDS VIA ENDOGENOUS MU-OPIOID SYSTEM IN HUMANS: A PET STUDY

Lauri Nummenmaa¹, Lauri Tuominen², Jussi Hirvonen², Mikko Sams¹, Iiro Jääskeläinen¹, Anna Machin³, Riitta Hari¹, & Robin Dunbar³

¹Aalto University, ²Turku PET Centre, ³Oxford University

Descriptors: opioid system, social bonding, reward

Background: Human social bonds endure despite infrequent contact and physical distance between individuals. Maintenance of close bonds thus requires a long-lasting mechanism that is decoupled from direct sensory stimulation. It has been proposed that the endogenous opioid system constitutes the neurochemical pathway supporting long-term relationships yet this hypothesis lacks direct neurophysiological support in humans. Methods: We tested this hypothesis directly using in vivo positron emission tomography (PET) with mu-opioid receptor specific ligand [11C]carfentanil. Twelve participants underwent two 51-min PET scans. During the social touch scan, the participants lay in the scanner wearing underwear while their female partner touched them gently all over the body with their hands. In the baseline scan, participants lay alone in the scanner in the absence of sensory stimulation. Receptor binding was assessed as the binding potential (BPND) using the occipital cortex as the reference region. Results and discussion: The [11C]carfentanil BPNDs were significantly higher ($p < 0.05$ FDR corrected) during the social touch versus baseline condition in ventral striatum and anterior cingulate cortex, the key regions of the brain's reward circuit. These data highlight that social touch—the most intimate way of human communication—modulates activity of the brain's opioid system. We propose that social modulation of the mu-opioid system during pleasurable social interactions may be the critical neurochemical mechanism reinforcing and maintaining social bonds between humans.

Academy of Finland MIND program (#265917) ERC Starting Grant (#313000)

POSTER B-16

AFFECTIVE PROCESSING REQUIRES VISUAL AWARENESS

Mikko Lähteenmäki¹, Jukka Hyönä², Mika Koivisto², & Lauri Nummenmaa¹

¹Aalto University School of Science, ²Turku University

Descriptors: Visual awareness, Nonconscious processing

Background: Studies using backward masked emotional stimuli suggest that affective processing may occur outside visual awareness. However, no prior study has carefully controlled for the participants awareness of the stimuli, thus it is possible that the observed emotional processing occurred under partial stimulus awareness. Furthermore, no prior study has directly compared affective and semantic processing, thus it remains unknown whether affective processing is in this respect any different from other types of visual information processing. Methods: To test these hypotheses we conducted four experiments with a total of 160 participants in which we contrasted affective and semantic categorization of biologically relevant stimuli using direct (semantic and affective discrimination; Exps 1-2) and indirect (semantic and affective priming; Exps 2-4) measures. Same stimuli were used in semantic and affective tasks. Visual awareness was manipulated by varying exposure duration of the masked stimuli. Subjective level of stimulus awareness was measured after each trial using a four-point scale. Results and discussion: When participants reported no awareness of the stimuli, semantic and affective categorization were at chance level and priming scores did not differ from zero. When participants were aware of the stimuli, semantic categorization was faster and more accurate than affective categorization, and semantic and affective priming effects were of equal magnitude. We conclude that affective categorization is dependent on visual awareness and it follows semantic categorization.

This research was supported by the aivoAALTO project of the Aalto University, Academy of Finland (grants #251125 and 265917 to LN), and ERC Starting Grant #313000 to LN.

POSTER B-17

HOW ANXIETY AND SENTENCE CONTEXT AFFECT THE PROCESSING OF INSULTS AND COMPLIMENTS: INSIGHTS FROM THE EMOTIONAL STROOP PARADIGM

Hannah De Mulder, Marijn Struiksmas, & Jos van Berkum
UiL OTS - Utrecht University

Descriptors: emotion language processing, emotional stroop effect, anxiety

The emotional Stroop effect (slower colour-naming of negative than non-negative words in coloured font) is particularly pronounced in anxious individuals and suggests that the emotional content of words interferes with the allocation of attentional resources. The current study considers whether complimenting and insulting words are processed differently when they are placed in a sentence context that either directly addressed the participant (self-directed context) or targeted somebody else (e.g. [participant's name]/Jane is nasty/nice'). The results showed that colour-naming response times for insults were longer than for compliments, thereby demonstrating that a typical emotional Stroop effect can be obtained in the context of a sentence (regardless of participants' anxiety level). Furthermore, highly anxious individuals were found to respond more slowly when the sentences were self-directed, whereas this factor did not affect low anxious individuals' response times. These findings thus show that insults draw attentional resources away from goal-directed processing and that, at least for highly anxious individuals, the context in which a word is presented (self vs. other directed) influences the extent to which attentional resources are diverted away from the task. In risky situations (i.e., self-directed context), processing of word meaning is thus given priority over colour naming, suggesting that the emotional Stroop effect does not just represent an automatic response to the negative valence of a single word, but that context-sensitive computations also come to play.

Funding provided by the Netherlands Organisation for Scientific Research (NWO)

POSTER B-18

REDUCED EFFECTIVENESS OF REWARD IN ENHANCING VISUAL SEARCH EFFICIENCY IN REMITTED MAJOR DEPRESSIVE DISORDER AND LOW REWARD SENSITIVITY

Lauren E Taubitz, & Christine L Larson
University of Wisconsin - Milwaukee

Descriptors: Major Depressive Disorder, Reward, Attention

Individuals with Major Depressive Disorder (MDD) exhibit deficits in reward learning, particularly in the presence of anhedonic symptoms (Lempert & Pizzgalli, 2010; Liu et al., 2011). Also, low positive affect appears to be a trait-like rather than state-like phenomenon of MDD (Werner-Seidler & Moulds, 2012). Recently, researchers have shown that visual selective attention can be enhanced via reward (Della Libera et al., 2011); however, no one has evaluated the effect of individual differences in reward sensitivity (RS) or lifetime MDD on this process. The purpose of this study was to evaluate if individual differences in RS moderate the effect of reward on visual search performance, and to determine if individuals with remitted MDD are as able to use reward to improve search efficiency as controls. 109 individuals responded to questionnaires and completed two versions of a visual search task: a standard search task and one in which subjects could earn money based on their performance. 68 of these subjects also completed a structured clinical interview and qualified as either a Control or Remitted MDD subject. Multiple regression indicated that decreased RS significantly predicted less efficient search in the presence of a monetary reward ($p = 0.009$). A MANCOVA indicated that individuals with Remitted MDD exhibited the same findings ($p=0.02$) even when current symptoms of depression were accounted for. These results indicate that reward can be used to enhance visual search, but it depends on how sensitive one is to reward and whether one has a history of MDD.

POSTER B-19

DISTRESS EXPERIENCE IN CULTURAL CONTEXTS: EXAMINATION OF KOREANS AND EUROPEAN AMERICANS

Eunsoo Choi, & Yulia Chentsova-Dutton
Georgetown University

Descriptors: culture, somatization

Previous research has documented that East Asians tend to somatize negative emotional experiences to a greater degree than Westerners. Somatization among depressed Chinese has been well documented. Similarly, hwa-byung, a culture-bound syndrome in Korea, also involves somatic symptoms as the primary complaints. Previous studies have posited that somatization may reflect a communication strategy through which one aims to be effective in talking about distress to others. The present study examined European Americans ($n=121$) and Koreans ($n=107$) with regard to their descriptions about distressing experiences. Participants were asked to write about distressing experiences that had happened recently to an imagined target. They then reported their perceived efficacy in communicating with the target and the extent to which they believed the target empathized with their feelings (i.e., disclosure satisfaction). Participants' descriptions were analyzed through LIWC. Overall, European Americans were more satisfied with their descriptions regarding an imagined target as compared to Koreans. We observed that Koreans used more somatic words (e.g., "tired") than did European Americans. Whereas the use of somatic words was not associated with disclosure satisfaction for European Americans, it predicted higher satisfaction for Koreans. The present study provides one of the first empirical findings that somatization in the context of negative emotions may be functional for certain cultural groups. These findings have implications for both cross-cultural and emotion research.

POSTER B-20

BEHAVIOR PROBLEMS ARE MORE SEVERE AMONG CHILDREN WITH CO-MORBID SENSORY OVER-RESPONSIVITY.

Carol A Van Hulle¹, Kathryn Lemery-Chalfant², & H Hill Goldsmith¹
¹University of Wisconsin-Madison, ²Arizona State University

Descriptors: Child development, Sensory Processing Disorder, Behavior Problems

Children who find typical sensory experiences (loud vacuum cleaners or goopy textures) extremely aversive may be characterized as showing sensory over-responsivity (SOR). Children with SOR are more likely than peers to exhibit anxiety or ADHD. It is unclear whether SOR contributes independently to behavior problems or simply exacerbates existing behavior problems. We studied 478 twin pairs from a population-based sample. Mothers reported on children's behavior problems at age 2-3 years and again at age 6-7 years. We derived tactile and auditory SOR scores from the Toddler Behavioral Assessment at age 2 and from the Sensory Over-responsivity Inventory at age 6. We tested two main hypotheses: that SOR symptoms predict later behavior independent of earlier behavior, and that SOR symptoms exacerbate the effect of earlier behavior problems. We used interchangeable dyad SEM to account for clustering within families. Analyses controlled for gender, age, and family SES. Compared to low-symptom children, being at-risk for SOR in middle childhood, but not earlier, predicted internalizing problems. Both tactile and auditory SOR symptoms at age 6 significantly predicted later internalizing problems independent of earlier internalizing problems. In contrast to our hypothesis, SOR was more highly predictive of internalizing symptoms in middle childhood among children who did not have a history of internalizing symptoms. Likewise, tactile and auditory scores at age 6 predicted externalizing problems over and above earlier externalizing scores regardless of earlier behavior.

This work was supported by research grants from the National Institute of Mental Health (R01 MH59785 to Goldsmith), the Wisconsin Center for Affective Sciences (P50 MH069315), and the Wallace Research Foundation. Infrastructure support was provided by the Waisman Center via a core grant from NICHD (P30 HD03352).

POSTER B-21

PUBERTAL TIMING IN ADOLESCENCE PREDICTS CHANGES IN EMOTIONAL CLARITY: STRESS AS A MEDIATOR

Liza M Rubenstein¹, Jessica L Hamilton¹, Jonathan P Stange¹, Lyn Y Abramson², & Lauren B Alloy¹

¹Temple University, ²University of Wisconsin- Madison

Descriptors: Emotional Clarity, Adolescence

Emotional clarity (EC), or the understanding and awareness of one's own emotions and the ability to label them appropriately, increases across adolescence. However, individuals who experience decreases in EC may be at heightened risk for depression. Along with EC, early pubertal timing (PT) is a risk factor associated with psychopathology in adolescence. However, no studies have examined the relationship between these two constructs, in order to determine if early PT makes adolescents more vulnerable to experiencing less EC over time, especially in the context of stress. Thus, the present study examined PT as a predictor of changes in EC and tested whether stressful life events impact this relationship. Specifically, does dependent, interpersonal stress mediate the relationship between PT and changes in EC over time? Participants included 222 racially diverse adolescents (Mean age=12.39) from the Philadelphia area. At baseline (Time 1), participants completed measures of EC and pubertal development. Approximately one year later (Time 2), participants completed the same measure of EC, along with an inventory of negative life events and a life events interview. Controlling for initial EC, dependent, interpersonal stress at Time 2 significantly mediated the relationship between PT at Time 1 and EC at Time 2 (Beta = -.03, SE = .02, 95% CI [-.09, -.002], $p < .05$). These findings suggest that young adolescents who mature earlier than their peers may experience higher levels of life stress, which in turn may lessen the ability to understand and label one's emotions.

POSTER B-22

DEVELOPMENTAL DIFFERENCES IN FUNCTION AND STRUCTURE OF RSMG AND REDUCED FUNCTIONAL CONNECTIVITY WITH DLPFC EXPLAIN INCREASED AFFECTIVE EGOCENTRICITY BIAS IN CHILDHOOD

Nikolaus Steinbeis, Boris Bernhardt, & Tania Singer

Max-Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

Descriptors: Child Development, Affective Egocentricity, fMRI, MRI, rs-fMRI

Humans often judge the states of other people egocentrically, assuming others will feel or think similar to them. Such an emotional egocentricity bias (EEB) occurs in situations when others feel differently to oneself. We studied the neurocognitive mechanisms underlying the developmental capacity to overcome such EEB in children compared to adults using a novel paradigm. We show that children showed a stronger EEB than adults. This was not due to any differences in lower level abilities such as fluid intelligence or reorienting attention. Importantly, we show no correlation between the EEB and false-belief attribution, suggesting that affective egocentricity can be differentiated in development from other types of cognitive egocentricity. Instead, the functional imaging data suggest that the children's enhanced EEB results from reduced activation in right supramarginal gyrus (rSMG) as well as reduced functional connectivity between rSMG and left dorsolateral prefrontal cortex (IDLDFC). Further, functional recruitment of rSMG was associated with age-related differences in cortical thickness of this region. Finally, resting state analyses comparing connectivity patterns of rSMG with rTPJ, suggested a unique role of rSMG for self other distinction in the emotional domain. Thus, observed difficulties of children to overcome EEB may be due to the late maturation of brain regions that distinguish between conflicting socio-affective information and then to fully relay this information to regions necessary for implementing accurate judgments.

POSTER B-23

MOTHERS' INTEROCEPTIVE KNOWLEDGE CONTRIBUTES TO THEIR EMOTION UNDERSTANDING AND SOCIALIZATION OF CHILDREN'S SOCIOEMOTIONAL SKILLS

Jennifer K MacCormack¹, Megan L Rogers², & Amy G Halberstadt²

¹University of North Carolina, Chapel Hill, ²North Carolina State University

Descriptors: interoception, emotion understanding, socioemotional development

Parental emotion understanding facilitates children's socioemotional development (Halberstadt et al., 2001). Little studied, however, is the role of interoceptive knowledge in emotion socialization. Interoception, the sense of one's bodily state, is an important dimension of emotion experience (Barrett et al., 2004; Craig, 2003). Mothers' knowledge of their own embodied cues may increase their emotion understanding (measured as complexity and differentiation), enabling them to better foster children's socioemotional skills. To test this, 165 mothers of third-grade children listened to three emotion-eliciting vignettes and reported which emotions they would feel and how they would know they were feeling those emotions. Mothers' responses were coded for interoceptive knowledge, emotional complexity, and emotion differentiation (Halberstadt, MacCormack, & Sibley, 2012). Three months later, teachers rated the children's socioemotional skills. Analyses revealed that mothers' interoceptive knowledge predicted their emotional complexity (beta = .48, $p < .001$), and ability to differentiate between emotions (beta = .38, $p < .001$). Furthermore, mothers' interoceptive knowledge predicted their children's emotion regulation (beta = .25, $p = .001$), social skills (beta = .22, $p = .007$), and problem behaviors (beta = -.22; $p = .005$). These findings suggest that greater interoceptive knowledge contributes to emotion understanding and affords certain advantages to mothers when engaging in emotion socialization behaviors with their children.

POSTER B-25

INDIVIDUAL DIFFERENCES IN EMOTIONAL REACTIVITY

Maggie Stoeckel, Carol Weissbrod, Leah Rothschild, Annie Sykes, Nikia Scott, & Kat Allen

American University

Descriptors: Emotional Reactivity, Physiological Reactivity, Interpersonal Reactivity

Existing literature demonstrates that emotions can be contagious and that certain individuals are more likely than others to "catch" the emotions of others. The purpose of the current study was to examine emotional reactivity by comparing self-reported emotional reactivity to physiological measures of reactivity. Eighty-five undergraduates completed four self-report measures related to emotional reactivity. Participants also viewed a series of nine film clips meant to elicit a range of target emotions. While watching the clips, pulse rate was measured using a pulse oximeter. Consistent with previous findings, results reveal that physiological reactivity was not significantly associated with self-report measures of reactivity. However, individuals higher in self-reported interpersonal reactivity tended to self-report higher arousal in response to emotion-eliciting films. Self-reported interpersonal reactivity was also associated with greater empathy and emotional contagion. Additional analyses were conducted to examine gender differences. Overall, the current study provides information about the ways in which people react to the emotions of others. These findings raise questions about the ability of individuals to accurately identify and label their own emotional responses.

POSTER B-26

A NEW LOOK AT EMOTION PERCEPTION: EVIDENCE FOR THE INFLUENCE OF EMOTION CONCEPTS

Erik C Nook¹, Kristen A Lindquist², & Jamil Zaki¹

¹Stanford University, ²University of North Carolina at Chapel Hill

Descriptors: emotion concepts, emotion perception, alexithymia

We use others' facial expressions to infer how they feel, but scientists have not reached a consensus as to how this process occurs. We report data from two studies testing whether people apply emotion concepts to parse inherently ambiguous facial expressions into categories. Across two studies, participants (N=212) completed a repetition-priming paradigm in which they viewed a face followed by either a second face or an emotion word, and indicated whether or not the two stimuli reflected the same emotion. Participants responded faster when the second stimulus matched the emotion of the first stimulus, regardless of whether it was a face or a word. Signal detection analyses revealed that participants more accurately reported whether stimuli pairs matched when comparing faces with words, rather than comparing faces with other faces, suggesting that perceiving emotions by directly comparing them to linguistic concepts improves the sensitivity of emotion perception. Finally, people with alexithymia had lower sensitivity scores when comparing faces with other faces, but not emotion words, suggesting that linguistic cues may circumvent emotion perception impairments in alexithymia. Study 2 replicated and extended these findings, using a morphed slider task to demonstrate that the nature of the second stimulus actually shifted participants' representation of the first stimulus. Together, these results provide converging support for the role of top-down conceptual processes in emotion perception.

POSTER B-27

LANGUAGE SUPPORTS PERCEPTUAL SYMBOLS FOR EMOTION

Cameron M Doyle, & Kristen A Lindquist
University of North Carolina at Chapel Hill

Descriptors: Emotion Perception, Language

The present study demonstrates that language supports the acquisition of temporary perceptual categories for emotion. During a learning phase, participants in an experimental condition associated posed facial actions with an emotion word (e.g., a scowling mouth and furrowed eyebrows were paired with the word "anger"). Participants in a control group made perceptual judgments of the faces in the absence of emotion word labels. In the target phase, both groups studied target individuals (e.g., Matt) who were depicting slightly different emotional facial actions than had been seen in the learning phase (e.g., an open mouth and slightly raised eyebrows). During the final test phase, participants were asked to identify which face appeared during the target phase (i.e., the learned face, the target face or a morphed combination of the two). Participants in the experimental condition were more likely to choose the face that had been linked with an emotion word during the learning phase than the face actually perceived in the target phase. Together, these findings suggest that emotion words help perceivers create perceptual categories based on prior experience that in turn affect the perception of subsequently viewed faces.

POSTER B-28

KNOWLEDGE INFLUENCES THE HEDONIC EXPERIENCE OF MEAT CONSUMPTION

Eric C Anderson, & Lisa F Barrett
Northeastern University

Descriptors: Food perception, Hedonic Experience

Previous research has demonstrated that knowledge can influence perception. In this study, we explored whether knowledge about how meat was produced would influence participants' hedonic eating experience. Participants read descriptions of how meat was farmed, tasted meat samples, and then rated the pleasantness of the samples' taste. One sample was paired with a description of meat raised on a factory farm, and the other was paired with a description of meat raised on a humane farm. Participants rated samples paired with factory farm descriptions as significantly less pleasant tasting compared to samples raised on humane farms (even though they were actually the same product). These findings suggest that knowledge about the origins of food shapes how it is experienced.

POSTER B-29

WORKING MEMORY CAPACITY PROMOTES OPTIMAL EMOTION PERCEPTION

Spencer K Lynn¹, Eric Bui², Sophie Palitz², Aparna Keshaviah², Laura Fischer², Lisa Feldman Barrett¹, & Naomi M Simon²

¹Northeastern University, ²Massachusetts General Hospital

Descriptors: working memory capacity, signal detection theory

Outside the laboratory, inferring the emotional state of another person is a frequent judgment made under uncertainty (a given facial expression can mean different things in different situations) and risk (there are costs to being wrong about the meaning of a facial expression). Like other uncertain, risky decisions, working memory capacity may influence how effective perceivers are at judging the emotions of others. Participants (n=37) completed an "anger" detection task under perceptual uncertainty ("angry" and "not angry" categories shared morphed facial scowl intensities) and risk (correct and incorrect responses earned and lost points, respectively). Participants attempted to earn as many points as they could, and a slight bias to respond "not angry" would maximize points. Participants with higher working memory capacity (running letter span) more optimally adjusted their response bias to accommodate their perceptual sensitivity (ability to discriminate the categories) than participants with lower working memory capacity ($P < .037$, $Rho = .35$, controlling for sensitivity). Working memory capacity did not predict bias ($P > .09$) or sensitivity ($P > .22$) themselves. Response bias and sensitivity are not independent in perceivers—under biased conditions, achieving optimal bias requires accounting for poor sensitivity. Our results suggest that working memory capacity enables effective judgments about the emotional state of others by contributing to a perceiver's ability to adjust their response bias to account for their level of perceptual sensitivity.

This research was supported by the National Institutes of Health (R01MH093394 to NMS and SKL, DP1OD003312 to LFB) and the U.S. Army Research Institute for the Behavioral and Social Sciences (contract W5J9CQ-12-C-0028 to SKL). The views, opinions, and/or findings contained in this report are those of the authors and shall not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documents.

POSTER B-30

THREAT PERCEPTION AFTER THE BOSTON MARATHON BOMBINGS

Jolie B Wormwood¹, Spencer K Lynn¹, Karen S Quigley², & Lisa F Barrett³
¹Northeastern University, ²Northeastern University, Edith Nourse Rogers Memorial (Bedford) VA Hospital, ³Northeastern University, Harvard Medical School

Descriptors: Threat Perception

We examined the effect of the Boston Marathon bombings on threat perception in the affected community. In a computer-based threat detection task, participants attempted to shoot armed targets and avoid shooting unarmed targets. Participants primed with images of the marathon bombings set to affectively negative music and text (e.g., "Terror Strikes Boston") demonstrated reduced sensitivity and less conservative criterion placement compared to participants primed with the same images set to affectively positive music and text (e.g., "Boston Strong"). Performance in a control condition that did not include bombing images was intermediate. In addition, how affected participants reported being by the bombings significantly predicted threat sensitivity, but only in the negatively-framed prime condition, suggesting that the negative framing is particularly detrimental to those individuals in the affected community who are already most vulnerable.

This research was supported by the National Institutes of Health (R01MH093394 to SKL) and the U.S. Army Research Institute for the Behavioral and Social Sciences (contract W5J9CQ-12-C-0028 to SKL). The views, opinions, and/or findings contained in this paper are those of the authors and shall not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documents.

POSTER B-31

EMOTICONS AS EMOTION SYMBOLS

Nicole J Betz, & Lisa Feldman Barrett
Northeastern University

Descriptors: Emotion Perception

Emoticons are gaining popularity in online communication systems devoid of traditional nonverbal communication. UC Berkeley Researcher Dacher Keltner recently developed a set of dynamic and static cartoon emoticons based on human facial expressions and movements. The goal of these emoticons is to convey nuanced and widely identifiable discrete emotions. The current research aims to investigate the efficacy of these emoticons in portraying discrete emotional experiences. Seventy-eight participants freely assigned emotion labels to dynamic or static variants of these emoticons. Four of the sixteen emoticons contained context in the form of an emotionally relevant symbol, such as a heart signifying love. Across participants, emotion label agreement was consistently low for the emoticons without context, ranging from "concern" with the lowest agreement ($M=.0933$, $SD=.29286$) to "disgust" with the highest ($M=.52$, $SD=.50296$). All of the emoticons that included symbolic content had higher agreement than the emoticons without context. These data suggest that highly detailed cartoon emotion portrayals designed to mimic human facial expressions fail to effectively communicate emotion information without context. Therefore, the role of emoticons in conveying emotion information may be symbolic based on our knowledge of emotions and facial expressions. A follow-up study will investigate the difference in efficacy between emoticons with and without emotionally salient symbols by removing the symbolic content from these stimuli.

Funding provided by the National Institute of Health Pioneer Award

POSTER B-32

INTENSIVE MEDITATION LEADS TO INCREASED POSITIVE INTERPRETIVE BIAS FOR SUBTLE FACIAL EXPRESSIONS OF EMOTION

Brandon G King, Anthony P Zanesco, Erika L Rosenberg, & Clifford D Saron
University of California, Davis

Descriptors: Meditation, Facial Expression, Bias

Mental training through meditation has been shown to influence broad dimensions of personality and affect. Despite accumulating evidence for these salutary effects, little is known about the cognitive or perceptual processes that may underlie changes in global emotional behavior. In a longitudinal study, participants were tested before and after one month of daily intensive meditation (Vipassana) practice on a task assessing perceptual judgments of ambiguous emotional stimuli. Participants viewed depictions of low-intensity facial expressions (happy, neutral, disgust) and were asked to rapidly judge the perceived feeling-state (pleasant, neutral, unpleasant) represented by each image (500ms). These target images were immediately preceded by brief high-intensity emotional primes (90ms). Compared to age- and experience-matched controls, training participants demonstrated improved accuracy in detecting subtle pleasant expressions. No improved accuracy for neutral or unpleasant targets was found. After training, participants were more likely to judge objectively neutral expressions as indicative of pleasant affective states, and showed reduced reaction time slowing following interference by intense positive, but not negative, primes. These findings offer initial evidence that interpretive biases may promote patterns of prosociality and adaptive emotionality in meditative training. Intensive training may selectively enhance processing of positively valenced content, such that neutral or ambiguous stimuli are more readily interpreted as communicating positive signal value.

Mind and Life Institute

POSTER B-33

VISUAL SCANNING OF FACIALLY EXPRESSED EMOTIONS UNDER VARYING FACE POSE

Johannes Weng, Lukas Herrschel, Harald C Traue, & Holger Hoffmann
University of Ulm

Descriptors: facial emotion recognition, face pose, visual scanpath

Recognizing emotions from facial expression is an essential skill in social interactions. This ability seems to depend upon efficient neural mechanisms and works well in healthy subjects. However there is still relatively little empirical knowledge about the differential role various parts of the face play in encoding emotions and especially what parts of the face are important when participants decode an emotion. The aim of this study was to investigate subjects' visual behaviour when recognizing facial expressions of emotions under varying face pose. A total of $N=36$ healthy subjects participated in the study. The visual behaviour was recorded by using eye-tracking technology while doing an emotion recognition task. For this task, pictures of six emotions (anger, disgust, fear, happiness, sadness and surprise) and three different face poses (0, 45, and 90 degrees) were selected from the PFA-U dataset (Pictures of Facial Affect – Ulm). For each stimulus, four Areas of Interest (AOI) were defined based on the anatomical classification (Regio orbitalis, Regio nasalis, Regio oralis, and Regio infratemporalis). Although the recognition rates did not differ significantly between the three face pose conditions, results show that face pose significantly influences the viewing time of the stimuli and the visual scanpaths when processing them. Irrespective of the emotion, Regio infraorbitalis/zygomata for example gets even more important in lateral perspectives, whereas Regio nasalis is less often fixated. Detailed results will be reported and discussed in the poster.

This research was supported in part by grants from the Transregional Collaborative Research Centre SFB/TRR 62 "Companion-Technology for Cognitive Technical Systems" funded by the German Research Foundation (DFG).

POSTER B-34

EMOTION REGULATION AND INFLAMMATORY BIOMARKERS: IMPLICATIONS FOR THE ROLE OF EXPRESSIVE SUPPRESSION AND COGNITIVE REAPPRAISAL IN CANCER

Emily G Grenen, & Rebecca Ferrer
National Cancer Institute

Descriptors: Emotion regulation, Inflammation

The way an individual regulates their emotions has a critical influence on physical and psychological well-being. Suppression, distinguished by the tendency to suppress emotional expression, often correlates with detrimental health effects such as stress, depression, and potentially cancer incidence. Cognitive reappraisal, or the reinterpretation of a situation to decrease an emotional response, is known to be more effective in regulating the experience of emotions and reducing depression risk. However, cognitive reappraisal's downstream health consequences have not yet been examined. Moreover, the biological mechanism underlying the association between emotion regulation and health outcomes remains explored. Here, we use Midlife in the United States (MIDUS), a publicly available survey of a national sample of Americans, to test the hypothesis that individual differences in emotion regulatory style are linked to inflammation, a key marker of disease and cancer risk. Our study showed that individuals who tended to cognitively reappraise emotions had lower levels of inflammatory biomarkers (DHEA, DHEAS, I-CAM, and CRP), and that these relationships were mediated by fewer depressive symptoms and lower reports of risk behaviors such as alcohol consumption and poor diet. Additionally, individuals who tended to suppress emotion had higher levels of I-CAM, and this relationship was mediated by diet. These findings provide insight into a previously unexplored biological pathway and help us better understand the longer term health consequences of emotion regulation strategies.

POSTER B-35

UPDATING IN WORKING MEMORY AND EFFECTIVENESS OF EMOTION REGULATION

Madeline L Pe, Peter Koval, & Peter Kuppens
KU Leuven

Descriptors: Emotion Regulation, Cognitive Control, Working Memory

The ability to regulate emotions is a critical component of healthy emotional functioning. Therefore, it is important to determine factors that contribute to the success of emotion regulation. The present article examined whether updating of emotional information in working memory would be related to the effectiveness of rumination and reappraisal in regulating affective experience. Participants were asked to recall an unresolved angering event (free recall phase), and they were instructed to either ruminate or reappraise (manipulation condition) this event (emotion regulation phase). After actively regulating their emotions, participants were given a rest period (rest phase). Results revealed that during the emotion regulation phase, participants in the reappraisal (vs. rumination) condition experienced lower anger and higher positive affect, whereas no significant effect was found for updating ability. However, results showed that updating ability had a significant effect on affective experience during the rest phase, such that participants with better updating ability experienced a greater decrease in anger and a greater increase in positive affect, whereas the manipulation condition did not have a significant effect during the rest phase. These findings indicate that the influence of updating ability on effectiveness of emotion regulation points towards its ability to down-regulate the experience of anger and up-regulate the experience of positive affect mainly after actively regulating one's emotions.

POSTER B-36

"MORE BROCCOLI PLEASE!" THE UP- AND DOWN-REGULATION OF CRAVING FOR FOOD

Rebecca G Boswell, & Hedy Kober
Yale University

Descriptors: craving, food, self regulation

More than 60% of U.S. adults are overweight or obese. Rising rates of obesity have been attributed to an environment rich in food cues that increase craving for unhealthy food at the expense of healthy food. We have shown that individuals can downregulate craving for unhealthy food using cognitive strategies. However, no previous work has investigated (1) the upregulation of craving for healthy food and (2) whether overweight and obese individuals exhibit difficulty regulating craving, or more craving overall, compared to healthy weight adults. Participants (N=127) from Amazon.com's MTurk viewed pictures of healthy and unhealthy food and were instructed to adopt cognitive strategies: POSITIVE (think of positive benefits of the food), NEGATIVE (think of negative consequences of the food) or LOOK (just look). Then, they rated their level of craving. As expected, the NEGATIVE strategy decreased craving. Importantly, the POSITIVE strategy increased craving for both healthy and unhealthy food. Overweight and obese individuals reported more craving for unhealthy food, even while using cognitive strategies. There was no relationship between BMI and regulatory success (% change) for the POSITIVE healthy or NEGATIVE unhealthy strategy. Thus, craving for healthy foods can be increased through cognitive reappraisal. Despite more craving for unhealthy foods, overweight and obese individuals effectively deploy cognitive strategies to decrease craving for unhealthy food and increase craving for healthy food. This has important clinical and public health implications and applications.

POSTER B-37

EMOTION REGULATION ABILITIES IN PEOPLE WITH AND WITHOUT SCHIZOPHRENIA

Janelle M Caponigro¹, Jennifer Stellar², Erin K Moran¹, & Ann M Kring¹
¹University of California, Berkeley, ² University of California, Berkeley

Descriptors: Emotion Regulation, Schizophrenia

Emotion regulation can be an effective coping strategy. However, it remains unclear whether people with schizophrenia utilize and benefit from emotion regulation skills. Self-report studies are mixed with some reporting similar use of emotion regulation strategies in people with and without schizophrenia and others reporting differences (e.g., people with schizophrenia use more suppression and less reappraisal strategies). We extend this literature by directly manipulating and measuring emotion regulation in response to positive and negative stimuli in people with schizophrenia (n = 25) and controls (n = 22). Participants watched 10 video clips (2 amusement, 3 sadness, and 5 neutral) while engaging in one of four conditions: 1) passive watch; 2) amplification during a positive clip; 3) reappraisal during a negative clip; or 4) suppression during a negative clip. Participants reported their experienced emotion, and facial expressions and physiological responses were coded and analyzed. We predicted that people with schizophrenia would not differ from controls in suppression. However, we expected that people with schizophrenia would show less positive emotion experience and expression in the amplification condition, but more negative emotion and physiological response in the reappraisal condition compared to controls. We also investigated the relationship between emotion regulation, symptoms, and functioning. Potential mechanisms of impairment and avenues for intervention will be discussed.

POSTER B-38

WHAT CAN REAPPRAISAL TIMES TELL US ABOUT REAPPRAISAL EFFORT?

Aya Doron-Halamish¹, Gal Sheppes², & Nachshon Meiran¹
¹Ben-Gurion University of the Negev, ²Tel-Aviv University

Descriptors: Reappraisal, Mental Effort, Response Times

Reappraisal is considered an effortful cognitive emotion regulation strategy. Attempting to test this assumption, we used response times as a proxy for mental effort. 46 participants were randomly assigned to 3 groups: (1) and (2) who performed appraisal or reappraisal, respectively, throughout the experiment, and (3) who switched between the two. Each participant saw 145 negative valenced IAPS pictures, preceded by a cue, instructing to either appraise or reappraise, and were required to press a key as soon as re/appraisal came to mind. Results show that reappraisal took longer than appraisal, indicating greater effort; re/appraisal times were a relatively stable picture characteristic as seen in a positive correlation between appraisal times in different groups (similarly for reappraisal). Additionally, more negatively valenced pictures (by IAPS norms) were relatively quicker to appraise and tended to be slower to reappraise, although the latter did not reach significance. Finally, the correlation between appraisal and reappraisal times was close to zero. This resulted from two significant opposite-signed correlations: a positive correlation in conditions without switching and a negative correlation when switching between appraisal and reappraisal, indicating that pictures that were easy to appraise were difficult to reappraise. This suggests that appraisal routes remained active when reappraisal could be required. Moreover, when an appraisal is readily available, reappraising is difficult, as seen in the phenomenon of online reappraisal.

POSTER B-39

EMOTIONAL AND COGNITIVE TASKS AND PHYSIOLOGICAL REACTIVITY: EXPLORING THE IMPACT OF DIVERGENT TASK DEMANDS

Erica E Gardner-Schuster, Jonathan DePierro, Reese Minschew, & Wendy D'Andrea
The New School for Social Research

Descriptors: emotion regulation, physiological reactivity, cognitive-affective processing

Comparison of cognitive and emotional responses to tasks within participants has rarely been undertaken, particularly in clinical populations. However, such analyses may tell us about the relationship between emotional and cognitive processing and physiological stress reactivity on tasks with divergent demands. In the present study we examined this relationship in 27 treatment-seeking adult females. Participants completed a Stroop Task comprised of neutral, positive, anxiety-related, depression-related, and trauma-related words and an Emotional Slide Task consisting of positive and trauma-relevant images. During these tasks, Heart Rate, Respiration, and Skin Conductance were recorded and Respiratory Sinus Arrhythmia (RSA) was calculated. Emotional task was related to lower physiological reactivity and cognitive task was related to higher physiological reactivity. We found that individuals demonstrating a dramatic drop in RSA during the passive emotional slide viewing task did not show a similar decrease during the cognitive task, suggesting active engagement in a cognitive task may prevent shutting down. Our results suggest that, up to a point, high physiological reactivity is associated with better Stroop performance, perhaps indicating a facilitative effect of heightened sympathetic arousal for cognitive tasks. This research may contribute to the literature on the interaction between physiology and cognitive and emotional processes, and may underline the importance of taking into consideration divergent demands when interpreting results from cognitive and emotional tasks.

POSTER B-40

THE PROTOTYPIC EMOTION REGULATION DISORDER? BORDERLINE PERSONALITY DISORDER AND SUBJECTIVELY PERCEIVED DIFFICULTIES IN EMOTION REGULATION

Alexander R Daros, & Anthony C Ruocco
University of Toronto Scarborough

Descriptors: emotion regulation, borderline personality disorder, cognitive reappraisal

Borderline personality disorder (BPD) is a debilitating mental illness that affects 1-2% of adults and is characterized by a pervasive pattern of emotional instability, unstable interpersonal relationships, impulsive aggression, and suicidality. Difficulties regulating emotions are considered the core systemic dysfunction underlying this disorder, often leading to disproportionate emotional responses to even minimal provocations. Self-report measures of subjectively perceived emotion regulation difficulties may provide important insights into the nature of emotional experiences in individuals with this disorder. Individuals with BPD (N = 51) and demographically- and IQ-matched non-psychiatric controls (NC; N = 49) completed the Difficulties in Emotion Regulation Scale (DERS), the Emotion Regulation Questionnaire (ERQ), and were comprehensively clinically characterized using the Structured Interview for DSM-IV Personality Disorders (SIDP-IV) to evaluate illness severity. Individuals with BPD reported high levels of difficulty in all emotion regulation domains examined when compared to NC. On the ERQ, individuals with BPD were less likely than NC to use a cognitive reappraisal strategy to regulate emotions. Groups did not differ in their use of suppression to regulate negative or positive emotions. These results suggest that individuals with BPD may infrequently use potentially effective emotion regulation strategies which, if remediated, could improve functioning and reduce suicide risk in this disorder.

Canadian Institutes of Health Research Social Sciences and Humanities Research Council

POSTER B-41

DEPRESSIVE SYMPTOMS PREDICT SUCCESSFUL EMOTION REGULATION AS A FUNCTION OF THE DISPOSITION TO USE REAPPRAISAL

Maryna V Raskin¹, Jeffrey L Birk¹, Phillip C Opitz², Sarah R Cavanagh³, & Heather L Urry¹

¹Tufts University, ²University of Southern California, ³Assumption College

Descriptors: depression, affective dispositions, spontaneous regulation

We tested the hypothesis that certain affective dispositions (emotion-regulatory [ER] habits, mindful awareness, and approach/avoidance tendencies) have promise in explaining the well-known link between depressive symptoms and both negative emotion reactivity and regulation. Participants (n=109) completed self-report measures of depression and dispositional reappraisal, suppression, mindful awareness, approach, and avoidance. They also completed a within-subjects laboratory task in which they regulated their emotional responses to unpleasant pictures (feel better) or simply viewed them (view). Corrugator activity was recorded to assess reactivity (prior to instruction) and ER success (view – better after instruction). Using latent path analysis, we found that a) there was a direct effect of depressive symptoms (predictor) on reactivity but not ER success (outcomes), b) depressive symptoms predicted lower reappraisal and awareness, but higher suppression and avoidance (mediators), and c) lower dispositional use of reappraisal predicted higher ER success; none of the mediators predicted reactivity. In addition, participants reporting moderate to high dispositional use of reappraisal spontaneously regulated unpleasant emotions during view trials, which mitigated the difference between view and better; those reporting low use of reappraisal did not, which may explain higher ER success in that group. Overall, this study sheds light on one possible emotion-regulatory habit through which depressive symptoms predict intact, not diminished, negative emotion regulation ability.

POSTER B-42

EMOTIONAL REACTIVITY AND REGULATION IN SLEEP BRUXISM

Sylvia D Kreibig, & James J Gross
Stanford University

Descriptors: sleep bruxism, emotional reactivity, emotion regulation

Folk knowledge suggests that the day's stresses carry over into sleep and elicit various parafunctional responses, such as clenching, gnashing, or grinding of teeth, known as sleep bruxism (SB). We hypothesized that individuals who show more SB-related symptoms are less able to regulate their daytime emotional responses. To test this hypothesis, we assessed SB with a symptom questionnaire (Winocur, Uziel, Lisha, Goldsmith, & Eli, 2010) and measured self-reported habitual emotional reactivity (Actual Affect Form of the Affect Valuation Index; Tsai & Knutson, 2006) and regulation (Cognitive Emotion Regulation Questionnaire; Garnefski & Kraaij, 2007; Difficulties in Emotion Regulation Scale; Gratz & Roemer, 2004). Participants were 446 students with a mean age of 18.9 years. 44 (9.9%) met criteria for SB. Participants with more symptoms reported less often experiencing low arousal positive emotions, $r = -.12$, $p < .05$, and more often experiencing low arousal emotions and low arousal negative emotions, $r = .12$ and $.19$, $p < .05$ and $.001$, respectively. For coping with emotions, they reported more often using self-blame and acceptance, $r = .10$ -. 12 , $p < .05$, and more often having difficulties with accepting emotional responses, engaging in goal-directed behavior, and controlling impulses, and having limited access to emotion regulation strategies, $r = .15$ -. 23 , $p < .05$ to $.01$. Our results suggest that individuals who show more SB-related symptoms experience less often positive and more often negative emotions, which they are less able to regulate than individuals with fewer symptoms.

This research was supported by the Swiss National Science Foundation (PA00P1_139593).

POSTER B-43

CHANGE THE THINGS YOU CAN: EFFECTIVE EMOTION REGULATION IS BENEFICIAL IN LOW, BUT NOT HIGH, SOCIOECONOMIC CONTEXTS

Allison S Troy¹, Brett Q Ford², Tchiki S Davis², & Iris B Mauss²
¹Franklin and Marshall College, ²University of California Berkeley

Descriptors: Emotion Regulation, Socioeconomic Status, Individual Differences

Although previous research has shown a positive relationship between effective emotion regulation and psychological health, theoretical accounts suggest that emotion regulation is not equally beneficial for all individuals. Lower levels of socioeconomic status (SES) are associated with less control over one's environment; thus, individuals' ability to manage their emotional response to the environment may be more beneficial in low-SES (vs. high-SES) contexts. In a community sample of men and women, we tested whether cognitive reappraisal ability (CRA; the ability to reframe emotional stimuli to manage emotions) is a stronger predictor of life satisfaction for low-SES (vs. high-SES) individuals. Results verified this prediction: CRA was positively associated with life satisfaction in low-SES contexts, while there was no effect of CRA in high-SES contexts. This pattern emerged both cross-sectionally and prospectively six months later. These results suggest that effective emotion regulation is particularly important for psychological health in low-SES contexts.

POSTER B-44

TRANSMISSION OF AFFECTIVE STATES FROM WRITER TO READER: BEYOND EMOTIONAL CONTAGION

Victoria C Oleynick, Emil Moldovan, Laura A Maruskin, & Todd M Thrash
The College of William and Mary

Descriptors: Inspiration, Chills, Writing Process

We examined the transmission of affective states from writer to reader. We predicted that positive affect (PA) and negative affect (NA) in writers would predict PA and NA, respectively, in readers, due to emotion contagion. Plato posited long ago that a contagion process may apply to inspiration—the Muse inspires the poet, who, in turn, inspires the reader. However, we were skeptical that inspiration is transmitted through a contagion process, because inspiration involves a motivational component that may not be fully transmitted. Nevertheless, inspired writing was expected to be deeply impactful, such that it evoked “the chills” (Maruskin, Thrash, & Elliot, 2012). The writer sample consisted of participants from Thrash, Maruskin, Cassidy, Fryer, and Ryan (2010). Each writer wrote one poem and reported on their PA, NA, and inspiration during the writing process. A sample of readers read each poem and reported on their PA, NA, inspiration, and chills. Data were analyzed using multilevel modeling. As predicted, PA in the writer predicted PA in the average reader, and NA in the writer predicted NA in the average reader. Inspiration in the writer predicted chills, but not inspiration, PA, or NA, in the average reader. Further analyses showed that inspiration was not transmitted because readers' affective responses lacked the motivational component necessary for a full episode of inspiration. Findings are interpreted in light of Thrash and Elliot's (2004) distinction between passive and active components of the inspiration process.

National Science Foundation

POSTER B-45

RATS SELECTIVELY BRED FOR LOCOMOTOR RESPONSE TO A NOVEL ENVIRONMENT EXHIBIT DIFFERENCES IN FEAR CONDITIONING AND EXTINCTION BEHAVIOR

Katherine E Prater¹, Sraboni Chaudhury¹, Elyse L Aurbach¹, Hanna Larcinese¹, Peter Blandino Jr.¹, Stanley J Watson¹, Stephen Maren², & Huda Akil¹
¹University of Michigan, ²Texas A&M University

Descriptors: Fear conditioning, Animal model

Understanding why certain individuals succumb to PTSD while others remain resilient following trauma is crucial for the development of novel treatments for anxiety. Here, we used selectively bred animals to determine whether individual differences in baseline anxiety might influence vulnerability to maladaptive fear. These studies included 80 rats selectively bred for high (bHR) or low (bLR) locomotor response to a novel environment and 48 rats from the F1 generation of a bHR-bLR cross (bIRs) which display an intermediate locomotor phenotype. Rats received a standard fear conditioning and extinction paradigm; some rats were sacrificed 90 minutes post-conditioning to study conditioning induced epigenetic changes in the brain. bLRs and bIRs demonstrated significantly higher freezing than bHRs during conditioning. Despite differences in freezing behavior, bHRs and bLRs displayed no differences in fecal output or cortisol levels after fear conditioning indicating equal levels of experienced fear. bLRs demonstrated decreased extinction learning and extinction retention than bIRs and bHRs, while bHRs showed faster extinction and greater retention than bIRs. The individual differences in fear and extinction learning seen in these rats provide a good model for developing understanding of underlying differences in vulnerability to maladaptive fear, and offer the opportunity to better understand the role of the fibroblast growth factor family in modulating fear conditioning and extinction behavior.

This work was funded by the Office of Naval Research grants N00014-09-1-0598 and N00014-12-1-0366, the Pritzker Neuropsychiatric Disorders Research Consortium and the Hope for Depression Research Foundation (HDRF).

POSTER B-46

CONCEPTUALIZING AND EXPERIENCING COMPASSION

Paul Condon, & Lisa Feldman Barrett
Northeastern University

Descriptors: Compassion, Conceptual Act Theory, Concepts

Two studies examined whether compassion feels pleasant or unpleasant. People tend to categorize compassion as a pleasant or "positive" emotion, but traditional laboratory compassion inductions, which present another's suffering, may elicit unpleasant feelings. This possibility coincides with literature in affective science demonstrating that beliefs about emotion often differ from emotional episodes themselves. Using samples of undergraduate students with minimal meditation experience, we examined whether prototypical conceptualizations of compassion (as pleasant) differ from experiences of compassion (as unpleasant). Following laboratory-based neutral or compassion inductions, participants made similarity judgments about the feeling of compassion relative to several emotion-related adjectives, which provided a conceptualization of compassion. Participants also rated their own affective states, which provided a measure of experienced compassion. Conceptualizations of compassion were pleasant across neutral and compassion inductions. Following exposure to others' suffering, however, participants felt increased levels of compassion and unpleasant affect, but not pleasant affect. Following neutral inductions, participants reported more pleasant than unpleasant affect, with moderate levels of compassion. Thus, prototypical conceptualizations of compassion are pleasant, but experiences of compassion can feel pleasant or unpleasant. The findings are discussed in the context of emotion theory in general.

NIH Pioneer Award to Lisa Feldman Barrett

POSTER B-47

FINDING THE MIDDLE GROUND: MODERATE POSITIVE AFFECT VARIABILITY IS ASSOCIATED WITH FAVORABLE DAILY CORTISOL PROFILES

Lauren J Human¹, Ashley V Whillans², Christiane Hoppmann², Petra Klumb³, Sally S Dickerson⁴, & Elizabeth W Dunn²

¹University of California, San Francisco, ²University of British Columbia, ³University of Fribourg, ⁴University of California, Irvine

Descriptors: Positive Affect Variability, Cortisol

Experiencing high levels of positive affect (PA) is associated with better physical functioning (e.g., Pressman & Cohen, 2005), but the experience of PA is not static – people tend to vary in their PA levels across and within days. Does such PA variability also play a role in physiological processes potentially relevant to physical health? We explored this by examining whether PA variability across weeks in older adults (Study 1) and across and within days in middle-aged adults (Study 2) was associated with daily cortisol profiles. Across both studies, individuals who exhibited moderate PA variability demonstrated more favorable cortisol profiles, such as steeper and less elevated cortisol slopes. Interestingly, for older adults, low levels of across-week variability in PA were associated with the least favorable cortisol profiles, whereas in middle-aged adults, high levels of within-day PA variability were associated with the least favorable cortisol profiles. Collectively, these findings suggest that, with respect to daily cortisol profiles, it may be better to experience a moderate degree of positive affect variability in daily life, perhaps indicating adaptive flexibility. Too much or too little variability, however, may indicate maladaptive lability or rigidity, respectively.

POSTER B-48

PAYING ATTENTION TO GRATITUDE: THE EFFECT OF EGO-DEPLETION AND EGO-REPLENISHMENT ON GRATITUDE AWARENESS

Lauren Mestitz, Jenny Leung, Caroline Maguire, Michael Sankovich, & Michele M Tugade
Vassar College

Descriptors: gratitude, positive emotions, ego-depletion

The concept of gratitude, defined as "being aware of and thankful for the good things that happen" (Seligman, Steen, Park, & Peterson, 2005), has recently become a growing focus of psychological research. The present study aimed to examine the factors that may optimize personal awareness of gratitude. The effect of ego-depletion and ego-replenishment on gratitude awareness was investigated. Participants first completed an ego-depletion task by completing anagrams that increased in difficulty. By random assignment, participants received feedback on the anagram task that either replenished their psychological resources or kept them in an ego-depleted state. Participants then completed a gratitude awareness measure by listing experiences for which they were grateful from the previous day. We hypothesized that participants with replenished psychological resources would list more gratitude experiences, compared to participants whose psychological resources remained depleted. Results revealed a sex X condition interaction: When psychological resources were replenished, males and females were equally aware of grateful moments in their lives. When psychological resources remained depleted, however, females evidenced greater gratitude awareness, compared to males. Implications for research on ego-depletion and sex differences in gratitude awareness will be discussed.

POSTER B-49

THE INFLUENCE OF EMOTION ON THE INFORMED CONSENT PROCESS IN CANCER CLINICAL TRIALS

Rebecca A Ferrer¹, Jennifer Stanley², Kaitlin Graff³, Nina Goodman¹, Salazar Silvia¹, & Klein William¹

¹National Cancer Institute, ²University of Akron, ³University of Washington, St. Louis

Descriptors: discrete emotion, decision, informed consent

Background. Emotion is understudied in research on informed consent for cancer clinical trials, but may be particularly influential given its effects on information processing and decisions under uncertainty, as well as its general relevance to cancer. Researchers are ethically obligated to ensure informed consent; however, many volunteers have unrealistic expectations about the value of an experimental therapy. Moreover, suboptimal participation rates for clinical trials may be partially attributable to perceptions that ethical obligations to volunteers are not met. Emotion may be one important explanation for both misperceptions about trials and low participation rates. Method. This study examines whether incidental negative emotions (fear, anger, and sadness) influence consent process and outcomes. Participants were randomly assigned to emotion condition. They completed a standard emotion induction, and then read a real consent form from a clinical trial while eye movements were tracked. Results. We found that any negative emotion increased misperceptions of trial benefit. Negative emotions also reduced systematic reading patterns, particularly among men. Fearful women were less willing to enroll. Conclusions. Negative emotions – whether or not they are related to cancer risk or diagnosis – have the potential to impede the informed consent process. Fear among women may also contribute to their underrepresentation in cancer clinical trials.

POSTER B-50

JOY LEADS TO OVERCONFIDENCE - AND TWO SIMPLE REMEDIES

Koellinger D Philipp¹, & Theresa Treffers²

¹University of Amsterdam and Erasmus University Rotterdam, ²Eindhoven University of Technology

Descriptors: overconfidence, joy, affect-as-information

Although various fields have identified overconfidence as one of the most notorious and widespread cognitive biases, little is known about the causal mechanisms that result in overconfidence. It is also largely unknown whether and how overconfident judgments can be prevented, although being able to do so could have far-reaching, positive consequences. Our study makes an initial contribution to these two questions. We present evidence from an incentive-compatible laboratory experiment with 226 students in a between-subjects design that identifies affect-as-information as a transient cause of overconfidence. Specifically, we find that joy increases the tendency to be overconfident with regard to absolute and relative performance. In addition, we demonstrate two efficient remedies against overconfidence that have the potential to significantly improve judgment accuracy. One of these remedies relies on awareness of one's moods and their origin (i.e., an unexpected gift) which is unrelated to the judgment task (i.e., how well participants perform on a general knowledge quiz). The second remedy relies on increasing awareness among decision makers about the overconfidence bias per se. These insights make a novel and important contribution to several areas in psychology, including judgment and decision making, applied psychology, learning, and emotions. Furthermore, our study should also be of interest to economists and management scholars who have identified overconfidence in a large variety of situations.

Funding provided by the German Research Foundation, the University of Munich, and the Erasmus University Rotterdam.

POSTER B-51

EFFECTS OF NON-INTEGRAL SUBLIMINAL STIMULI ON COMPLEX DECISION-MAKING

Christopher L Dancy, & Frank E Ritter

The Pennsylvania State University, University Park

Descriptors: Decision-Making, Subliminal, IGT

We examine the influence that covert emotion can have on complex decision-making by exposing participants to subliminal affective stimuli during the Iowa Gambling Task (IGT). The visual affective stimuli were chosen from the International Affective Picture System (IAPS). Participants in the study were assigned to one of three groups (35 per group) based on the category of images (negative, neutral or positive) that were shown during the task. Participants completed a computerized version of the IGT that was slightly modified to display masked images. After selecting a card from a disadvantageous deck, a negative, neutral, or positive image was presented for 16ms (depending on condition), which was followed by the financial outcome display. Results indicate that participants in the negative image group on average scored higher than both the positive and neutral image groups during each of the 20 trial blocks of the task. As in previous studies, participant task performance showed an increase from the first 20 trials of the task to the final 20 trials. There was no significant difference in score between groups ($p=.233$). However, male scores did show a significant difference ($p < .02$) between groups, despite the visual stimuli being chosen based on standardized scores for each gender. Further analysis of the reaction-time, pupil, EDA, and personality data collected during the experiment may shed light on these curious results.

This work was partially funded by the Bunton-Waller Fellowship at The Pennsylvania State University, University Park

POSTER B-52

THE INFLUENCE OF AFFECT ON JUDGMENT DEPENDS ON ITS OBJECT

Alexander J Schiller, & Gerald L Clore

University of Virginia

Descriptors: Mood, Evaluation, Judgment

In two experiments, we investigated how moods influence judgment. Positive affective states often lead to positively biased judgments and negative affective states to negatively biased judgments. Unanswered questions include whether mood-congruent judgment occurs only for the object explicitly being evaluated or other possible objects (e.g., thoughts, beliefs, provisional judgments) and how changes in the value of these objects influence final judgments. Based on the Affect Immediacy Principle, we propose that the influence of mood on judgment will depend on what is in mind, and that the object of affect can be different than the nominal object of judgment. In both experiments, participants underwent a happy or sad mood induction and evaluated a product associated with someone negative. Affect congruent evaluation occurred in both experiments, however, the congruency was not with the object of judgment itself. Instead, affect took as its object the existing belief about the negativity of the target. These data are consistent with the view that affective states inform judgments in a way that depends on what object is in mind at the time, rather than by simply making things in general look better or worse.

National Institute of Mental Health grant MH 050074 National Science Foundation grant 1252079

POSTER B-53

BLOCKING EMOTIONAL MEMORIES: USING THE RETRIEVAL-BIAS PARADIGM TO DEPRESS THE ACCESSIBILITY OF EMOTIONAL IMAGES AND VIDEO CLIPS

Bethlehem T Yimenu¹, Heath A Demaree¹, & David R Gerkens²

¹Case Western Reserve University, ²California State University, Fullerton

Descriptors: memory blocking, emotional memories, PTSD

The salience of emotional events can be problematic for those who have experienced trauma. The onset of Post-Traumatic Stress Disorder (PTSD) involves the resurfacing of emotionally-charged memories. The retrieval-bias paradigm aims to block the memory of emotionally-charged items. Past studies have used word lists as items to be targeted for blocking. The current study aims to test the effectiveness of the paradigm with a more ecologically valid approach. In Study 1, participants viewed emotional IAPS images and either underwent the retrieval-bias manipulation or participated in the control tasks. Relative to the control group, the bias group recalled significantly fewer images targeted for blocking. Study 2 also used the retrieval-bias paradigm but with normed, youtube video clips as stimuli. A significant difference in recall was observed. Again, the blocking effect was demonstrated in the manipulation group with depressed recall of clips targeted for blocking. Despite the salience of emotional stimuli, the retrieval-bias paradigm appears to successfully reduce the accessibility of emotionally-charged memories. An applicative form of the paradigm could potentially be a supplemental form of PTSD therapy.

POSTER B-54

EMOTION ENHANCES PATTERN SEPARATION FOR YOUNGER BUT NOT OLDER ADULTS

Allison Ponzio, & Mara Mather
University of Southern California

Descriptors: emotion, pattern separation, aging

Pattern separation is the process of transforming similar memories into non-overlapping representations. Previous work has indicated that hippocampal subfields (CA3 and dentate gyrus) are key to the process of pattern separation. The hippocampus has many noradrenergic receptors, especially in the CA3 and dentate gyrus regions, making it quite responsive to emotional arousal. The hippocampus also is particularly vulnerable to the effects of abnormal and normal aging. The objective of this study was to examine the effects of emotion on pattern separation processes in younger and older adults. Younger and older adults completed a behavioral continuous recognition memory task aimed to assess pattern separation processes. Object and scene images were presented one at a time with some images being repeated, and some considered "lures" or items that were similar to previously seen items. For each image, participants were asked to indicate if the item was new, had been previously seen, or was similar to an image they had seen before. Trials were blocked, with some blocks having emotional filler items, and other blocks having neutral filler items. For younger adults, pattern separation, as indexed by lower false alarms to similar images, was significantly better in emotional blocks than neutral blocks. Older adults showed no significant effect of emotion, which led to a significant interaction of age and emotion. This suggests that pattern separation abilities are enhanced by emotion in younger adults, but not in older adults.

NIH grants RO1AG025340 and K02 AG032309, NSF grant DGE-0937362, and the USC Provost's Fellowship for Incoming Graduate Students

POSTER B-55

FEAR OF POSITIVE EVALUATION AND MEMORY BIAS FOR SOCIAL FEEDBACK IN ADOLESCENTS

Justin D Caouette¹, Zainab Anbari¹, Catherine Henderson¹, Sarah K Ruiz², Clinton C Lee¹, & Amanda E Guyer¹

¹University of California - Davis, ²University of Minnesota - Twin Cities

Descriptors: social anxiety, social evaluation, memory

Social anxiety disorder (SAD) commonly onsets in adolescence (Beesdo et al., 2010). SAD is linked with fear of negative evaluation (FNE) and cognitive distortions such as memory bias for negative information (Heimberg et al., 2010). SAD has also been linked with fear of positive evaluation (FPE; Weeks et al., 2008). It is unknown, however, whether FPE contributes to memory biases as seen with SAD. High FPE, as a symptom of SAD, may relate to memory bias for positive experiences that are perceived as threatening. To test this direct relationship, we used a simulated social evaluative "chatroom" task in which subjects received both negative and positive evaluation (Guyer et al., 2008; 2009; 2012; 2013). Healthy subjects (N=14; 7 girls; 9-17 years; 7 low FPE, 7 high FPE) were told they would chat online with one of 60 peers deemed a strong match. Subjects sorted peers into those with whom they wanted and did not want to interact and subsequently received feedback from these peers about whether they wanted to interact in return. Later, subjects completed a surprise recognition test in which they judged if each peer had accepted or rejected them. High-FPE subjects had greater recognition for positive feedback from unselected (M=.59, SD=.19) vs. selected peers (M=.46, SD=.26), $p=.01$; low-FPE subjects showed the opposite effect (unselected peers, M=.50, SD=.26; selected peers, M=.67, SD=.26), $p=.07$. It may be that due to fear of retaliation, high-FPE youth perceive positive feedback from peers they rejected as socially threatening and encode this evaluation preferentially.

POSTER B-56

THE INFLUENCE OF REWARD SENSITIVITY ON THE RECRUITMENT OF COGNITIVE MECHANISMS

Allan J Heritage, Geoffrey F Woodman, & David H Zald
Vanderbilt University

Descriptors: Reward, Working Memory, Event-Related Potentials

Individuals differ greatly in their level of sensitivity to rewards. For example, some people will excitedly anticipate the arrival of a payday or deeply enjoy a glass of wine while. Others will not experience this anticipation or pleasure, even for typically rewarding stimuli such as food or sex. On a trait level, the extent to which individuals are sensitive to rewards influences how they behave to obtain those rewards. Rewards also increase early sensory and attentional processing, as well as influence behavior across a variety of tasks. This suggests that reward may influence the recruitment of multiple cognitive mechanisms. Alternatively, recent evidence suggests that reward may selectively influence the recruitment of working memory as a central mechanism through which reward influences behavior. Therefore, the current study examines the influence of trait level individual differences in reward sensitivity on the recruitment of multiple cognitive mechanisms in conditions of reward. A rewarded visual search task and event-related potentials are used to index select cognitive processes along with self-report measures of reward sensitivity. I will show that not only does reward influence the functioning of working memory and other cognitive mechanisms but that the extent of this influence is related to trait level individual differences in reward sensitivity.

POSTER B-57

IMPLICIT RESPONSES TO UNFAIR OTHERS: THE INTRODUCTION OF PROXEMIC IMAGING TO MEASURE SOCIAL APPROACH AND AVOIDANCE

Cade McCall, & Tania Singer
Max Planck Institute for Human Cognitive and Brain Sciences

Descriptors: approach and avoidance, nonverbal behavior, social interaction

Unfairness triggers a range of negative affective responses including disgust and anger. Economic research has classically measured explicit reactions such as punishment or rejection of unfair offers. Here we study more implicit approach and avoidant behavior during social interactions with unfair others using a new method of analyzing nonverbal behavior: proxemic imaging. Participants first played an economic game with two other players who behaved either fairly or unfairly. Afterwards, they encountered those players in an immersive virtual environment in which we tracked their gaze and movement. We analyzed those data using proxemic imaging, which combines interpersonal distance and the gaze patterns of two interactants to create frequency images of dyadic interpersonal space. Unlike resource-intensive, subjective measures such as video coding or one-shot measures such as minimum distance, proxemic imaging objectively assesses multiple levels of nonverbal behavior of both individuals over the entire length of an interaction. The results showed that participants avoided the unfair player and kept the fair player closer to their side and back. However, participants who directly faced the unfair player were more likely to monetarily punish that player in a subsequent task. Together these data illustrate that perceptions of fairness bleed into nonverbal social behavior and that proxemic imaging is capable of detecting relatively subtle approach and avoidance patterns that further predict overt behavior.

POSTER B-58

A MODEL OF MOOD GENERATION

Sam H Lyons
George Washington University

Descriptors: Mood

Various models seek to chart the generation of emotion. While models exist that also chart the course of specific moods like depression, no models seek to chart the generation of mood more broadly. To inform the development of such a model, a review of the mood literature was conducted. To be included, a manuscript had to provide an explicit definition of mood or distinguish mood from other affective constructs. In general, researchers were in agreement about several features of mood relative to emotion, including strength, duration, and directedness. Empirical data also highlighted the dynamic nature of mood, its effects on behavior, and the nature and consequences of its dysregulation. Overall, the theory of mood requires further research and refinement. Based on the mood literature, and borrowing from Gross' and Thompson's (2007) modal model of emotion, a tentative model of mood generation was developed. The model contends that 1) the generation of emotion(s) over time leads to the generation of mood, 2) this process is dynamic and recursive, and 3) the valence of the generated emotion(s) corresponds to the valence of the subsequently generated mood. More specifically, the model suggests that the generation of emotion(s) over time along a situation-attention-appraisal-response sequence generates a corresponding mood. The generated mood can then act recursively along the same sequence, generating new emotions and therefore new moods (and so on). Understanding how mood is generated will improve current conceptions of affect dysregulation and provide insight into treatment.

POSTER B-59

FACEREADER'S ASSESSMENT OF HAPPY AND ANGRY FACIAL EXPRESSIONS PREDICTS ZYGOMATICUS AND CORRUGATOR MUSCLE ACTIVITY

Trevor D'Arcey¹, Michelle R Johnson¹, Patricia Sanders², Martin S Shapiro², Lawrence G Herringer¹, & Michael Ennis¹

¹California State University, Chico, ²California State University, Fresno

Descriptors: Facial Electromyography (EMG), FaceReader software

FaceReader (Noldus Information Technology, Inc.) is a software program designed to measure facial emotional expressions. It identifies seven emotional expressions (e.g., happiness, sadness, anger, etc.) and reports how strongly each emotion is being expressed. Our goal was to test FaceReader by comparing it with data from facial electromyography (EMG), which measures specific muscle activity by placing electrodes on a participant's face. We measured activity of the zygomaticus major muscle (i.e., cheek muscle) because it is a salient feature of a happy facial expression and the corrugator supercilii muscle (i.e., brow muscle) because it is a salient feature of an angry facial expression. We predicted that FaceReader's assessment of "happy" facial expressions would be positively related to zygomaticus activity and FaceReader's assessment of "angry" facial expressions would be positively related to corrugator activity. We attached electrodes to participants' zygomaticus and corrugator muscles and asked them (n=30) to mimic 10 "happy" and 10 "angry" facial expressions. Using regression analyses of repeated measures, we found that FaceReader's assessments of "happy" expressions significantly predicted zygomaticus activity (median $r = .72$, $p < .001$) and FaceReader's assessments of "angry" expressions significantly predicted corrugator activity (median $r = .55$, $p < .05$). These data provide preliminary evidence that FaceReader is a valid measure of "happy" and "angry" facial expressions.

POSTER B-60

ARE 'SOCIAL EMOTIONS' REALLY SOCIAL?

Lisa A Williams¹, & Eliza Bliss-Moreau²
¹University of New South Wales, ²University of California, Davis

Descriptors: social emotions, structure of emotion

To date, limited empirical data exists regarding the difference between social and other emotions. Theories point to function, cognitive complexity, or appraisals (e.g., Barrett & Campos, 1987; Hareli & Parkinson, 2008; Leary, 2000), yet data supporting these arguments is sparse. The current research is the first known empirical analysis of whether social emotions might differ in terms of experiential context and emotional object. In Study 1 (N=101) and Study 2 (N=177), participants rated the extent to which theoretically social and theoretically nonsocial emotions are typically experienced alone vs. with others, and, in Study 3 (N=196), whether each emotion is typically felt towards social and nonsocial objects. Using bootstrapped confidence intervals, we identified theoretically social emotions for which social contexts and objects are important (e.g., admiration, compassion, love), but also a number for which social contexts and objects are not important (e.g., contempt, pride, shame). Further, several theoretically nonsocial emotions were rated to be highly social in terms of context and object (e.g., enthusiasm, surprise). Therefore, while there was some overlap, the socialness of emotions in terms of contexts and objects does not map on precisely to theory based on appraisals, functions, and complexity. These findings provide the first empirical evidence that what constitutes a "social" emotion may vary in experience from how it is specified in theory. The results of these studies will inform future research examining the complex dynamics of human affect.

POSTER B-61

BRAIN STRUCTURE CORRELATES OF RASH, EMOTION-BASED IMPULSIVITY

Nils Muhlert, & Andrew Lawrence
Cardiff University

Descriptors: impulsivity, personality

Negative urgency, or the tendency to act rashly when experiencing negative affect, is a transdiagnostic risk factor for vulnerability to a number of psychopathologies. When combined with high levels of neuroticism, the two factors predict high rates of externalising behaviours. In this study we examined the grey matter correlates of negative urgency in a large sample of healthy subjects. One hundred and fifty-two participants underwent MRI at 3T. Voxel-based morphometry using diffeomorphic anatomical registration through exponentiated lie algebra in SPM8 was used to examine grey matter volumes. Self-report measures of negative urgency were acquired using the UPPS impulsivity scale. General linear models were used to examine associations between urgency and grey matter volumes. Age, gender and intracranial volumes were used as covariates of no interest. Individual variability in urgency was negatively associated with individual variability in grey matter volumes within the dorsomedial prefrontal cortex, middle frontal gyri, the right temporal pole and parahippocampal gyrus, and the left superior parietal lobule. In this study we have identified, in a large sample, the grey matter correlates of rash, emotion-based impulsivity. Associations with grey matter in the dorsomedial prefrontal cortex, a region previously linked to neuroticism, suggest a shared biological mechanism which may underpin externalising behaviours. Normal inter-individual variation in grey matter volumes within this region may impact upon the risk and resilience of developing psychiatric disorders.

This study was funded by the Waterloo Foundation, UK.

POSTER B-62

PARASYMPATHETIC REGULATION OF SADNESS AND MATERNAL EMOTION SOCIALIZATION PREDICT THE DEVELOPMENT OF INTERNALIZING PROBLEMS AND DEPRESSION IN ADOLESCENT GIRLS

Paul D Hastings¹, Bonnie Klimes-Dougan², Ann Brand³, Kimberly T Kendziora⁴, & Carolyn Zahn-Waxler⁵

¹University of California Davis, ²University of Minnesota, ³Campbell University, ⁴American Institutes for Research, ⁵University of Wisconsin Madison

Descriptors: Respiratory sinus arrhythmia, emotion socialization, depression

Multilevel models of developmental psychopathology implicate both internal and external factors in the etiology of emotional problems and mood disorders like depression. Maladaptive regulation of emotion is at the core of mood disorder, with exaggerated or inappropriate sadness being a key feature of depression. This could arise from the conjoint influences of ineffective parasympathetic regulation of emotion and inappropriate parental emotion socialization practices. Polyvagal theory and research shows that evoked sadness typically involves increased parasympathetic control (RSA augmentation). Work on emotion socialization shows that parental acceptance of and support for negative affect supports emotional well-being. In 171 youths (84 female, $M = 13.69y$, $SD = 1.84$), we measured RSA-change to sadness-inducing films and maternal rewarding responses to youths' internalizing emotions. Youths reported on their internalizing problems (IP) and depression symptoms (Dep Sx) concurrently (T1) and 2 years later (T2). Regression analyses controlled for basal RSA, stability of IP or Dep Sx, and comorbid problems or symptoms. Greater RSA suppression at T1 predicted more IP at T2 in girls only ($b = -.18$). Sex also moderated a RSA-change X Reward interaction for Dep Sx at T2: Less rewarding emotion socialization predicted more Dep Sx only for girls who showed more RSA suppression ($b = -.52$). Thus, adolescent girls who showed an atypical parasympathetic response of arousal to sadness were at risk for IP and Dep, especially if they lacked external support for regulating emotions.

Supported by the Intramural program of the National Institute of Mental Health

POSTER B-63

DISTINGUISHING BIPOLAR DISORDER FROM BORDERLINE PERSONALITY DISORDER: PRESENTATION OF AFFECTIVE INSTABILITY AND RISK TAKING BEHAVIORS

Nicole D Seligman¹, Jonathan P Stange¹, Ashleigh Molz Adams¹, Jared K O'Garro-Moore¹, Lauren B Alloy¹, & Lyn Y Abramson²

¹Temple University, ²University of Wisconsin

Descriptors: Borderline Personality Disorder, Bipolar Disorder, Risk Taking Behaviors

There are challenges in differential diagnosis between Bipolar Disorder (BD) and Borderline Personality Disorder (BPD). Misdiagnoses lead to medication and treatment consequences (Dodd, 2005), suggesting the importance of improving our understanding of characteristics associated with each disorder. The present study examined how participants with Bipolar Spectrum Disorders ($N=172$), healthy controls ($N=192$), and varying levels of Borderline Personality Disorder characteristics differed in their presentation of impulsivity, suicidal ideation, aggression, drug and alcohol abuse, and affective instability. Regression analyses indicated that relative to controls, individuals with BD had higher levels of impulsivity, lifetime suicide ideation, aggression, drug and alcohol abuse, and affective instability. Similarly, BPD characteristics predicted higher levels of impulsivity, lifetime and prospective suicidal ideation, verbal aggression, hostility, anger, alcohol abuse, and affective instability. When both BD and BPD were entered simultaneously, BD was a stronger predictor of impulsivity, anger, and hostility and BPD was a stronger predictor of depression variability, whereas only BD continued to predict physical and verbal aggression, alcohol and drug abuse, and hypomania instability. These results suggest that BD may be more strongly associated with affective instability and risk taking behaviors than are characteristics of BPD. Future research should evaluate whether these characteristics and behaviors can effectively differentiate between clinical diagnoses of BD and BPD.

POSTER B-64

TELLING, BUT NOT SHOWING: INTACT EMOTION EXPERIENCE BUT DIMINISHED FACIAL EXPRESSIVITY IN MEN AND WOMEN WITH SCHIZOPHRENIA

Jasmine Mote¹, Barbara K Stuart², Janelle M Caponigro¹, Timothy R Campellone¹, Erin K Moran¹, Andrew Kennedy¹, & Ann M Kring¹

¹University of California, Berkeley, ²University of California, San Francisco

Descriptors: Schizophrenia, Expressivity, Sex Differences

Prior research has found that people with schizophrenia exhibit less outward expressions of emotion yet report similar emotion experience compared to people without schizophrenia. However, the majority of people included in these studies are men with schizophrenia. Very few studies have examined sex differences in emotion responding in schizophrenia and no study to date has examined both facial expressivity and reported emotion experience in men and women with schizophrenia. The current study included 25 women and 24 men with schizophrenia or schizoaffective disorder and compared them to 25 women without schizophrenia. Participants were videotaped as they viewed emotionally evocative film clips and these recordings were coded for facial expressivity. Participants also reported their emotion experience following each film. Women without schizophrenia exhibited more positive and negative facial expressions than both men ($p = 0.002$) and women with schizophrenia ($p = 0.01$). However, men and women with schizophrenia reported comparable emotion experience as did women without schizophrenia. This study contributes to the literature on emotion in schizophrenia by showing that diminished expressivity is characteristic of both men and women with the disorder even though people with schizophrenia report intact emotion experience.

POSTER B-65

DIFFERENTIALLY INACCURATE: HOW DEPRESSED AND NONDEPRESSED MOTHERS ASSESS ADOLESCENT STRESS

Issar Daryanani, Jessica L Hamilton, Taylor A Burke, & Lauren B Alloy
Temple University

Descriptors: reporter discrepancy, maternal depression, adolescent stress

A lack of consensus on if and how depressed and nondepressed mothers differentially report child characteristics hinders researchers and clinicians alike. The present study examined whether the presence ($N=96$) versus absence ($N=206$) of a maternal history of major depressive disorder (MDD) is associated with accurate awareness of stressors in her child's life. Adolescents (Mean age = 12.83; 54.1% female) and their mothers participated in two assessments approximately 9 months apart. At baseline, mothers were assessed for a history of MDD. At the follow-up visit, mothers and adolescents reported on the stressful events that occurred in the adolescents' lives since the baseline visit. Accurate awareness of stress was operationalized as agreement between the mother and adolescent reports of the same stressful events. Depressed mothers and nondepressed mothers significantly differed in their degree of report discrepancy with their children ($t = 2.34$, $p = .02$). Depressed mothers over-reported stressors relative to their children, whereas nondepressed mothers under-reported adolescent stress. Both groups experienced similar magnitudes of reporting discrepancies with their children, but in polar directions. These results suggest that although both groups of mothers experience inaccuracies with their children, depression influences the direction of the discrepancy (over- versus under-reporting). Awareness of the particular biases is subsequently critical, as these can influence the accuracy of research measures, as well as potentially influence child maladjustment.

POSTER B-66

REDUCTION IN RANGE OF RATINGS FOR AROUSAL AND VALENCE WHEN CHILDREN AND ADULTS WITH AUTISM APPRAISE EMOTIONAL FACES USING THE CIRCUMPLEX MODEL OF AFFECT

Angela Tseng¹, Ravi Bansal¹, Jun Liu¹, Andrew J Gerber¹, Suzanne Goh¹, Jonathan Posner¹, Tiziano Colibazzi¹, I-Chin Chang¹, James A Russell², & Bradley S Peterson¹

¹Columbia University College of Physicians and Surgeons, ²Boston College

Descriptors: Circumplex Model of Affect, Facial Emotion, Autism Spectrum Disorders

The Circumplex Model of Affect holds that all emotions can be described as a linear combination of two underlying, independent neurophysiological systems, arousal and valence. Given research suggesting that individuals with autism spectrum disorders (ASD) have difficulty processing emotions, we used the circumplex model to compare how individuals with ASD and typically-developing (TD) individuals respond to facial emotions. Adult (19-60yrs) and child (7-18yrs) participants (51 ASD, 80 TD) rated facial expressions along arousal and valence dimensions; we fitted closed, smooth, 2-dimensional curves to their ratings to examine overall circumplex contours. We then modeled individual and group influences on parameters describing curve contours to identify differences in dimensional effects across groups. Significant main effects of diagnosis indicated the ASD group's ratings were constricted for the entire circumplex, suggesting range constriction across all emotions. Findings did not change when we covaried for overall intelligence. These results suggest that individuals with ASD have a muted and constricted range across all emotions, with a disproportionate reduction in the range along the valence dimension of emotion. This characterization of how persons with ASD appraise facial emotions has broad implications for understanding the phenotype, pathophysiology, and treatments of ASD.

POSTER B-67

EMOTIONAL INERTIA AND RUMINATION: THEIR UNIQUE AND SHARED RELEVANCE FOR DEPRESSIVE SYMPTOMS

Annette Brose¹, Peter Koval¹, Florian Schmiedek², & Peter Kuppens¹

¹KU Leuven, ²German Institute for International Educational Research (DIPF)

Descriptors: emotional inertia, rumination, depression

Emotional inertia refers to the extent to which emotions carry over from one moment to the next. Inertia is higher among individuals with comparatively high levels of depressive symptoms. This relationship cannot be reduced to the global tendency to ruminate, which is important because rumination can prolong negative affect. In this study we challenge the role of emotional inertia on depressive symptoms in three ways. First, we use a different timescale compared to previous research to investigate emotional inertia (the day-to-day timescale) and examine its relationship with depression. Second, we examine whether emotional inertia is uniquely related to depression when taking not only trait, but also state rumination into account. Third, we test the relevance of emotional inertia for depressive symptoms over and above the within-person interplay between affect and rumination. On 100 occasions 101 individuals rated their momentary affect and rumination. Depressive symptoms were assessed at pre- and posttest as well as a 2-year follow-up. Results replicated prior findings: emotional inertia predicted depression over and above trait rumination. Furthermore, inertia was related to depression over and above state rumination, and it remained an independent predictor of depression when also adjusting for the affect-rumination interplay. This study's findings add to the mounting evidence that the emotional dynamics reflected by emotional inertia are relevant for depressive symptomatology, and that there is something unique to inertia independent of rumination.

POSTER B-68

IMPAIRED STIMULUS-REINFORCEMENT BASED DECISION MAKING AS INDEXED BY THE PASSIVE AVOIDANCE LEARNING TASK IN PATIENTS WITH GENERALIZED ANXIETY DISORDER

Elizabeth J Lewis, Marilla Geraci, Daniel S Pine, James R Blair, & Karina S Blair NIMH

Descriptors: Generalized Anxiety Disorder, Decision-Making, Passive Avoidance

Background: There is a preliminary, albeit growing literature, indicating that patients with generalized anxiety disorder (GAD) show impairment on decision-making tasks requiring the appropriate representation of reinforcement value. The current study aimed to extend this literature by using the passive avoidance (PA) learning task, where the goal for the participant is to learn to respond to stimuli that engender reward and avoid responding to stimuli that engender punishment. Method: Thirty-nine medication-free patients with GAD and 29 age-, IQ- and gender matched healthy comparison individuals performed the PA learning task. Results: We found that patients with GAD committed significantly more commission (passive avoidance) errors than comparison individuals and that their extent of impairment was associated with their functional impairment as measured by the Global Assessment of Functioning scale. Conclusions: These results link GAD with anomalous decision-making and indicate that a potential problem in reinforcement representation may contribute to the severity of expression of their disorder.

POSTER B-69

EMOTIONAL EXPERIENCE IN MAJOR DEPRESSIVE DISORDER AND SOCIAL ANXIETY DISORDER

Renee J Thompson¹, Matthew T Boden², & Ian H Gotlib³

¹Washington University in St. Louis, ²Center for Innovation to Implementation, VA Palo Alto Health Care System, ³Stanford University

Descriptors: depression, anxiety

Researchers have documented disturbances in emotional processes that characterize major depressive disorder (MDD) and social anxiety disorder (SAD). Little attention has been paid, however, to the role of comorbidity or to disturbances other than those associated with specific diagnostic criteria. In this study, we examined affect intensity, affective lability, and emotional clarity in adults who met criteria for diagnoses of MDD (n = 35), (2) SAD (n = 31), (3) MDD and SAD (n = 26), or (4) who had no current or past history of any mental health disorders (CTL; n = 38). We examined these emotional processes in relation to both categorical and dimensional measures of MDD and SAD. Discriminant analysis indicated that two functions significantly differentiated the four groups. The first function was composed of negative affect intensity and affective variability: CTL had the lowest levels, followed by SAD and MDD, and lastly, MDD/SAD. The second function was composed of positive affect intensity, for which SAD was higher than the other three groups. Path analyses showed that both severity of symptoms of both depression and social anxiety were inversely related to the intensity of positive affect and positively related to the intensity of negative affect. In addition, affective lability was uniquely and positively related to depressive symptom severity, and emotional clarity was uniquely and inversely related to social anxiety symptom severity. We will present implications of these findings for understanding mood and anxiety disorders and advance directions for future research.

POSTER B-70

AMBIVALENCE ACROSS THE SCHIZOPHRENIA SPECTRUM: A TEMPORAL EXAMINATION OF CO-ACTIVATED VALENCE NETWORKS

Alex S Cohen¹, Dallas Callaway¹, & Jeff T Larsen²

¹Louisiana State University, ²University of Tennessee Knoxville

Descriptors: Schizophrenia, experience, ambivalence

Emotional abnormalities are prominent in schizophrenia, and appear to be an important feature of schizotypy – defined as the personality organization reflecting a putative genetic schizophrenia liability. With respect to on-line emotional experience, patients with schizophrenia report abnormally co-activated pleasant and unpleasant emotions – a phenomenon suggestive of ambivalence. Interestingly, individuals with schizotypy tend to report abnormally low pleasant and high unpleasant emotions during similar laboratory procedures, suggesting they experience emotional abnormalities of an entirely different kind. In the present study, we showed stimuli meant to arouse ambivalence to 27 individuals with schizophrenia, 39 individuals with psychometrically-defined schizotypy and matched control groups. Subjects were asked to continuously rate their state happiness and sadness throughout a five minute clip from a tragicomic film (i.e., *Life is Beautiful*). Preliminary analysis suggests that patients with schizophrenia were not abnormal in their experience of sadness, happiness or ambivalence. Conversely, individuals with schizotypy showed abnormally low levels of happiness and high levels of sadness. These results help confirm that schizophrenia is not characterized by deficits in emotional experience and suggest that sadness is not abnormally co-activated with pleasant emotions in this population. Individuals with schizotypy did show emotional deficits – interesting in that these individuals are presumably healthier than patients in every conceivable respect.

This project was funded by an NIMH grant to the first author (R03MH092622)

POSTER B-71

UNIQUE IMPLICATIONS OF SUICIDAL THOUGHTS AMONG INDIVIDUALS WITH BIPOLAR SPECTRUM DISORDERS

Jared K O'Garro-Moore¹, Taylor E Burke¹, Lyn B Abramson², & Lauren B Alloy¹

¹Temple University, ²University of Wisconsin

Descriptors: Bipolar Spectrum Disorders, Suicidal ideation, Anxiety

Bipolar spectrum disorders (BSDs) are characterized by affect lability and in some cases, debilitating depression (Simon et al., 2007). More research is needed to isolate factors that may predict future depression among BSDs. This study examined the role of suicidal ideation (SI) among those with BSDs in predicting depression, and mediators of this relationship. Participants (N=167, 69.6% female, mean age= 20.24, sd= 2.11) were followed prospectively, and qualified for one of three groups: a BSD group (bipolar II, cyclothymia, n=50), a BSD+SI group (n=69), and a demographically-matched control group (n=48). Participants completed the Beck Depression Inventory (BDI) to assess depressive symptoms and an expanded Schedule for Affective Disorders and Schizophrenia (SADS) diagnostic interview at the initial assessment. These measures were administered again, 18 months later. A one-way omnibus ANOVA indicated that the BSD+SI group was significantly more depressed than other groups at follow-up. Preacher and Hayes' (2008) bootstrapping method was used to test for mediational effects of anxiety on the relationship between BSD groups and prospective depressive symptoms. Anxiety was a significant mediator between the BSD groups and prospective depressive symptoms. Results support literature that among those with BSDs, anxiety contributes to both SI (Simon et al., 2007) and an exacerbation of depressive symptoms (Coryell et al., 2012). Future research should uncover additional variables that may mediate the relationship between BSD group and later depressive symptomatology.

POSTER B-72

FLUCTUATIONS OF THE HEART: INCREASED CARDIAC VAGAL TONE VARIABILITY AS A POTENTIAL PHYSIOLOGICAL MARKER OF BIPOLAR I DISORDER

Amanda L Purcell¹, Aleksandr Kogan², Kirsten Gilbert¹, Sunny Dutra¹, & June Gruber¹

¹Yale University, ²University of Cambridge

Descriptors: bipolar disorder, cardiac vagal tone, emotion

Bipolar disorder (BD) is a severe psychiatric disorder associated with profound emotion dysregulation. One promising avenue toward a better understanding of the pathophysiology of emotion disturbances in BD is to examine cardiac vagal tone (CVT). CVT levels have been associated with well-being, positive emotion, and emotion regulatory capacities, all constructs relevant to the observed emotional disturbance in BD. Indeed, elevated CVT levels are associated with risk for, and diagnosis of BD. As such, CVT may provide a unique physiological index of emotional functioning in BD. While previous work has examined individual differences in CVT levels, few studies have examined CVT variability, the fluctuation in CVT levels across emotional contexts to meet situation-specific demands. The present investigation experimentally examined intra-individual CVT variability across positive and negative emotions, elicited using a multi-modal approach, including standardized films, a goal induction, mindfulness and rumination inductions, a counting task, and a singing task among participants with remitted BD I (n = 23) and healthy controls (CTL; n = 26). CVT variability was calculated two ways: as the intra-individual standard deviation of CVT levels across tasks and as the mean square successive difference of CVT levels across contexts. Results indicated that the BD group exhibited greater CVT variability across contexts compared to the CTL group using MSSD calculations. Implications for CVT variability as a potential mechanism underlying emotional instability in BD will be discussed.

POSTER B-73

EMOTIONAL RUBBERNECKING IN SCHIZOPHRENIA

Teal S Eich, & Edward E Smith

Columbia University

Descriptors: Emotion, Attention, Schizophrenia

Orienting towards emotionally salient information can be adaptive, as when danger needs to be avoided. Consistent with this idea, emotionally valenced information draws attention more than does neutral information in healthy individuals. However, there are times when this tendency is not adaptive, and it may distract the individual from their goals. People with schizophrenia (PSZ) have been shown to exhibit diminished recognition of and attention to emotional faces. In the current study, we investigated how the presentation of faces varying in emotional expression affected performance on a working memory task for PSZ and age and education matched healthy controls (HC). We found that PSZ exhibited better performance, as measured by D-Prime, than did HC. To determine from which component of D-Prime the advantage derived, we examined hit rates and false alarm rates separately. Hit rates were high, and not significantly different, for both the HCs and PSZ. However, the PSZ made fewer false alarms—resulting in overall better performance—than did the HCs. HC had produced more errors on trials in which they were to ignore an emotional face and attend to a neutral face than on trials in which they were to attend to an emotional face and ignore a neutral face. PSZ did not show significantly different performance comparing across these two conditions. Thus, deficits in emotional processing in PSZ appear to provide an advantage to them in situations in which salient, emotional information competes with active cognitive goals.

POSTER B-74

COMPUTATIONAL TEMPORAL INTERPERSONAL EMOTION SYSTEMS

Emily A Butler, Jinyan Guan, Rebecca G Reed, & Kobus Barnard
University of Arizona

Descriptors: co-regulation, Bayesian modeling

Emotion is often framed as an intra-personal dynamic system made up of components such as subjective experience, expressive behaviors, and autonomic physiology. An important extension is that most emotions occur in the context of social interactions or ongoing relationships, thereby forming temporal inter-personal emotion systems (TIES), where the subcomponents of emotion interact both within the individual and across the partners. If we could predict emotions during social interactions we could intervene in a broad array of domains ranging from marital quality to political negotiations. A major impediment is a lack of modeling tools capable of representing the complexity of TIES. Thus, in our work we use Bayesian generative statistical modeling and cross-validation to develop dynamic TIES models optimal for distinguishing between distinct interpersonal emotional processes and predicting real-world outcomes. As an example, we will present a linear dynamic system model that distinguishes between various interpersonal emotional patterns (co-regulation, co-dysregulation) using self-reported emotional experience data (10 second increments) collected during conversations between romantic partners in committed heterosexual relationships. Results from cross-validation show that we can predict emotional experience for the last 20% of a couple's conversation (held out data) from the first 80% (training data) at rates better than simply predicting the mean. We also show that characteristics of the couple (e.g., satisfaction) contribute to distinct interpersonal emotional patterns.

National Science Foundation, Division of Behavioral and Cognitive Sciences, grant #BCS-1322940

POSTER B-75

IS YOUR HAPPINESS CONTAGIOUS? BELIEF IN THE SPREAD OF HAPPINESS PREDICTS POSITIVE EXPRESSIVITY.

Nicole M Senft, & Yulia E Chentsova Dutton
Georgetown University

Descriptors: Emotional Contagion, Expressivity

A large body of research documents the spread of emotions in social contexts. However, we know little about individuals' awareness of this phenomenon. We hypothesized that individuals would vary in their beliefs about whether emotions spread to others, and that these beliefs would predict expressive behavior. In this preliminary study, we collected self-reports of positive and negative emotional expressivity and beliefs about the spread of happiness and sadness. We found that belief that one's sadness spreads to others does not influence expression of negative emotions. However, belief that one's happiness spreads to others is positively associated with positive expressivity. Trait levels of positive and negative affect moderate this main effect, such that the impact of the belief that happiness spreads is particularly strong for those high in both positive and negative affect. In future research, we plan to test whether the relationship between self-reported belief that happiness transfers and self-reported positive expressivity will generalize to observable emotional behavior in social context. We will manipulate beliefs that positive emotions spread to others and observe the impact of this manipulation on verbal and nonverbal emotional expressivity during a social interaction.

POSTER B-76

PRIDE ATTENUATES NONCONSCIOUS MIMICRY

Leah Dickens, & David DeSteno
Northeastern University

Descriptors: pride, nonverbal behavior, social interaction

Positive and negative moods have been studied as dichotomous and opposite states of being. However, discrete positive emotional states are likely to vary in regard to the nonverbal behavior they motivate. Participants interacted with an experimenter, who offered positive feedback (inducing pride), offered snacks (inducing positive mood), or maintained a neutral relationship. Then, participants talked with a confederate who shook her foot constantly throughout an interaction. Results demonstrated that participants in the pride condition mimicked the confederate's behavior significantly less than participants in either a positive or neutral condition. In line with past research, the general positivity condition increased mimicry behavior, compared to a neutral mood. These findings lead to new questions about the mechanisms causing these behaviors and how different discrete emotional states vary. Future research needs to investigate how information processing, attentional focus, and status might independently relate to discrete emotional states and subsequently affect nonverbal behavior.

POSTER B-77

EMOTIONAL VICTIMIZATION AND DEPRESSION: THE MODERATING ROLE OF EXECUTIVE FUNCTIONS

Jessica L Hamilton¹, Samantha L Connolly¹, Taylor A Burke¹, Issar Daryanani¹, Lyn Y Abramson², & Lauren B Alloy¹

¹Temple University, ²University of Wisconsin-Madison

Descriptors: Victimization, Executive Functioning, Depression

Deficits in executive functions have been linked to difficulties coping with stress and employing adaptive emotion regulation strategies (Klein & Boals, 2001). However, the role of adolescents' executive functioning on individual differences in depressive reactions following stress remains unclear. Thus, the aim of the current study was to examine whether adolescents' ability to think about and plan for the future (i.e. future orientation) impacts the effect of damaging interpersonal stressors (e.g. peer and familial emotional victimization) on depressive symptoms. A total of 260 adolescents (Mean age = 12.86, 54% Female; 51.6% African American) completed measures of depressive symptoms and future orientation at Time 1, peer victimization and familial emotional abuse at Time 2, and depressive symptoms at Time 3. Hierarchical linear regressions indicate that peer victimization and emotional abuse significantly interacted with future orientation ($t = -3.05, p < .001$; $t = -3.76, p < .001$), such that peer victimization and emotional abuse predicted increases in depressive symptoms among adolescents with less future orientation ($t = 4.32, p < .001$; $t = 6.13, p < .001$). These findings suggest that adolescents with less future orientation are particularly vulnerable to the effects of peer and familial emotional victimization, and experience greater depressive symptoms following victimization. These results help to further our understanding of why certain individuals may be at greater risk of developing depression in response to life stress during adolescence.

POSTER B-78

SUICIDAL IDEATION PREDICTS INTERPERSONAL STRESSFUL LIFE EVENTS AMONG RACIALLY DIVERSE COMMUNITY SAMPLED ADOLESCENTS

Taylor A Burke, Jessica L Hamilton, Daryanani Issar, & Alloy B Lauren
Temple University

Descriptors: Suicidal Ideation, Adolescent, Stress

Interpersonal stressful life events (SLEs) have been found to predict greater suicidal ideation (SI) (Joiner & Rudd, 1995). However, few to no studies have examined the transactional relationship between SI and SLEs. Given the well-documented finding that individuals with depression contribute to the occurrence of negative interpersonal events in their lives (Hammen, 1991), it is surprising that few studies have investigated whether adolescent SI contributes to the experience of more interpersonal SLEs. The purpose of this study was to examine the impact of SI on the development of interpersonal and non-interpersonal SLEs among a diverse community sample of adolescents using a longitudinal design. A total of 336 adolescents (Mean age=12.83; SD=.66; 55% female; 52% African American) completed two assessments. At Time 1, SI was measured using Item #9 of the Children's Depression Inventory (CDI) and depressive symptoms and hopelessness were measured with self-report scales. At Time 2, participants completed an inventory of SLEs that occurred between Time 1 and 2. A series of binary logistic regressions were conducted to examine the effect of SI on SLEs. SI predicted a greater number of interpersonal SLEs, controlling for initial depressive symptoms and hopelessness ($\beta=1.76, p=.03$). SI did not prospectively predict total achievement-related SLEs at follow-up. Understanding the unique implications of suicidal cognitions apart from depressive and hopeless thoughts is important for the prevention of greater interpersonal stress and the onset and maintenance of psychopathology.

POSTER B-79

THE PROTECTIVE EFFECTS OF PERCEIVED SAVORING CAPACITY FOR HIGHLY STRESSED INDIVIDUALS

Meagan A Ramsey¹, Cara A Palmer², & Amy L Gentzler¹
¹West Virginia University, ²West Virginia University

Descriptors: Savoring, Stress, Health

Much research details the harmful effects of stress on mental and physical health (Thoits, 2010). Other research shows that savoring or up-regulating positive emotions is beneficial for well-being (Bryant, 2003). Thus, it is possible that being able to savor and enjoy the positive things in life could be protective for the highly stressed, but current research has not examined this. This study examined if perceived savoring capacity moderates the association between perceived stress and physical and mental health by administering an online survey to 218 adults (128 females) ages 18-77 ($M=42.23$) using Amazon Mechanical Turk. The Savoring Beliefs Inventory (Bryant, 2003) assessed perceived savoring capacity, the Perceived Stress Scale (Cohen et al., 1983) assessed perceived stress, and the SF12 (Ware et al., 1996) examined indices of physical and mental health (overall physical health, overall mental health, and physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health subscales). Results indicated that perceived savoring capacity moderated the association between perceived stress and several health indices ($p<.05$ for overall mental health, mental health subscale, social functioning, role-emotional, and role-physical). Specifically, those with high levels of perceived stress and high levels of savoring capacity had better health outcomes than those with high stress but low savoring capacity. Overall, this study suggests that having high savoring abilities is especially helpful during times of great stress.

POSTER B-80

POSITIVE FACIAL EXPRESSIONS REDUCE NEGATIVE PHYSIOLOGICAL AND PSYCHOLOGICAL RESPONSES TO NEEDLE INJECTION

Sarah D Pressman¹, Amanda M Acevedo¹, Alysha Chagany¹, & Tara L Kraft²
¹University of California, Irvine, ²University of Kansas

Descriptors: facial expression, stress, psychophysiology

Positive emotions have been found to buffer stress and improve health across a wide variety of domains. Less is known about the health benefits of positive emotional expression, that is, of smiling. In the current study, we test whether smiling is helpful in reducing negative responses to a naturalistic stressor: needle injection. Participants ($N = 180$, 54% male, 81% white, mean age = 19) were trained to mimic either a non-Duchenne smile, a Duchenne smile, or a neutral (control) expression by holding a chopstick in their mouth in varying orientations. A cover story was utilized to prevent emotional expectancy effects and knowledge of smiling. Training was followed by the receipt of a saline solution needle injection using a standard 25 gauge needle, and a brief 5 minute recovery period. Heart rate (HR) was recorded throughout the study. Participants also reported anticipated and experienced pain before and after injection. Results revealed that individuals in both smiling groups anticipated that the needle would be less painful versus those in the neutral control group ($F = 5.45, p < .05$) and reported that the needle was less painful afterwards ($F = 6.49, p = .01$). Similarly, smiling conditions had lower HR during the injection ($F = 6.34, p < .05$) and during post-injection recovery period ($F = 3.77, p = .05$) as compared to controls. This study provides further evidence on the psychological and physiological benefits of positive facial expressions, and indicates the possibility of a simple intervention to reduce the aversiveness of vaccinations.

POSTER C-1

CAN EEG BE USED TO TRAIN FOR MODULATION OF ACTIVITY IN SUB CORTICAL AREAS?

Jakob N Keynan¹, Gilan Jakont¹, Gadi Gilam¹, Avihay Cohen¹, Ofir Shany¹, Yehudit Meir-Hasson², Eyal Fruchter³, Nathan Intratur², & Talma Hendler⁴

¹Functional Brain Center Wohl Institute for Advanced Imaging Tel-Aviv Sourasky Medical Center, ²Tel-Aviv university, ³IDF, ⁴Functional Brain Center Wohl Institute for Advanced Imaging Tel-Aviv Sourasky Medical Center & Tel-Aviv university

Descriptors: Neurofeedback, simultaneous EEG-fMRI, Amygdala

Training subjects to modulate sub-cortical areas such as the amygdala via real time (rt) fMRI NeuroFeedback (NF) has been found beneficial in the relief of stress symptoms. However the application rtfMRI is limited by its low accessibility for bed-side use. From this motivation we have developed an EEG probe of limbic activity: "the amygdala electrical fingerprint" (EFP). Development of the EFP was done using simultaneous EEG-fMRI recordings and advanced computational methods. At the current 3 time points (TP) research we have tested the effect of EFP guided NF on subject's ability to regulate amygdala activity. At TP1 subject's baseline ability to regulate amygdala activity was measured by rtfMRI. At TP2 the test group received online audio feedback on their rtfMRI signal and were asked to reduce its volume. The control group received a sham feedback in otherwise similar protocol. At TP3 subject's ability to regulate amygdala activity was measured again using amygdala guided rtfMRI. We expected that in TP3 the test relative to shame group will show greater amygdala regulation during rtfMRI. At TP2, the test group showed higher success than the sham group. At TP3 the test group was significantly more successful than the sham group at reducing amygdala activity. In this research we were able to train subjects to self-regulate activity in deep brain areas using a one-electrode EEG probe driven from simultaneous fMRI. This novel approach opens up the possibility for low-cost, bed-side tools for mechanism-driven diagnosis and treatment of brain disorders.

POSTER C-2

THE ROLE OF DOMAIN-GENERAL TASK CONTROL REGIONS IN PROCESSING EMOTIONAL AMBIGUITY

Maital Neta¹, William M Kelley², Steven E Petersen¹, & Paul J Whalen²

¹Washington University School of Medicine, ²Dartmouth College

Descriptors: ambiguity, task control, regulation

There is a range of individual differences in the way people interpret the valence of surprised facial expressions. Previous work has demonstrated that individuals who interpret surprised faces more negatively show increased amygdala and concomitant decreases in ventromedial prefrontal cortex activation. However, participants did not rate the valence of these faces in the scanner, so one goal of the present study was to examine the neural responses while making these decisions. This series of experiments was also designed to test the specificity of this response to face stimuli (surprise). The first experiment tested whether these effects generalize to other non-face emotional stimuli (i.e., IAPS scenes). We found that individual differences in rating surprised faces generalized to ambiguous scenes, suggesting that surprised faces per se are not special in their ability to tap into one's valence bias. Further, when examining neural responses to the ambiguous stimuli, we found activity in regions comprising a task control (i.e., cingulo-opercular) network when participants made an explicit (valence) evaluation of each category of stimuli. This suggests that this network may be involved in some sort of performance feedback in situations of ambiguity. The next experiment showed that cingulo-opercular responses demonstrated concurrent performance feedback signals for ambiguity, errors, and time on task. As such, some of the ambiguity-relevant processes that come online are domain-general control signals that play a crucial role in decision-making across many task contexts.

NIMH Grants MH069315, MH087016, R01HD057076 ARRA supplement, NS061144, and a McDonnell Foundation Collaborative Activity Award

POSTER C-3

DIFFERENTIAL AMYGDALA RESPONSE TO MASKED FEARFUL AND HAPPY EYE-WHITES IN CHILDREN AND ADULTS

Madeline B Harms, Angela Tseng, Ruskin H Hunt, & Katie M Thomas
University of Minnesota

Descriptors: Amygdala, fMRI

Researchers have hypothesized a putative "fast" route from thalamus to amygdala for processing threatening visual stimuli that bypasses conscious awareness. Prior research suggests that subliminally presented fearful eye-whites may activate the amygdala through such a pathway in adults (Whalen et al., 2004). This response to fearful eye-whites could be evolutionarily significant in humans, in which case it should appear early in development. In the current study, we tested this hypothesis by examining amygdala responses to subliminal fearful and happy eye-whites (masked by neutral faces) in 28 8-year-old children and 20 adults. Non-ecologically valid fearful and happy eye-blacks served as a control condition. Adults showed a significant right amygdala response to fearful vs happy eye-whites, but children did not show differential amygdala response by emotion. Activation in fusiform and occipital regions was modulated by emotion for both age groups, indicating that the subliminal stimuli are detected by the visual cortex. Neither age group showed significant amygdala activation to fearful vs happy eye-blacks. Our results indicate that, unlike adults, 8-year-old children do not activate the amygdala in response to subliminal fearful eye-whites. These findings challenge the idea that the "fast pathway" amygdala response to fearful eye-whites is innate, and instead may be learned through experience.

POSTER C-4

INCREASED STRIATAL REACTIVITY TO SOCIAL, BUT NOT MONETARY, REWARDS PROSPECTIVELY PREDICTS MOOD SYMPTOMS IN EUTHYMIC BIPOLAR I DISORDER

Sunny J Dutra¹, William A Cunningham², Mary L Phillips³, Hedy Kober¹, & June Gruber^{1,4}

¹Yale University, ²University of Toronto, ³University of Pittsburgh, ⁴University of Colorado at Boulder

Descriptors: Reward, Affective Neuroscience, Bipolar Disorder

Individuals with bipolar disorder (BD) display increased emotional reactivity to positive stimuli and rewards. However, the neural underpinnings, generalizability across distinct categories of reward, and prospective clinical significance of this pattern of findings are not well understood. The current study examined neural patterns of reactivity across both monetary and social rewards at baseline, and associations between these measures and mood symptoms at a one-year follow-up. A sample of 27 remitted BD I patients and 24 group-matched healthy controls recruited from the New Haven area completed a monetary incentive delay reward task and a novel parallel social incentive delay reward task during fMRI (note: data collection is ongoing). Aim 1: We examined potential group differences in patterns of neural reactivity to monetary and social rewards. Aim 2: We examined the prognostic significance of neural reactivity to rewards using symptom outcome and functioning data at a 12-month follow-up in a subset (n = 14) of the BD group. Results from a region-of-interest analysis indicated that individuals with BD displayed greater ventral striatal (VS) reactivity for social rewards compared to the CTL group, but did not differ in VS reactivity to monetary rewards. Within the BD group, neural reactivity values extracted from the VS during the social reward task also predicted increased mood symptom severity during the 12-month follow-up. This suggests that neural reactivity in the VS to social rewards may distinguish BD from CTL group and predict clinical outcomes for adults with BD.

POSTER C-5

DECREASED CORTICAL GYRIFICATION ASSOCIATED WITH TRAIT ANXIETY

Tara A Miskovich, Walker S Pederson, Emily L Belleau, & Christine L Larson
University of Wisconsin-Milwaukee

Descriptors: trait anxiety, local gyrification index, cortical folding

Abnormal cortical folding is thought to reflect differences in cortical connectivity during early brain development. Previous literature has revealed abnormalities in functional connectivity (Kim, Gee, Loucks, Davis & Whalen, 2010) as well as structural abnormalities in anxiety (Barmilla, Barale, Caverzasi, & Soares, 2002), but no study to our knowledge has examined cortical complexity in trait anxiety. We utilized a relatively novel measure, the local gyrification index (LGI), developed by Schaer et al. (2008) to explore differences in cortical complexity as a function of trait anxiety. We obtained structural MRI scans using a 3.0T magnetic resonance scanner on 112 undergraduate psychology students. After deriving LGI estimates, we examined the relationship between trait anxiety and LGI. Trait anxiety showed a significant negative correlation with LGI in the left superior parietal cortex, specifically the precuneus, reflecting less cortical complexity ($p = .05$), controlling for age and gender. Our findings may reflect early development differences in local parietal connectivity that is related to trait anxiety.

POSTER C-6

SELF AND OTHER RELEVANCE IN THE AMYGDALA

Vincent Man¹, Daniel L Ames², Alexander Todorov², & William A Cunningham¹
¹University of Toronto, ²Princeton University

Descriptors: Amygdala, Empathy, Context

Recent research has demonstrated that amygdala activation is sensitive to goal-relevant information, as well as to information that is relevant to situational motives. These data implicate the amygdala in early evaluative processes involved in determining the relevance of stimuli. However, it remains unclear whether the amygdala is sensitive only to information relevant to the self, or if the needs of others can similarly shape amygdala response. To examine amygdala tuning for self and other, participants were presented with scenarios in which they were told to identify the faces of people who they thought could help them with a goal (self-focused condition), or to identify the faces of people whom they could help (other-focused condition). In both conditions, the faces varied along a dimension of trustworthiness. Amygdala response was larger for both trustworthy and untrustworthy faces, compared to neutral faces. Importantly, more empathic individuals demonstrated relatively greater amygdala activation in response to trustworthy and untrustworthy faces in the other-focused condition compared to less empathic individuals. The results indicate that the amygdala is responsive to stimuli relevant not only to self-focused goals, but also to other-focused goals. Further, this effect is moderated by a chronic desire to help others.

POSTER C-7

INVESTIGATING THE RELATIONSHIP BETWEEN FEARFULNESS, FEAR-RELATED BOLD RESPONSES AND GABA IN THE INSULA

Ilona Lipp, C John Evans, Kevin Murphy, Xavier Caseras, & Richard G Wise
Cardiff University

Descriptors: GABA, BOLD, fear

The inhibitory neurotransmitter GABA plays a crucial role in anxiety and fear, but its relationship to brain activation during fear reactions is not clear. Previous studies suggest that GABA agonists lead to attenuation of emotion-processing related BOLD signals in the amygdala and insula. The aim of this study was to directly investigate the relationship between GABA concentration and fear-related BOLD responses. 44 female participants with different levels of fearfulness were recruited for the imaging study. For the whole sample, BOLD signals were assessed using a functional magnetic resonance imaging scan with a fear-specific emotion paradigm, and GABA concentration measures were obtained from a GABA+ sensitive magnetic resonance spectroscopy scan using a voxel in the left insula. While fearfulness was not associated with GABA levels in our voxel, fear-related BOLD responses in the anterior insula were stronger in highly fearful participants than in less fearful participants. The BOLD signal in this cluster did not correlate with GABA concentration. However, we found a significant positive correlation between GABA and fear-related BOLD responses in a different cluster including parts of the left insula, amygdala and putamen. The relationship between GABA and BOLD is not well understood, but our findings indicate an association between GABA and BOLD signals in brain-structures crucial for fear. We will discuss implications and potential mechanisms underlying this relationship.

POSTER C-8

INSULTS HURT AND THEY KEEP HURTING, ESPECIALLY WHEN THEY ARE ABOUT YOU! EVIDENCE FROM EEG AND SKIN CONDUCTANCE MEASURES

Marijn E Struiksma¹, Hannah NM De Mulder¹, Nicola Spotorno², Jana Bashakova³, & Jos JA Berkum¹

¹Utrecht University, ²University of Pennsylvania, ³Slovak Academy of Sciences

Descriptors: Insults, EEG, Skin conductance

Research on emotion in language has mainly focused on the processing of emotion words in isolation. Using EEG and skin conductance measures, we investigated how compliments and insults are processed in a sentence that either directly addressed the participant or targeted somebody else (e.g. '[participant's name]/Jane is ugly/beautiful'). Relative to compliments, insults elicited a stronger P2 response (150-250ms), regardless of who was addressed. This suggests that a generic negativity bias is already present during early perceptual processing, possibly reflecting rapid detection of, and focus on, the taboo nature of insulting words. In the 350-500ms latency range the negativity bias was modulated by who was addressed. Relative to compliments, insults elicited a strong Late Positive Potential (LPP) response, but the effect was strongest when the insults were directed at the participant. These personal insults also elicited the strongest skin conductance response, suggesting that sympathetic activation is not only driven by the occurrence of a negative word, but is also sensitive to the sentence context. Interestingly, multiple repetitions of our stimuli did not modulate the early and late effects, which suggests that both the initial generic response to insults and the following specific response to personal insults do not readily adapt. Together, our findings indicate that even in a contrived and highly 'impersonal' lab setting, insults affect participants' physiological and neural responses and, at the neural level, they continue to do so over repetition.

NWO - The Netherlands Organisation for Scientific Research

POSTER C-9

RUMINATION-RELATED NEURAL NETWORK DYSFUNCTION IN DEPRESSION

Emily L Belleau, Lauren E Taubitz, & Christine L Larson
University of Wisconsin-Milwaukee

Descriptors: rumination, depression, default mode network

Rumination has been linked to the development and maintenance of major depressive disorder (MDD) (Nolen-Hoeksema, 2008). Aberrant activity in the default mode network (DMN) has been linked to rumination in depression (Hamilton et al., 2011). The current study used independent component analysis (ICA) to examine the DMN in MDD during rumination. Sixteen individuals with MDD and healthy controls (HC) completed a neuroimaging task that involved rumination and distraction mood inductions. Posterior and anterior DMN were identified via ICA. Analyses on the two group DMN component maps were corrected for multiple comparisons via Monte Carlo simulations (voxel based $p < 0.01$, nearest neighbor criteria, clusters greater than 36mm³ to achieve $p < 0.05$). A mood induction by group interaction was found in the prefrontal cortex (Brodmann area 10) of the anterior DMN. The MDD group exhibited greater anterior DMN during distraction compared to rumination and HCs showed the opposite pattern with greater anterior default mode connectivity during rumination than distraction. Between groups differences revealed that the MDD group exhibited suppressed anterior DMN connectivity during the rumination induction compared to HCs. These findings are consistent with previous work suggesting that depressed individuals are more apt to engage in self-referential processing when it is task irrelevant and that they may find the rumination task more cognitively demanding. This neural dysfunction may contribute to the affective and cognitive disturbances characteristic of MDD.

POSTER C-10

A ROLE FOR PRIMATE SUBGENUAL CINGULATE CORTEX IN SUSTAINING AUTONOMIC AROUSAL

Peter H Rudebeck, Philip T Putnam, Teresa E Daniels, Tianming Yang, Andrew R Mitz, Sarah E Rhodes, & Elisabeth A Murray
NIMH

Descriptors: Subgenual Cingulate, Reward, Prefrontal

The subgenual anterior cingulate cortex (subgenual ACC) plays an important role in regulating emotion, and degeneration in this area correlates with depressed mood and anhedonia. Despite this understanding, it remains unknown how this part of the prefrontal cortex contributes to emotion, especially positive emotions. Using Pavlovian conditioning procedures in macaque monkeys, we examined the contribution of the subgenual ACC to autonomic arousal associated with positive emotional events. After such conditioning, autonomic arousal increases in response to cues that predict rewards, and monkeys maintain this heightened state of arousal during an interval prior to reward delivery. Here we show that the initial, cue-provoked arousal remains unchanged in monkeys with lesions of the subgenual ACC, but they fail to sustain a high level of arousal until the anticipated reward is delivered. Control procedures showed that this impairment did not result from differences in autonomic responses to reward delivery alone, an inability to learn the association between cues and rewards, or to alterations in the light reflex. Our data indicate that the subgenual ACC contributes to positive affect by sustaining arousal in anticipation of positive emotional events. A failure to maintain positive affect for expected pleasurable events could provide insight into the pathophysiology of psychological disorders in which negative emotions dominate a patient's affective experience.

Intramural Research Program of the National Institute of Mental Health

POSTER C-11

NEURAL UNDERPINNINGS OF THE IDENTIFIABLE VICTIM EFFECT: AFFECT SHIFTS PREFERENCES FOR GIVING

Alexander Genevsky¹, Daniel Vastfjall², Paul Slovic³, & Brian Knutson¹
¹Stanford University, ²Linkoping University, ³Decision Research

Descriptors: charitable giving, identifiable victim, nucleus accumbens

The identifiable victim effect describes the fact that people prefer to give to vivid identified victims than to anonymous victims of misfortune. Affect has been thought to contribute to this effect, but research has not yet established exactly which emotions matter and how. To further understand the role of affect we ran an fMRI study on 22 individuals. Prior to scanning, subjects were given a monetary endowment from which they could choose to donate on each trial of the experiment (one of which would be randomly selected to count "for real"). During each trial subjects sequentially saw either a photograph or silhouette of an African orphan, an amount for the requested donation, and made a choice whether or not to donate. We found that just viewing a photograph increased peoples' willingness to donate (by about 50%). This increase in giving was associated with self-reported ratings of positive, rather than negative, arousal in response to the photographs. Further, although a number of neural regions were responsive to the photograph vs. silhouette contrast, only the nucleus accumbens predicted eventual decisions to give. Current behavioral and neural findings suggest that the identifiable victim effect may be explained by positively aroused feelings and nucleus accumbens activation in response to affectively evocative identifiable information. This activity may compel people to give to others based on identifiable and affectively compelling characteristics, even in spite of costs to themselves.

POSTER C-12

RESTING STATE CONNECTIVITY BETWEEN DEFAULT AND SALIENCE NETWORKS PREDICTS THE ENHANCEMENT OF MEMORY BY AFFECT

Joseph M Andreano¹, Alexandra Touroutoglou¹, Bradford C Dickerson¹, & Lisa Feldman Barrett²

¹Massachusetts General Hospital, ²Northeastern University

Descriptors: Affect, Memory, Connectivity

The processing of memory and affect are thought to be performed by distinct brain networks, the default mode and salience networks. While resting connectivity within the default network and salience network relates to memory performance and affective experience, respectively, the effects of resting connectivity between these two networks have not been explored. In this study, we demonstrate that the strength of resting connectivity between nodes of the default and salience networks significantly predicts the magnitude of memory enhancement caused by affective experience. Resting state connectivity was measured by fMRI in participants prior to a neutral associative memory task performed under negative affect induction. In a second session, participants' associative memory was tested under neutral induction. Individual differences in intrinsic connectivity between dorsal amygdala and multiple nodes of the default network, as well as connectivity between hippocampus and multiple salience network structures was found to significantly predict the difference in recognition sensitivity between material learned under negative vs. neutral induction. Thus affective experience during learning had a significantly greater influence on memory in individuals with a greater degree of resting connectivity between default and salience networks.

POSTER C-13

THE BRAIN BASIS OF EMOTION EXPERIENCE VS. EMOTION PERCEPTION

Elizabeth Clark-Polner¹, Ajay B Satpute², Tor D Wager³, & Lisa Feldman Barrett⁴
¹University of Chicago, ²Northeastern University, ³University of Colorado, Boulder, ⁴Northeastern University, Massachusetts General Hospital/Harvard Medical School

Descriptors: Emotion, Experience, Perception

In everyday life, people distinguish between their own experiences of emotion and their perceptions of emotion in other people. Psychological science has maintained two competing perspectives on the relation between emotional experience and perception: Faculty psychology proposes that the two phenomena are distinct with correspondingly different brain bases. The embodiment perspective, on the other hand, argues that perceiving emotion in someone else requires experiencing the emotion, such that the two phenomena have similar brain bases. We report a meta-analysis of 383 neuroimaging studies testing these competing claims. Results reveal both similarities and differences in the neural correlates of emotion experience and emotion perception, suggesting that neither the faculty nor the embodiment approaches are correct. Instead, the findings are consistent with a third approach, the constructionist approach, where both emotional experience and perception are constructed from interactions among a common set of brain networks that subserve more basic, domain-general functions. Large-scale functional brain networks, previously identified within the literature, provide a good framework for understanding the brain basis of emotional experience and perception. These results are discussed within the broader theoretical perspective on grounded cognition.

POSTER C-14

PTSD SYMPTOM SEVERITY IS ASSOCIATED WITH INCREASED RECRUITMENT OF TOP-DOWN ATTENTIONAL CONTROL IN A TRAUMA-EXPOSED SAMPLE

Stuart F White¹, Michelle E Costanzo², James R Blair¹, & Michael J Roy²
¹National Institute of Mental Health, NIH, ²Uniformed Services University of Health Sciences

Descriptors: PTSD, emotion, attention

Recent neuroimaging work suggests that increased amygdala responses to emotional stimuli and dysfunction within regions mediating top down attentional control (dorsomedial frontal, lateral frontal and parietal cortices) may be associated with the emergence of anxiety disorders, including Posttraumatic Stress Disorder (PTSD). This report examines amygdala responsiveness to emotional stimuli and the recruitment of top down attention systems as a function of task demands in a population of U.S. military service members who had recently returned from combat deployment in Afghanistan/Iraq. Fifty-seven participants completed the Affective Stroop task while undergoing fMRI. Participants with PTSD or depression at baseline were excluded. Greater PTSD symptom severity scores were associated with increased amygdala activation to emotional, particularly positive, stimuli relative to neutral stimuli. Furthermore, greater PTSD symptom severity scores were associated with increased activation of the brain's top down attention systems in response to emotional relative to neutral stimuli and in task condition relative to passive viewing conditions. In line with predictions, increasing PTSD symptom severity was associated with increased amygdala responsiveness to emotional stimuli. However, in contrast to predictions, increasing PTSD symptom severity was associated with increased recruitment of regions implicated in top down attention. This may reflect heightened requirements for emotional regulation in individuals with sub-threshold PTSD symptoms.

This work was supported by the Intramural Research Program of the National Institute of Mental Health, National Institutes of Health under grant number 1-ZIA-MH002860 to James Blair and the Center for Neuroscience and Regenerative Medicine under grant number 300601 8.01 60855510005 to Michael Roy. This work was approved under NIH Combined Neurosciences IRB protocol number 11-N-0090. NCT number: NCT01296126.

POSTER C-15

REDUCED LOOKING AWAY FROM DISGUSTING STIMULI IN BEHAVIORAL VARIANT FRONTOTEMPORAL DEMENTIA PATIENTS.

Marcela C Otero, & Robert W Levenson
University of California, Berkeley

Descriptors: emotional functioning, frontotemporal dementia, emotion regulation

Viewing decay and contamination produces unpleasant visceral sensations (e.g., nausea) associated with autonomic activation. These sensations can lead to withdrawal-based regulatory behaviors that reduce visual input (e.g., looking away) and thus restore equilibrium. Behavioral variant frontotemporal dementia (bvFTD) is a neurological disease that affects brain regions (e.g., anterior insula) involved in representing visceral responses. Clinically, bvFTD patients sometimes approach objects that others would find disgusting and thus avoid (e.g., food in garbage cans). We examined emotional reactivity and visual attention in 43 bvFTD patients, 43 AD patients, and 35 healthy controls. Participants viewed an extremely disgusting film clip while their autonomic reactivity, emotional facial expressions, and emotional experience were monitored. In addition, visual attention was measured using behavioral coding of head, body, and eye position. No differences were found between groups in physiological response or facial expression of emotion. However, bvFTD patients were less likely to show attentional behaviors that reduce visual input compared to AD patients and reported less subjective experience of disgust compared to AD patients and healthy controls. These findings are consistent with the view that low-level emotion-generating circuits that produce autonomic and facial responses to disgusting stimuli remain intact in bvFTD, but that this physiological information isn't integrated in ways that produce subjective distress and motivate attempts to withdraw visually.

National Institute on Aging, P01AG019724 National Institutes of Health, R37AG017766 National Science Foundation, DGE 1106400

POSTER C-16

IMPLICIT SOCIAL REWARD BIAS PROLONGS SUBSEQUENT ATTENTIONAL ENGAGEMENT

Vanessa Troiani¹, Morgan Rohrbach², & Ingrid R Olson²
¹Temple University, Center for Autism Research, ²Temple University

Descriptors: social learning, social motivation, social attention

Rewards derived from social interactions, such as praise, drive learning and behavior. Here we investigate whether implicit statistical learning of social reward contingencies can rapidly modulate visual attention. Normal participants (N=18) completed a perceptual learning task, where reward feedback was provided by videos depicting two unknown actors giving either social approval (e.g. smile/thumbs up) or neutral feedback (e.g. eyes closed/snapping). A subtle 7:5 bias was introduced, such that one actor (rich identity) gave relatively more social approval than the other actor (lean identity). Lean and rich identity faces were then used as cues in an attentional orienting paradigm designed to elicit inhibition of return (IOR) effects (i.e. slower RTs when a target appears unpredictably in the same location preceding the cue, rather than a different location). Relevant or salient items generally reduce the IOR effect due to increased attentional capture by these images. Participants experienced a significant IOR when cued with the lean identity ($p < 0.01$). However, IOR was reduced with rich identity cues, indicating that greater social reward history prolongs attentional engagement with those individuals. These findings indicate that (a) we rapidly and implicitly learn social reward contingencies; and (b) these contingencies modulate visual attention. More generally, we suggest that one component of a fully intact social learning system is automatic integration of these implicit biases into behavior, a component that may be impaired in social learning disorders like autism.

POSTER C-17

GENDER DIFFERENCES IN REWARD SENSITIVITY

Kevin Haworth, Lauren E Taubitz, & Christine L Larson
University of Wisconsin-Milwaukee

Descriptors: Reward, Gender Differences, Attention

Recent research has indicated that reward can enhance cognitive processes (Della Libera et al., 2011; Anderson et al., 2011a,b; Krebs et al., 2011); however, no one has yet examined the influence of gender differences in reward learning on cognition. The purpose of the current study was to determine if gender differences in reward sensitivity moderate the effect of monetary incentive on visual search. 110 students (82 females, 28 males) completed a series of questionnaires and two versions of visual search task: a standard search task followed by the same search task modified such that subjects could earn money based on their performance. A 2-Way MANCOVA was conducted to examine gender differences of reward sensitivity on visual search task performance in the rewarded condition. There was a significant main effect of gender for the influence of reward on visual search efficiency ($p = .027$). Males were more efficient than females at the visual search task when there was an opportunity to earn a reward even after controlling for self-reported sensitivity to reward and visual search performance in the non-reward condition. This finding has several implications: 1) it is important to consider gender effects in reward learning studies, 2) provides insight into gender specific characteristics that may aid in the explanation of gender differences in etiology and symptom manifestation of psychopathology (depression: Piccinelli & Wilkinson, 2000; anxiety: McLean, Asnaani, Litz & Hofmann, 2011; substance use: Brady & Randall, 1999).

POSTER C-18

THE EFFECTS OF EMOTIONAL VISUAL SEARCH ON EMOTIONAL INTELLIGENCE

Victoria Ovsyannikova
National Research University Higher School of Economics, Moscow State University of Psychology and Education

Descriptors: emotional visual search, emotional intelligence

Emotional information processing is considered as a cognitive basis of emotional intelligence (EI) (Farrelly, Austin, 2007; Zeidner et al., 2008). The aim of the present study was to explore relationship between speed and accuracy of emotional information processing and EI. To measure the emotional information processing the emotional visual search task was used. EI was measured by two methods developed for the Russian population: EmIn Questionnaire and Videotest of EI (self-reported and performance measures, respectively). It was hypothesized that more rapid and accurate detection of a discrepant emotional expression in an array of faces in visual search task would relate to high EI. The measures were administered to 90 participants. The speed of emotional visual search correlated with different aspects of EI, but accuracy of emotional visual search did not. There was negative correlation with performance test and there were positive correlations with self-reported EI. The hypothesis was confirmed in respect of ability EI but not of self-reported EI and in respect of speed but not accuracy of emotional visual search. Our results are partially consistent with the results of other similar studies that obtained rather controversial evidence (Austin, 2004; Fellner et al., 2007). The present study suggests that emotional information processing as measured by emotional visual search task indeed determines individual differences in ability EI.

The research was supported by Russian Foundation for the Humanities (12-36-01287a2)

POSTER C-19

CONCERNED ABOUT AUTONOMY, RELATEDNESS OR BOTH? HOW CULTURAL CONCERNS SHAPE EMOTIONS DURING SOCIAL INTERACTIONS.

Jozefien De Leersnyder, & Batja Mesquita
University of Leuven

Descriptors: culture, emotion regulation, frameswitching

Different cultural contexts are characterized by different cultural concerns: Whereas most Western cultures (e.g., Belgium) promote 'autonomy', most non-Western cultures (e.g., Turkey), promote 'relatedness'. We expect that central concerns shape emotional experience as they may guide people's appraisals of interpersonal events. First, we expect that emotions are most intense when the culture's most central concern is violated (Autonomy in Belgium; Relatedness in Turkey; H1). Second, we expect that the type of emotion differs depending on which concern is violated (Anger when Autonomy is violated; Contempt when Relatedness is violated; Rozin, Lowry, Imada, & Haidt, 1999; H2). Finally, we expect that when concern-violations are ambiguous, the salient cultural concern determines which emotions occur (H3). A pilot vignette study with Belgian and Turkish high school students ($n = 67$) supported our hypotheses. The main study was a social experiment in which 57 Turkish-Belgians interacted with a confederate who followed a script to violate different concerns. We primed the centrality of cultural concerns by priming culture: For half of the Turkish-Belgian participants the interaction took place in a Belgian social context; for the other half it took place in a Turkish social context. Self-report measures of participants' emotions as well as objective coding of their expressions revealed differences between the two cultural contexts that were consistent with our expectations. Cultural concerns may thus importantly shape social interactions through the emotions people experience.

POSTER C-21

PHYSIOLOGICAL AND BEHAVIORAL RESPONSES REVEAL HUMAN INFANTS' SENSITIVITY TO PLEASANT TOUCH

Tobias Grossmann¹, Merle T Fairhurst¹, & L ken S Line²

¹Max Planck Institute for Human Cognitive and Brain Sciences, ²University of Oxford, Oxford, United Kingdom

Descriptors: touch, infants, affective neuroscience

Caregiving touch has been shown to be essential for the growth and development of human infants. However, the mechanism that underpins infants' sensitivity to pleasant touch is still poorly understood. In human adults, a subclass of unmyelinated peripheral nerve fibers has been identified to respond preferentially to medium velocity soft brushing, similar to parental stroking. It has been theorized that this privileged pathway for pleasant touch is used for close affectionate interactions, especially between caregivers and infants. To test whether human infants are sensitive to pleasant touch, we examined arousal (heart rate) and engagement (gaze shifts and duration of looks) to varying velocities of brushing (slow, medium and fast) in 9-month-old infants. The current results revealed that only when stroked at medium velocity, (i) infants' heart rate decelerated, reflecting greater parasympathetic activity and indicative of a decrease in arousal, and (ii) infants' behavioral engagement with the stroking object (brush) increased, indicative of an increased engagement and interest in the stroking object. Our analysis further revealed that the greater the caregiver's sensitivity to social touch, as measure by the social touch questionnaire, the greater the infant's selective physiological response to medium-velocity touch. Our results provide physiological and behavioral evidence for the view that the sensitivity to pleasant touch emerges early in human development and therefore plays an important role in regulating human social interactions.

The research was funded by the Max Planck Society (Germany) and the Wellcome Trust (UK).

POSTER C-22

MOTHERS' MALADAPTIVE EMOTION REGULATION SERVES AS A MEDIATOR BETWEEN MATERNAL EMOTION BELIEFS AND CHILDREN'S SOCIOEMOTIONAL OUTCOMES

Megan L Rogers¹, Jennifer K MacCormack², Amy G Halberstadt¹, & Vanessa L Castro¹

¹North Carolina State University, ²University of North Carolina - Chapel Hill

Descriptors: emotion regulation, emotion socialization, emotion beliefs

Parental emotion beliefs and regulation strategies are known to influence child outcomes (Steller & Halberstadt, 2011; Bariola, Hughes, & Gullone, 2012). Less studied, however, is the role that mothers' emotion regulation strategies, particularly maladaptive ones, may play in mediating the relationship between mothers' beliefs about emotions and children's social skills. As part of a larger study on emotion understanding in mothers and their third-grade children, 165 mothers reported their beliefs about the value and danger of children's emotions. Mothers also generated strategies for regulating their emotions in three hypothetical, challenging situations. Teachers rated children's social skills and problem behaviors (Gresham & Elliott, 1990) three months later. Results indicated that mothers' belief about emotions as dangerous was associated with mothers' maladaptive strategies (e.g., ruminating, masking, ignoring) and children's poor social skills and problem behaviors; mothers' maladaptive strategies were also associated with children's skills (all p s < .01). We then tested a mediation model; results from a follow-up Sobel test (1982) indicated that maladaptive strategies approached significance in mediating the relationships between mothers' belief that emotions are dangerous and children's social skills ($t = -1.68$, $p = .094$), and problem behaviors ($t = 1.88$, $p = .060$). These findings suggest that mothers who perceive emotions as dangerous tend to use maladaptive strategies, and these strategies in turn may negatively impact their children's socioemotional skills.

National Science Foundation Grant (#1023977) awarded to Drs. Amy Halberstadt and Patricia Garrett-Peters.

POSTER C-23

COGNITIVE REGULATION OF NEGATIVE AFFECT ACROSS CHILDHOOD, ADOLESCENCE AND YOUNG ADULTHOOD

Jennifer A Silvers¹, Catherine S Insel², Alisa Powers³, Peter Franz¹, Theresa Teslovich⁴, Chelsea Helion⁴, Gloria Pedersen⁴, BJ Casey⁴, W Mischel¹, & K N Ochsner¹

¹Columbia University, ²Harvard University, ³Long Island University, ⁴Cornell Medical College

Descriptors: Development, Affect, Regulation

Learning to regulate one's emotions is a critical life skill. One particularly effective means for regulating emotion is cognitive reappraisal, wherein one thinks about a stimulus differently so as to alter its emotional import. While it is commonly accepted that emotional behavior changes dramatically across development, less is known about how the ability to use cognitive strategies like reappraisal differs as a function of age or what neural mechanisms support such changes. The present study sought to address these questions by testing 84 healthy individuals (49 female; aged 6.83-22.3 years) on a fMRI paradigm examining neural responses to aversive and neutral stimuli. On a trial-by-trial basis, participants were instructed to mentally distance themselves from pictured events (reappraise), immerse themselves in them, or respond naturally to the stimulus presented. Overall, participants reported less negative affect when reappraising aversive stimuli than when responding naturally or immersing ($p < .001$). Reappraisal-related reductions in negative affect were paralleled by recruitment of bilateral dorsolateral PFC and posterior parietal cortex ($p < .05$, FWE corrected). An interaction was observed between valence, strategy and age at both the behavioral ($p = .09$) and neural levels ($p < .005$, $k > 15$ voxels), such that age predicted less negative affect and less amygdala activity on reappraisal trials but not other trials. Taken together, these data suggest that age predicts enhanced reappraisal success as indexed by both decreases in negative affect and the amygdala response.

NIH R01 HD069178 awarded to KNO

POSTER C-24

MOTHER-INFANT AFFECT CONTAGION: THE IMPACT OF TOUCH

Sara F Waters, & Wendy B Mendes
University of California, San Francisco

Descriptors: affect contagion, touch, psychophysiology

Infants are highly attuned to and influenced by their parents' behavioral affective cues. Recent work reveals that infants "catch" and embody their mothers' physiological negative stress responses, which impacts their behavior. Using a 2 (affect) x 2 (touch) design, the current study experimentally examined one pathway by which mothers' affective states may be transmitted to their infants – physical touch. The preliminary sample includes 44 mothers and their 1-year-old infants (23 girls). While separated from their infants, mothers were randomly assigned to either a positive (social warmth video) or negative (social evaluation) affect induction. Infants then joined their mothers under conditions of either touch or no-touch. Electrocardiography was collected on both, from which interbeat interval (IBI) and respiratory sinus arrhythmia (RSA) were obtained. There was a main effect of affect for mothers' IBI, $F(1, 41) = 41.4$, $p < .001$, self-reported anger, $F(1, 42) = 7.8$, $p = .008$, and social warmth $F(1, 42) = 7.9$, $p = .008$, not for mothers' RSA. Lower IBI and greater anger were obtained in the negative condition and greater social warmth in the positive condition. There was a main effect of touch for infants' IBI, $F(3, 39) = 5.8$, $p = .02$, and RSA, $F(3, 36) = 67$, $p = .01$. Across affect conditions, touch condition infants had lower IBI and RSA than no-touch condition infants. We did not find any interaction effects. Infants' "catching" of maternal affective states, both positive and negative, is potentiated by physical touch, suggesting a means of modulating children's exposure to parental affect.

POSTER C-25

WE RESPOND EMOTIONALLY TO MUSIC THAT WE LIKE

Frederick S Barrett¹, & Petr Janata²

¹Johns Hopkins School of Medicine, ²University of California, Davis

Descriptors: Liking, Musical Features, Model of Music and Emotion

Explanations of the perception and experiencing of music-related emotions have been dominated by attempts to identify causal mappings between musical features and emotions. Direct causal models fail, however, to account for individual differences in emotional experiences during music listening, despite compelling evidence that such individual differences exist. While some studies have treated stimulus liking as an outcome of emotional experiences during music listening, this aspect of an individual's relationship with music has rarely been considered as a predictor of emotional responses to music. In a series of studies, we demonstrate that liking predicts a greater amount of variance in ratings of emotional experience during music listening than do computationally derived, psychologically and neurocognitively validated stimulus features. Joint distributions of liking and dimensional affect show that the likelihood of experiencing positive or negative affect generally increases when music is liked, compared with when music is disliked. Based on these findings and more comprehensive analyses of these data, we propose a new model for understanding emotions experienced during music listening. This model positions liking as a mediator of the effects of stimulus features and stimulus familiarity on emotional experience, and it positions constructs such as personality and emotional goal states as second-level moderators of these mediation effects.

POSTER C-26

DIFFERENTIATION IN EMOTION KNOWLEDGE AMONG THE SELF, A FAMILIAR OTHER, AND GENERALIZED OTHERS

Yanhua Cheng, & Daniel Grünh
North Carolina State University

Descriptors: Emotion Knowledge, Differentiation, Aging

The ability to understand how emotional situations affect us and others is essential for navigating the social world. Past research has been focusing on individuals' ability to infer emotional responses in generalized others. Less is known whether such inference varies when the target is the self or a familiar other. We expect individuals would not only consider the situational causes but also take into account the knowledge they have about the self or the familiar other when judging their emotional responses. To test this idea, we conducted two studies using a situation judgment task. In Study 1, 348 adults (186 females, 18 to 75 years, mean age 36 years) read 8 vignettes and rated how (a) they (self), (b) their mothers (familiar other), and (c) most people (generalized others) would feel in each situation. In Study 2, 412 adults (234 females, 18 to 74 years, mean age 36 years) completed the same task except instead of mothers, they each named a close other as the familiar target. Results showed that there was significant amount of variance among the targets; greater differentiation was associated with higher neuroticism, higher negative affect, and more stress. Older adults showed less differentiation and a more accurate generalized other profile than younger adults. The present study contributes to our understanding of the processes in inferring emotions among different targets and how these processes may vary by age. The findings also contribute to the methodologies in examining emotion knowledge by demonstrating target-specific responses in emotion understanding.

POSTER C-27

CORRESPONDENCE BETWEEN OBSERVERS' EMOTIONAL TRAITS AND EMOTION PERCEPTION: PRINCIPLES OF CONGRUENCY AND COMPLEMENTARITY

Dmitry Lyusin
Higher School of Economics

Descriptors: Emotion Perception, Emotional Traits

The study aimed to reveal the correspondence between observers' emotional traits (ETs) and their sensitivity to particular types of emotions in other people. Sensitivity is defined here as a tendency to overestimate or underestimate particular types of emotions, e.g., an individual with high sensitivity to sadness would overestimate its manifestations in others. It was hypothesized that this correspondence would be either congruent or complementary. The congruency hypothesis predicts that individuals should be more sensitive to those types of emotions that would be consistent with their own ETs. The hypothesis of complementarity predicts that certain pairs of emotions would be in the complementary relations in the sense that individual's sensitivity to one type of emotion would correspond to his or her own ET of another type (e.g., higher sensitivity to anger would correlate with higher trait anxiety of the observer). The hypotheses were tested for two pairs of emotions, fear-anger and happiness-sadness. Sensitivity to particular emotion types was measured with a specially developed videotest that consisted of a set of short videos. Participants (N=98) had to estimate emotional states of characters shown in the videos with the use of 15 emotion scales. ETs were measured with self-report questionnaires. The complementarity hypothesis was supported for the pair fear-anger, neither of the hypotheses were supported for the pair happiness-anger. The results suggest that some other principles such as a principle of relevance can underlie links between ETs and emotion sensitivity.

POSTER C-28

EMOTIONAL REACTIVITY TO MUSIC: THE ROLE OF MINDFULNESS

Emerson M Epstein¹, Julie Kahler¹, Tom Buqo¹, Anthony Papa¹, & Bruce W Smith²
¹University of Nevada, Reno, ²University of New Mexico

Descriptors: emotional reactivity, mindfulness, music

Music is a commonly utilized emotion elicitation technique in research, and yet we do not fully understand the factors that may enhance receptiveness to this technique. One factor we chose to investigate was mindfulness, given its association with being in the present moment and heightened sensory experience. Therefore, we hypothesize that mindfulness will predict participants' emotional reactivity to music. 145 participants filled out measures of state emotions, mindfulness and personality, listened to a validated collection of happy or sad classical music or neutral environmental noises and rated their emotions afterwards. A series of regression analyses were conducted with post emotion ratings as dependent variables; group factors, mindfulness and personality as predictors; and pre emotion ratings as covariates. Listening to happy music elicited happiness, $\beta = .21$, $t(144) = 2.74$, $p < .01$. However, sad music did not have an effect, $\beta = .08$, $t(144) = 1.01$, $p > .10$. Mindfulness predicted post happiness, $\beta = .181$, $t(144) = 2.11$, $p < .05$. Exploratory post hoc analyses examining the five factors of mindfulness revealed that the observe and act with awareness subscales both significantly predicted post happiness, $\beta = .18$, $t(144) = 2.61$, $p < .01$ and $\beta = .17$, $t(144) = 2.12$, $p < .05$, respectively. These findings support our hypothesis that mindfulness predicts emotional reactivity to music, happy music in particular. Since mindfulness is amenable to manipulation, researchers can use mindfulness techniques to enhance their participant's emotional reactions.

POSTER C-29

FACIAL EMOTION RECOGNITION IN PERIPHERAL VISION

Lukas Herrschel, Johannes Weng, Harald C Traue, & Holger Hoffmann
University of Ulm

Descriptors: facial emotion recognition, peripheral vision

The ability to recognize emotions in others' faces is an essential skill in social interaction. Facial emotion recognition is well examined under different conditions for foveal vision but not for peripheral vision. Therefore, the aim of this study was to examine emotion recognition in peripheral vision. A total of N=46 healthy subjects participated in the study. They were instructed to fixate a point in the middle of the screen which was controlled by an eye-tracking system. Participants were then presented with 48 pictures of facially expressed emotions (happiness, sadness, anger, disgust, fear, and surprise), initially shown either on the left or right side of the screen at a viewing angle of 24 degrees. Participants had to adjust the position of each stimulus (from peripheral to foveal vision) until they were able to identify the emotion correctly. Additionally, they had to classify the respective emotion by clicking on the appropriate label (forced-choice). The results show that the recognition accuracy and the selected viewing angles differ significantly between the specific emotions. The mean selected viewing angle was 13.6 degrees and 70.9 percent of the emotions were correctly identified. Considering only the emotions that were correctly identified, happiness can be recognized most peripheral (19.3 degrees), followed by surprise (14.9), sadness (12.5), fear (12.0), anger (11.6), and disgust (11.2). Detailed results will be reported and discussed in the poster.

This research was supported in part by grants from the Transregional Collaborative Research Centre SFB/TRR 62 "Companion-Technology for Cognitive Technical Systems" funded by the German Research Foundation (DFG).

POSTER C-30

VARIETY IS THE SPICE OF LIFE: A MULTI-METHOD APPROACH TO UNDERSTANDING INDIVIDUAL DIFFERENCES IN AFFECTIVE REACTIVITY

Justin Kopec, Erika Siegel, Jolie B Wormwood, Lauren T Sears, Karen Quigley, & Lisa F Barrett
Northeastern University

Descriptors: Affective Reactivity, Psychophysiology, Interoception

In this study, we used a variety of behavioral and peripheral physiological measures to assess individual differences in affective reactivity. Cardiovascular activity and output, respiration, electrodermal activity, and facial electromyography were recorded while participants completed a battery of experimental tasks that measured different aspects of affective reactivity: (1) a heartbeat detection task measured interoceptive sensitivity and accuracy; (2) an acoustic startle task measured the startle reflex in the orbicularis oculi muscle as well as individual differences in habituation time; (3) an affective picture and sound task assessed subjective changes in experienced valence and arousal; (4) a mental math task assessed bodily changes under social stress, including changes in blood pressure, and cardiac variables associated with interpreting a stimulus as a "threat" or "challenge;" and finally (5) participants filled out several questionnaires that evaluated a series of personality traits, including emotional control, emotional reactivity, alexithymia, affective granularity, self vs. world focus, and body vigilance. Preliminary results support predicted relationships between the different facets of affective reactivity captured by this battery of tasks, including a significant negative relationship between self-reported alexithymic symptomology and heart beat detection performance.

This research was supported by the U.S. Army Research Institute for the Behavioral and Social Sciences (contract W5J9CQ-11-R-0017). The views, opinions, and/or findings contained in this paper are those of the authors and shall not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documents.

POSTER C-31

AGE GROUP COMPARISONS OF METACOGNITIVE JUDGMENTS FOR EMOTIONAL FACIAL EXPRESSIONS

Ishabel M Vicaria, & Derek M Isaacowitz
Northeastern University

Descriptors: emotion recognition, metacognition, facial expressions

The current study investigated metacognitive judgments of emotionally expressive faces. Young (N=76), middle-aged (N=74), and older adults (N=42) completed a survey on Mechanical Turk. In the encoding phase, participants identified the emotion expressed on a middle-aged face (happy, sad, angry, disgusted, fearful, or neutral) and rated their prediction for the likelihood of remembering the target's identity on a scale of 0-100%; in the testing phase, each studied face was paired with a new face (both depicting neutral expressions), and participants indicated which face they had seen before, and rated their confidence for having chosen the correct face on a scale of 0-100%. The typical age pattern found in the emotion recognition literature emerged: older adults (M=.85, SD=.10) were significantly worse at identifying emotional expressions than middle-aged (M=.89, SD=.07) and younger adults (M=.90, SD=.08). A slightly different pattern emerged for identity recognition, such that older adults (M=.76, SD=.11) were significantly worse than middle-aged (M=.81, SD=.12), but not younger adults (M=.79, SD=.10). Middle-aged adults had the highest predictions and confidence ratings, which may reveal an own-age advantage. Across age groups, neutral targets in the encoding phase yielded the highest predictions (M=.75, SD=.20), accuracy in remembering target identity (M=.89, SD=.16), and confidence ratings (M=.75, SD=.20); successful encoding and identity retrieval for these faces may be related to the ubiquity of encountering neutral expressions in daily life by people of all ages.

POSTER C-32

EFFECTS OF EMOTION PERCEPTION TRAINING ON LOW MOOD AND AGGRESSIVE BEHAVIOUR

Ian S Penton-Voak, & Marcus R Munafo
University of Bristol

Descriptors: Expression, aggression, depression

Bias in emotional processing has been implicated in the maintenance of both depression and aggressive behaviour, but there is little direct evidence of a causal relationship. We investigated this by experimentally manipulating emotion perception in young adults with depressive symptoms (n=80; study 1) and in a population of young people at risk of aggressive criminal behaviour (n=46; study 2). Participants were randomized to four sessions of training or control procedures. The intervention used feedback designed to increase the perception of happiness in ambiguous facial expressions, while the control procedure was identical but with sham feedback. Participants in study one completed self-report measures of depressive symptoms and mood before and at two weeks after the end of the intervention. In study two self- and staff ratings of aggressive behaviour were collected pre- and two weeks post intervention. In study 1, trained participants reported significantly increased positive affect but no significant effects on BDI or negative affect. In study 2 training led to significantly less self-reported aggressive behaviour 2 weeks post-training. Staff ratings of aggression, blind to condition, were also lower in the training group. Our results provide evidence that modifying emotion perception may lead to an increase in positive mood (study 1) and a decrease in aggressive behaviour (study 2). This provides some support for the hypothesis that biases in the perception of emotional facial expressions play a causal role in the maintenance of these disorders.

POSTER C-33

A NEURAL MECHANISM OF SPONTANEOUS ANGER REGULATION DURING REAL-LIFE INTERPERSONAL CONFLICT

Gadi Gilam¹, Tamar Lin¹, Gal Raz¹, Shir Azrielant¹, Dan Ariely², & Talma Hendler¹
¹Tel Aviv University & Tel-Aviv Sourasky Medical Center, ²Duke University

Descriptors: Spontaneous-Regulation, Interpersonal-Conflict, Real-Life

Interpersonal conflict (IC) occurs when people disagree or have opposing goals. Anger often arises during IC and may lead to a surge of aggression and violence. Consequently, in negotiating our way through interpersonal conflict emotion regulation (ER) may have a critical role in avoiding repercussions and in capitalizing on cooperation. Certain ER strategies comprise processes in which distributed PFC regions modulate subcortical/limbic regions. Yet little is known about the neural substrates of spontaneous ER, particularly during real-life IC. In the Ultimatum Game (UG), IC between two players evokes anger and influence monetary gain such that increased gain relates to ER application. We modified the UG to include repeated naturalistic verbal bargaining between fMRI-scanned subjects and an obnoxious putative player instructed to increase conflict and intensify emotions. High-gain subjects (HG; n=33) reported less anger and more positive emotions and had slower sympathetic responses compared to low-gain subjects (LG; n=27). Brain-wise, vmPFC activity reflected a flexible process related to habitual ER which increased gain via modulation of subjective emotional experience, possibly by attenuating sympathetic arousal generated by the Locus Coeruleus. Functional connectivity between posterior dorsal insula and medial thalamus regulated emotions and promoted gain specifically during the more aversive periods of the game (i.e. unfair offers). These results reveal the multi-level neural dynamics that underlie anger regulation which led to an ultimate beneficial resolution of IC.

This work was funded by the University of Chicago's Arete Initiative – A New Science of Virtues Program (TH) and Tel Aviv University's Levy-Edersheim-Gitter Institute for Neuroimaging and Adams Super Center for Brain Studies (GG).

POSTER C-34

MINDFUL EMOTION REGULATION IN SOCIAL CONTEXTS: BRIDGING LAB-BASED AND REAL-WORLD RESEARCH

Jordan T Quaglia, Robert J Goodman, & Kirk W Brown
Virginia Commonwealth University

Descriptors: mindfulness, emotion regulation, social interaction

Social situations provide both opportunities and challenges for regulating emotions. Recent lab-based evidence suggests that mindfulness facilitates emotion regulation in social contexts (social emotion regulation) via enhanced early attention to, and more efficient identification of others' emotions (Quaglia, Goodman, & Brown, in preparation). Research has yet to explore whether mindfulness-based differences on lab-based measures of social emotion regulation are also evident in differences in real-life social emotion regulation. We examined this in a study of romantic couples (N = 60), assessing each partner's performance on an Emotional Go/No-Go task prior to one week of smartphone-based experience sampling of emotions during social interactions. Preliminary results revealed that higher trait mindfulness predicted more efficient discrimination of others' emotional facial expressions, as indexed by combined analyses of response time (RT) and number of false alarms (FAs). Mindfulness also predicted greater positive and less negative emotion during real-world interactions with romantic partners. Moreover, the combination of low FAs and high RT (i.e., efficiency) moderated the relation between mindfulness and negative, but not positive, emotion such that mindfulness-enhanced discrimination of emotional expressions predicted less negative emotions in social interactions. This study demonstrates the benefits of mindfulness for social emotion regulation and more generally, highlights the value of relating lab-based and real-world measures of emotion regulation.

POSTER C-35

WHAT DOES IT TAKE TO SEE THINGS IN A DIFFERENT LIGHT? THE RELATION BETWEEN COGNITIVE CONTROL AND ONLINE REAPPRAISAL

William M Vanderlind, & Jutta Joormann
Northwestern University

Descriptors: Emotion Regulation, Cognitive Reappraisal, Cognitive Control

Online reappraisal is an emotion regulation strategy in which individuals change their interpretation of a situation to modulate emotional responding. Not everyone, however, is able to reappraise, resulting in variation in what has been coined reappraisal ability. Researchers have posited that cognitive control may play an important role in reappraisal ability, yet few have examined this empirically. Thus, the current study recruited 56 individuals to examine the relation between cognitive control and online reappraisal. A sad film clip was first used to induce individuals into a sad mood. Participants were cued to begin reappraising toward the end of the film clip. Changes in self-reported sadness across the reappraisal cue were used to index online reappraisal ability. A 2-back version of the n-back task was used to measure cognitive control. There were two conditions in this task; one condition contained only neutral words, whereas the other contained neutral and negative words. The results show that, across both conditions of the n-back task, higher levels of cognitive control were associated with greater online reappraisal ability. Further, performance on the affective condition explained variance in online reappraisal beyond that accounted for by performance on the neutral condition. Taken together, our data imply that cognitive control may underlie individual differences in online reappraisal and that cognitive control in the context of emotional material may be particularly important for successful utilization of this ER strategy.

POSTER C-36

EMOTION REACTIVITY AND REGULATION ARE ASSOCIATED WITH PSYCHOLOGICAL FUNCTIONING FOLLOWING THE 2011 EARTHQUAKE, TSUNAMI, AND NUCLEAR CRISIS IN JAPAN

Sarah R Cavanagh¹, Erin J Fitzgerald¹, & Heather L Urry²
¹Assumption College, ²Tufts University

Descriptors: Trauma, Cognitive Reappraisal, Posttraumatic Stress

Frequent and successful use of cognitive reappraisal, an emotion regulation strategy that involves rethinking the meaning of an emotional event in order to change one's emotional response, has been linked in everyday life to positive outcomes such as higher well-being. Whether we should expect this association to be maintained in a strong, temporally and spatially close emotional context is an unexplored question that might have important implications for our understanding of emotion regulation and its relations to psychological functioning. In this study of members of the United States Embassy Tokyo community in the months following the March 11th, 2011 earthquake, tsunami, and nuclear crisis in Japan, self-reported use of cognitive reappraisal was not related to psychological functioning, but demonstrated success using cognitive reappraisal to decrease feelings of unpleasantness to disaster-related pictures on a performance-based task was associated with fewer symptoms of depression and posttraumatic stress. Moreover, emotional reactivity to these pictures was associated with greater symptomatology. These results suggest that situational intensity may be an important moderator of reappraisal/psychological functioning relationships.

Psi Chi

POSTER C-37

EVIDENCE OF A ROLE FOR WORKING MEMORY IN THE SUCCESS AND SELECTION OF EMOTION REGULATION STRATEGIES

Philipp C Opitz¹, Jeffrey L Birk², & Heather L Urry²
¹University of Southern California, ²Tufts University

Descriptors: Cognitive Reappraisal, Working Memory, SOC-ER

According to the Selection, Optimization, and Compensation with Emotion Regulation (SOC-ER) framework, the use of ER strategies depends on resources. When resources for a given strategy become depleted, people can compensate by selecting alternative strategies. Evidence suggests that working memory (WM) may be one resource for a specific strategy called cognitive reappraisal (CR). To examine a possible causal role of WM in CR, we examined participants' success at using CR to regulate the emotions elicited by unpleasant images under high and low WM load. We indexed baseline WM capacity using a digit span (DS) task, and emotional responses using facial EMG (corrugator supercilii). In addition, as research suggests that ER can vary with emotional arousal, we indexed participants' initial reactivity to images. Finally, we measured participants' use of alternative ER strategies to index compensation. Results revealed that participants exhibiting relatively low DS were better able to regulate under low, compared to high, WM load, but only when they exhibited a moderate to high degree of reactivity. This was not apparent for participants with high DS. Results also revealed that participants used an alternative ER strategy, attentional deployment, more under high WM load than under low load. Overall, these data support the hypothesis that WM is a resource for CR, and highlight the importance of reactivity to these relationships. Importantly, the data support the SOC-ER prediction that participants compensate for resource losses by selecting alternative ER strategies.

POSTER C-38

AFFECT, AFFECT REGULATION, AND PHYSICAL ACTIVITY

Ashley A Shurick¹, Soseh Sardarian², Ihno Lee¹, & James J Gross¹
¹Stanford University, ²Palo Alto University

Descriptors: affect, physical activity, regulation

While previous research has suggested that affect and affect regulation may be potential motivators for engaging in physical activity, the relations among affect, affect regulation, and physical activity are not well understood. Our aim in this study was to use structural equation modeling (SEM) to elucidate the relationships among affect, affect regulation, and physical activity. 462 participants (270 females) completed questionnaires assessing affect, affect regulation, and physical activity. An exploratory factor analysis indicated that a 5-factor solution (positive affect, negative affect, reappraisal, rumination, and physical activity) was optimal, which was validated by confirmatory factor analyses ($\chi^2(221) = 691.332$, Root Mean Square Error of Approximation = 0.068 with 90% confidence interval (CI) (0.062, 0.074), Comparative Fit Index = 0.922, Tucker-Lewis Index = 0.902). The resulting SEM showed that physical activity significantly influences positive affect, while reappraisal and rumination are correlated with both positive and negative affect. Subsequent mediation analyses revealed a significant indirect effect of reappraisal on physical activity via positive affect (estimate = 0.167, 95% CI (0.098, 0.248)) and a significant indirect effect of rumination on physical activity via positive affect (estimate = 0.033, 95% CI (-0.047, -0.021)). Results clarify the relationships among affect, affect regulation, and physical activity, and demonstrate that affect regulation may influence physical activity by influencing positive affect.

POSTER C-39

EMOTION REGULATION DURING MARITAL CONFLICT: CONCURRENT AND LONGITUDINAL LINKS WITH ANXIETY AND DEPRESSION

Claudia M Haase¹, Lian Bloch², & Robert W Levenson³

¹Northwestern University, ²PGSP-Stanford Psy. D. Consortium, ³University of California, Berkeley

Descriptors: Emotion regulation, Mental health, Relationships

The ability to regulate emotion, especially in social contexts, plays an important role in mental health and illness. We examined links between the ability to downregulate emotion in the context of an intimate social relationship and anxiety and depression. Middle-aged and older spouses (N=140) in a longitudinal study of long-term marriages discussed a marital problem for 15 minutes while their subjective emotional experience, emotional behavior, and physiology were continuously monitored. Emotion regulation was operationalized in terms of how quickly spouses downregulated negative emotional experience, emotional behavior, and physiological arousal after negative emotion events. Anxiety and depression were measured via questionnaires at baseline and 6 years later. Data were analyzed using actor-partner independence modeling. Results indicated that: (a) for wives, greater downregulation of negative emotional experience was associated with lower anxiety and depression at baseline and predicted decreases in anxiety and depression longitudinally and (b) for husbands, greater downregulation of physiological arousal was associated with lower depression at baseline but predicted increases in depression longitudinally. These results provide support for the connection between lower ability to regulate emotion and mental illness symptoms both concurrently and longitudinally for wives and concurrently for husbands. The longitudinal link between husbands' greater emotional downregulation and greater depression may reflect the downside of overregulation in men in this cohort.

This research was supported by National Institute on Aging (NIA) Grant AG07476 to Robert W Levenson and National Institute of Mental Health (NIMH) Training Consortium in Affective Science, Institutional Predoctoral Ruth L. Kirschstein National Research Service Award (NRSA) Training Grant T32 MH020006 (PI: Robert W. Levenson) to Lian Bloch.

POSTER C-40

ELEVATED DEPRESSIVE SYMPTOMS ARE ASSOCIATED WITH MORE INFLEXIBLE USE OF RUMINATION AND SUPPRESSION

Annette M Mankus¹, Peter Koval², Madeline L Pe², Peter Kuppens², & Renee J Thompson¹

¹Washington University in St. Louis, ²KU Leuven - University of Leuven

Descriptors: depression, emotion regulation

Inflexible use of emotion regulation strategies has been associated with higher distress (Bonanno et al., 2004). Examining the temporal dynamics of emotion regulation use may have implications for understanding the emotional disturbances of individuals with Major Depressive Disorder, as they have been characterized by poor emotion regulation (e.g., Joormann & Gotlib, 2010). We examined whether elevated depressive symptoms would be associated with increased inflexibility in the use of emotion regulation and whether this was exacerbated when a negative event occurred. Ninety-five undergraduate students completed a self-report measure of depressive symptoms and 7 days of experience sampling. At each prompt, participants endorsed the extent to which they used six emotion regulation strategies (rumination, reflection, reappraisal, suppression, social sharing, distraction) and indicated whether a significant negative event had occurred since the previous prompt. Independent of depressive symptoms, participants reported similar increases in the use of rumination and suppression when a negative event occurred. In the absence of a negative event, however, use of rumination and suppression varied as a function of depressive symptoms. More specifically, elevated depressive symptoms were related to greater moment-to-moment predictability in the use of rumination and suppression when no negative event occurred. These findings suggest that elevated depressive symptoms are related to more inflexible use of maladaptive emotion regulation, particularly in the absence of negative events.

POSTER C-41

RESPONDING TO THREAT: SUPPRESSING YOUR EMOTIONS TO AVOID NEGATIVE EVALUATION FROM OTHERS

Lameese Eldesouky¹, A Daniel Catterson², & Oliver P John²

¹Washington University in St. Louis, ²University of California, Berkeley

Descriptors: Emotion Regulation, Emotional Suppression, Fear of Negative Evaluation

Previous research suggests that the fear of negative evaluation (FNE) from others is associated with diminished emotional expression. However, less is known about how FNE might influence the way a person regulates his or her emotions. Based on past research, we hypothesized that FNE would be associated with increased emotional suppression at the individual difference and contextual levels. In this study, we had 131 participants complete dispositional measures of fear of negative evaluation and habitual suppression use. In a 2 x 2 mixed design, they wrote about a situation in which they expressed a positive (or negative) emotion, and then a situation in which they suppressed a positive (or negative) emotion. Afterwards, participants rated their own descriptions for how much they used suppression and feared others' negative evaluation in that situation. As predicted, we found that the trait-level fear of negative evaluation was significantly associated with habitual suppression ($r = .24, p < .05$), and that this relationship held when controlling for age, gender, ethnicity, and personality traits. At the contextual level, fear of negative evaluation was greater in the suppression situation than in the expression situation, but only in the positive emotion condition, $t(49) = 4.0, p < .05$. These results suggest that the fear of negative evaluation may be one of the factors that motivate people to suppress their emotions, and provide a first-glimpse into the relationship between the broader social processes that influence a person's decision to engage in emotional suppression.

Funding provided by the Greater Good Science Center at the University of California, Berkeley.

POSTER C-42

OBSERVER PERSPECTIVE METHOD IN BROODING: SELF-BLAMING AND DESPONDENCY EMOTIONS, STATE BROODING AND ATTRIBUTION STYLES

Shlomit Davidovitch, Nilly Dr Mor, & Iftah DR Yovel
The Hebrew University of Jerusalem

Descriptors: Self-distance perspective, Brooding, Self-blame

Negative experiences can lead to rumination, a mode of self-focus, and specifically to brooding, a maladaptive form of rumination that involves self-critical thinking about the self. In this research we examined whether adopting a self-distanced perspective from brooding thoughts regarding negative experiences is an adaptive method. We developed a novel experimental manipulation that compared "actor-perspective" with "observer-perspective" when focusing on the content of brooding thoughts. These two experimental conditions were compared to each other, and to a control distraction condition. We tested the effect of these perspectives on self-blaming and despondency emotions, state levels of brooding and on state levels of attribution styles. As expected, Ps in the Observer-Perspective group reported less self-blaming emotions than the Actor-Perspective Ps, with no difference between these two conditions on the despondency measure. In addition, Ps in the Observer-Perspective group reported lower levels of state brooding than the Actor-Perspective group, but showed higher levels on this measure than did Ps in the Distraction group. Another study replicated these results and demonstrated a positive correlation between brooding and internal attribution style, with no difference between the groups. The findings demonstrate that a self-distanced perspective from brooding compared to a first-person perspective is an effective method for decreasing self-blaming emotions and brooding thoughts, but not for decreasing internal attribution.

Funding provided by the Azrieli Foundation and the Mandel Institute

POSTER C-43

MINDFULNESS AND MIND-WANDERING: THE EFFECTS OF ATTENTION AND AWARENESS ON COPING AND RESILIENCY

Michelle Molina, Chelsea Boccagno, & Michele M Tugade
Vassar College

Descriptors: mindfulness, mind-wandering, resilience

Mindfulness, a cognitive state of intentional self-reflection, is a strategy with the potential to increase coping efficacy and resiliency. Although many studies have demonstrated the effects of mindfulness on stress reduction, few have compared mindfulness to other attention/awareness strategies. This research examined the effects of mindfulness vs. mind-wandering on coping and resilience. Participants first completed a baseline survey of current emotional experience, which was followed by a mental imagery task designed to induce anxiety. Participants were then randomly assigned to an "attention/awareness" condition and listened to a recorded presentation that induced either mindfulness, mind-wandering, or focused distraction. Immediately following this attention/awareness induction, participants' current emotional states were again assessed. Results demonstrated that although each attention/awareness manipulation down-regulated anxiety, the most effective strategy was mindfulness and the least effective was mind-wandering. Together, these findings indicate that mindfulness (vs. mind-wandering) effectively facilitates coping and resilience in the face of a stressor.

POSTER C-44

MULTIDIMENSIONAL ALTRUISM: THE DEVELOPMENT OF A SCALE MEASURING REACTIVE, PROACTIVE, AND INSTRUMENTAL PROSOCIALITY

Kristin M Brethel-Haurwitz, & Abigail A Marsh
Georgetown University

Descriptors: prosocial, regulation, reactivity

Empathy is a complex process by which one understands another's emotions, has concern for another's well-being, and may act on these concerns through helping (Preston & De Waal, 2002). Emotional reactivity and regulation may be important in predicting who will help when others are in need (Decety, 2010). Emotional reactivity reflects individuals' sensitivity to emotional stimuli and emotion regulation involves modulating emotional responses (Gross, 1998). Emotional sensitivity is essential for detecting the distress states of others (Eisenberg, 2000). Regulation is also essential because in the face of another person in distress, some perceivers experience significant self-distress, which interferes with empathic responding (Eisenberg et al., 1998). To clarify motivations for helping, we propose a new scale examining three potential categories of prosociality: reactive altruism (RA), in which an individual helps in response to an immediate need, proactive altruism (PA), in which an individual instead seeks out helping opportunities, and instrumental altruism (IA), in which an individual helps others for personal gain. RA was positively correlated with reactivity but not regulation. PA was positively correlated with regulation but not reactivity. Given this pattern, it may be that those with high reactivity are prone to self-distress and help needy others to relieve this distress. In contrast, those with high regulation may be sensitive to distress in others, yet don't require an immediate need to engage in helping. IA was unrelated to regulation and overall reactivity.

POSTER C-45

SEROTONIN TRANSPORTER GENOTYPE AFFECTS AMYGDALA HABITUATION IN YOUTH WITH AUTISM SPECTRUM DISORDERS

Jillian Lee Wiggins¹, Johnna R Swartz², Donna M Martin², Catherine Lord³, & Christopher S Monk²

¹National Institute of Mental Health, ²University of Michigan, ³Weill Cornell Medical College

Descriptors: functional MRI, genetics, psychopathology

Failure of the amygdala to habituate, or decrease response intensity, to repeatedly presented faces may be one mechanism by which individuals with autism spectrum disorders (ASD) develop and maintain social symptoms. However, genetic influences on habituation in ASD have not been examined. We hypothesized that serotonin transporter-linked promoter region (5-HTTLPR) genotype affects change in amygdala response to repeated sad faces differently in individuals with ASD versus healthy controls. Forty-four youth with ASD and 65 controls aged 8-19 years were genotyped and underwent an event-related fMRI scan where they identified the gender of emotional faces presented for 250 ms. The first half of the run was compared to the second half to assess habituation. 5-HTTLPR genotype influences amygdala habituation to sad faces differently for individuals with ASD versus controls. A genotype-by-diagnosis-by-run half interaction predicts left amygdala activation to sad faces ($x, y, z = -30, -6, -14$, cluster size = 27, $t_{210} = 3.31$, $p = .023$, corrected for multiple comparisons). The interaction is driven by individuals with ASD and low expressing genotypes (S/S, S/LG, and LG/LG), who trend toward sensitization (increase in amygdala activation; $p = .065$) and whose habituation scores significantly differ from individuals with ASD and higher expressing genotypes (LA/LA, S/LA, and LA/LG; $p = .012$) as well as controls with low expressing genotypes ($p = .013$). Our results show that amygdala response to social stimuli in ASD, which may contribute to social symptoms, is genetically influenced.

POSTER C-46

ANGER, FEAR AND PATIENT RESPONSE TO PHYSICIAN-PROVIDED GENOMIC WEIGHT MANAGEMENT MESSAGES

Susan Persky¹, Rebecca A Ferrer², & William M Klein³

¹Social and Behavioral Research Branch, National Human Genome Research Institute, ²Basic Biobehavioral and Psychological Sciences Branch, Behavioral Research Program, National Cancer Institute, ³Behavioral Research Program, National Cancer Institute

Descriptors: health care, affect, communication

Genomics is expected to be integrated into medical regimens of the future. Provision of genomic information, however, can lead to positive, negative, and/or no effect with respect to patient motivation for health-promoting behaviors and perceptions of the physician-patient relationship. The Action Tendency Framework suggests that patients' affective state may partially account for this discrepancy. In an experimental trial, overweight women were exposed to a video-based manipulation to elicit fear or anger. They then interacted with a simulated, virtual reality physician who provided information on genomic or behavioral underpinnings of body weight. Self-report assessments followed. Preliminary analyses (n=102) indicate that, for some outcomes, participants' affective state may interact with the receipt of genomic information to influence health behavior-related attitudes and beliefs, and perceptions of the clinical encounter. For example, angry participants perceived more control, and fearful participants perceived less control over their weight following receipt of genomic versus behavioral information. In addition, there was an interaction such that increased perceptions among angry participants that the physician blamed them for their weight were attenuated by the receipt of genomic information. By better understanding the interplay between patients' affective state and their reactions to weight-related genomic information, we may be able to better shape future clinical communications.

POSTER C-47

THE EFFECTS OF DAILY POSITIVE EMOTION REMINDERS ON EMOTIONAL COMPLEXITY, PHYSICAL HEALTH, AND COGNITIVE REASONING

Michele Tugade, & Alta du Pont
Vassar College

Descriptors: Positive Emotions, Coping, Physical Health

Positive emotions play a vital role in well-being, and are associated with benefits in physical health and psychological resilience (Tugade, Fredrickson, & Barrett, 2004; Pressman & Cohen, 2005). Research has shown that positive emotional experiences lead to more effective coping (Green, Choi, Kane, 2010) and cardiovascular recovery from distress (Tugade & Fredrickson, 2004). Extending prior research on positive emotions, coping, and health, two studies used mobile technology to remind participants to attend to positive emotional experiences and engage in positive coping strategies in their daily lives. Study 1 was a computerized experience-sampling experiment. Participants reported momentary emotions and daily activities, 5 times daily for 14 days using PDAs. By random assignment, participants reported either positive or neutral daily activities, and provided ratings of psychological well-being and dialectical thinking. Attention to positive (vs. neutral) activities resulted in greater positive emotion complexity and increased dialectical thinking. Study 2 was a coping-intervention experiment where participants received SMS-text reminders 3 times daily for 14 days. Participants were reminded to use either positive or neutral strategies to cope with stress, and also provided ratings of physical health. Reminders of positive (vs. neutral) coping strategies resulted in physical health benefits. Together, these findings suggest that mobile tracking of daily affect-related activities and coping strategies can benefit emotional experience, cognitive reasoning, and well-being.

POSTER C-48

BOUNDED EMOTION, THE PSYCHOPHYSICS OF AFFECT AND SCOPE: COLLAPSE OF AFFECT IN DONATION AND NON-DONATION JUDGMENT TASKS

Daniel Västfjäll¹, Paul Slovic¹, Stephan Dickert², William Hagman², & Marie Helsing²
¹Decision Research, ²Linköping University

Descriptors: Decision making, affect, judgment

Research on giving to individuals has found that people tend to give more to one child than to many children (Singularity effect; Kogut & Ritov, 2005; Slovic, 2007). A main psychological mechanism proposed to account for this finding is compassion collapse suggesting that as the number of victims increase people lose their feelings of empathy, sympathy and compassion (Slovic, 2007). Earlier studies (Västfjäll et al. 2012, Kogut & Ritov, 2005) have indeed shown that ratings of affect tend to covary with, and mediate, the singularity effect. In this paper we present a series of studies aiming to investigate if compassion collapse is a general affective judgment phenomena. We use a paradigm where participants either view 1, 3, or 9 affect-inducing pictures) and then rate the intensity of their currently experienced emotion. Based on emotion theories we predicted that people would experience the strongest and most intense emotions to a single picture and as the number of pictures increased emotion intensity would drop. We conducted 2 web surveys using representative US samples (over 500 participants) where we varied total duration/stimulus duration, picture valence, and presentation form (sequential/simultaneous). Across all studies we find strong support for affect collapse – the intensity of affect is strongest for a single affect-inducing stimulus and decrease as the number of stimuli increase. These findings suggest that our inability to feel for the many is an inherent property of our affective system and that this system share properties with our perceptual system.

NSF; Swedish Science Foundation

POSTER C-49

SADDER BUT WISER: THE EFFECT OF AFFECTIVE STATES AND WEATHER ON AMBIGUITY ATTITUDES

Aurélien Baillon¹, Philipp D Koellinger², & Theresa Treffers³

¹Erasmus University Rotterdam, ²University of Amsterdam and Erasmus University Rotterdam, ³Eindhoven University of Technology

Descriptors: Ambiguity attitudes, affect, weather

Many important decisions are made without precise information about the probabilities of the outcomes. In such situations, individual ambiguity attitudes influence decision making. The present study identifies affective states as a transient cause of ambiguity attitudes for different probability levels. In two random-assignment incentive-compatible laboratory experiments involving more than 500 students, we induced changes of affects in a between-subjects design by showing short video clips prior to measuring ambiguity attitudes. We induced subjects with joyful, fearful, sad, and neutral affect varying the valence and arousal dimension of their current affective state. Our findings suggest that sadness induces choices that are closer to ambiguity-neutral attitudes compared to the joy, fear and control treatments where decision makers deviate more from payoff-maximizing behavior and are more susceptible to likelihood insensitivity. In addition to the two random-assignment experiments, we studied if our laboratory evidence is consistent with naturally occurring data. To do so, we investigated the impact of weather, a typical proxy for the measurement of affect, on ambiguity attitudes in a representative sample of the Dutch population. We find a pattern that is similar to our laboratory results. In particular, cloudy weather conditions at the day of the survey - a proxy for sad affect - correlate with more ambiguity-neutral attitudes. The paper presents the first set of studies directly testing the causal impact of affective states and weather on ambiguity attitudes.

Funding provided by the German Research Foundation and the Erasmus University Rotterdam.

POSTER C-50

PREVIOUS GAMBLES MAY IMPACT SUBSEQUENT BEHAVIOR DURING REPEATED RISK-TAKING MEASURES

James Juergensen, Christine May, Bethlehem Yimenu, & Heath Demaree
Case Western Reserve University

Descriptors: Emotion, Risk-taking, Decision-making

When participating in repeated risk-taking behaviors (e.g., playing a slot machine), research suggests that the results of previous trials may impact subsequent wagers. For example, the "mood maintenance hypothesis" suggests that when people are in a positive affective state (perhaps from a previous win) they are less likely to gamble than when in a neutral state. Furthermore, the "house money effect" states that people are more likely to take risks after a win, or when being ahead overall during a gambling session. Conversely, the "break even effect" suggests that people take more risks after just experiencing a loss or when being down overall during a gambling session. In the current study, we investigated how prior gambling outcomes, as well as participants' affective responses to these outcomes, predict future wagers. All participants completed a series of trials on three computerized slot machines with varying expected values (EV = -10%, 0%, or +10%) of return on investment. Participants were given a bankroll with which to make wagers and were paid a percentage of their final bankrolls in real money. The "mood maintenance hypothesis" was supported in all EV conditions; the more positive affect participants reported, the greater the decrease in wager size on the next trial. The "house money effect" was supported in the 0% and +10% EV conditions, whereas the "break even effect" was supported in the -10% EV condition. This is some of the first evidence supporting these theories using an ecologically valid, real-money gambling task.

POSTER C-51

THE EFFECT OF PRIMARY REWARD ON FRUSTRATION

Janine M Dutcher, & Naomi I Eisenberger
UCLA

Descriptors: Reward, Negative Affect

Many people cope with frustration and negative affect by indulging in behaviors that they believe may make them feel better, including eating sugary foods. These sweet foods, like chocolate, may make people feel better in the moment because they activate reward processing brain regions. Based on prior research showing that rewarding stimuli can reduce physical pain and stress reactivity, we explored whether activating reward processing by eating sweets has a direct effect on reducing negative affect in response to a frustrating experience. Animal models suggest that there are two components to reward: wanting and liking, thus we designed two experiments to test if one or both components of reward processing could lead to reductions in negative affect following a frustrating cognitive task (the Stop Signal Task, SST, which requires people to inhibit a motor response). In Study 1, participants receiving a reward, chocolate, (liking) while completing many rounds of the SST reported significantly lower levels of negative affect compared to rounds when they did not receive a reward. However, in Study 2, when participants were shown a reward (chocolate) but told they would receive it after they completed the SST (wanting), they did not endorse lower levels of negative affect compared to rounds where they were not told they would receive a reward. This suggests that the liking component of reward may be a route to reduce negative affect in the face of frustration. Future research should investigate if other types of rewarding stimuli also lead to reduced negative affect.

POSTER C-52

STATE INERTIA DECREASES REWARD 'WANTING'

Lindsey Sherdell¹, Ian H Gotlib¹, & Christian E Waugh²
¹Stanford University, ²Wake Forest University

Descriptors: wanting, inertia, liking

Major depressive disorder (MDD) is characterized by abnormalities in reward processing, often leading to disengagement from the environment. Investigators have identified discrete systems responsible for wanting vs liking a reward. It remains unclear the extent to which 'wanting' represents a stable motivational value or instead is influenced by inertia (ie, by whether the decision to pursue a reward is being contrasted against remaining at rest or against an option that would also require effort expenditure). The present study examines whether 'wanting' is diminished by inertia, and whether depressed and healthy individuals differ in the extent of this effect. Participants completed an effort-based decision-making task in which they rated their liking of humorous vs nonhumorous cartoons and made a series of choices, each associated with a specified effort requirement (clicking on a moving square) in order to view a new cartoon. Humorous cartoons always required more effort than nonhumorous cartoons, but for half the choices, the nonhumorous cartoon was set to a click cost of 0, whereas for the other half the click cost was 15. Across both groups, participants demonstrated decreased reward wanting when the non-humorous cartoon was set to a click-cost of 0 vs 15. This effect was negatively correlated with anhedonia, which predicted wanting only when the nonhumorous cartoon was set to 15 clicks. Results suggest that interventions targeting motivation should focus on the inertia present at the point of decision between initiating effort to pursue a reward or remaining inactive.

POSTER C-53

CHILDREN WITH HEIGHTENED APPROACH MOTIVATION AND HEDONIC CAPACITY ARE MORE RESPONSIVE TO BOTH GAIN AND LOSS FEEDBACK

Katherine R Luking, Jamie S Neiman, Joan L Luby, & Deanna M Barch
Washington University in St. Louis

Descriptors: Incentive Processing, Childhood, Hedonics

The relationship between Major Depressive Disorder (MDD) and reduced reward response is well documented in adult and adolescent MDD literatures. Conversely, adults and adolescents with MDD show enhanced responses to loss/negative stimuli. However, as reward-related behaviors and adaptive responses to negative feedback undergo dramatic changes across puberty, key questions remain regarding how altered gain and loss processing relates to depressive and anhedonic symptoms in pre-pubertal child populations. Twenty-four pre-pubertal children aged 7-10 years completed two signal detection tasks that assessed behavioral responsiveness to candy gain and loss feedback, respectively. These tasks were based on Pizzagalli's probabilistic reward task where asymmetric feedback leads to greater response bias in more hedonic/non-depressed adults. We further modified the task to create a version where incorrect responses could result in loss feedback. Children and parents also completed individual difference questionnaires to assess child depressive symptomatology, general affect, and approach motivation/hedonic capacity. Hierarchical regressions indicated a relationship between approach motivation/hedonic capacity and response bias in both gain and loss tasks, even when controlling for depressive and externalizing symptoms. No relationships between depressive symptoms and bias were observed. Results suggest that reduced approach motivation/hedonic capacity is associated with blunted responses to both gain and loss feedback in pre-pubertal children, independent of other depressive symptoms.

POSTER C-54

THE EFFECT OF STUDY INSTRUCTION AND CUE SPECIFICITY ON EMOTIONAL MEMORY ENHANCEMENT

Sarah ME Scott, John C Ksander, & Kensinger A Elizabeth
Boston College

Descriptors: Affect, Recognition, Valence

In what instances are emotional memories more likely to be remembered than neutral memories? The present study examined the effect of two factors: The study instruction and the match between the studied stimulus and the retrieval cue. Participants viewed positive, negative, and neutral stimuli, half as photo objects and half as verbal referents (e.g., kitten, spider). They were instructed to passively view, to make a perceptual decision, or to make a conceptual decision for each stimulus. When their memory was tested, some retrieval cues matched the modality of the study stimuli (photo, word) and others mismatched. The results revealed that when passive viewing and matched cues were used, negative items were remembered better than positive or neutral. In perceptual encoding, there was a memory benefit for negative and positive items when cues matched. With conceptual encoding and matched cues, there was no emotional memory enhancement, as memory was equally good for all stimuli. Using mismatched cues, performance in passive and perceptual conditions dropped and benefits of emotion were eliminated. With conceptual encoding, memory for positive and neutral items was hurt more by mismatched cues than memory for negative items, leading to a comparative memory benefit for the negative stimuli. These findings illustrate how the impact of emotion on memory can be altered by encoding and retrieval circumstances. Emotion is known to affect memory strength; here we show that encoding method and cue similarity influence the ability to successfully retrieve emotional memories.

National Institutes of Health grant R01MH080833

POSTER C-55

EFFECTS OF AWE ON SCHEMA-DRIVEN MEMORY

Alexander F Danvers, & Michelle N Shiota
Arizona State University

Descriptors: Positive Emotion, Awe, Schema

Prior research suggests that positive mood tends to increase reliance on heuristic-driven processing. However, much of this research fails to distinguish among different varieties of positive emotion. From a functional standpoint, awe is thought to promote cognitive accommodation, the creation or updating of internal knowledge structures, rather than reliance on existing knowledge (Keltner & Haidt, 2003). Thus, unlike other positive emotions, awe should reduce reliance on heuristic processing. In two studies, participants completed an emotion induction task, then listened to a "romantic dinner" story, and were later asked to remember whether certain story details were present or absent. Memory questions reflected four categories, one involving details that were schema-consistent but absent. Incorrect answers to these indicate overreliance on a schema; higher scores reflect schema independence. Study 1 used film clips to elicit awe, general positive affect, and neutral affect. Participants in the awe condition answered more schema-independence items correctly than those in the general positive condition ($F(1,204) = 3.793, p = .053, \text{partial } \eta^2 = .018$). Study 2 used a relived experience task to elicit awe, enthusiasm, pride, contentment, and neutral affect. Participants in the awe condition answered more schema independence items correctly compared to the enthusiasm condition ($F(1,168) = 4.362, p = .038, \text{partial } \eta^2 = .025, \text{partial } \eta^2 = .020$), and directionally more than in than all other conditions (neutral and other positive emotions).

John Templeton Foundation

POSTER C-56

THE ROLE OF AFFECTIVE PROSODY IN SHORT-TERM MEMORY

Xuan Zhang¹, Michael Owren², & Lisa Feldman Barrett³
¹Boston College, ²Georgia State University, ³Northeastern University

Descriptors: affective prosody, memory, acoustics

This study aimed to examine the effects of affective prosody on short-term speech memory. Written narratives were adapted from a standard memory test with neutral semantic meaning and recorded into matched arousal levels but with different prosody valence (positive, neutral, and negative). Acoustic features were extracted from the recordings, including duration, formant, F0, jitter, shimmer, Harmonic-to-Noise Ratio (HNR), pitch and intensity related features. For each narrative, they were asked to perform both an immediate and a delayed recall test, and a delayed recognition test. Results showed that when the narrative content is neutral, compared to neutral prosody, positive and negative prosody made immediate recall and delayed recognition performance worse. Mean F0, mean HNR, and the number of intensity bins mediated this effect. This indicates that affective prosody impairs memory when the speech content is neutral.

POSTER C-57

EXPLORING THE WITHIN-CATEGORY VARIABILITY IN COMMON EMOTION CATEGORIES

Christine D Wilson-Mendenhall¹, Lawrence W Barsalou¹, & Lisa F Barrett²
¹Northeastern University, ²Emory University

Descriptors: emotion categories, typicality, affect

The tremendous variability within categories of human emotional experience receives little empirical attention. Cognitive psychologists use typicality to characterize within-category variance, which refers to how good of an example a particular instance is of its category. If categories for emotional experiences develop similarly to other abstract categories, as psychological construction models suggest, then the within-category variability captured by typicality should also characterize emotion categories. In this study, participants rated the typicality of emotional scenarios designed to vary in valence and arousal within each of three emotion categories: fear, happiness, sadness. We then examined the relationship between the typicality ratings and affect ratings of the same scenarios collected from an independent sample, including valence and arousal ratings. Whereas valence was significantly correlated with typicality in all three categories, arousal showed a significant, strong correlation with typicality for fear, a significant, but weaker correlation with typicality for sadness, and no significant correlation with typicality for happiness. The results suggest that affective properties may be central to within-category typicality gradients of emotions. Understanding how people categorize emotional experiences, especially atypical "fuzzy" category instances, has important implications for learning to identify and change patterns of behavior.

NIH Director's Pioneer Award DPI OD003312 to Lisa Feldman Barrett

POSTER C-58

FIRST AND THIRD PERSON INTUITIVE THEORIES OF EMOTION

Desmond C Ong, Jamil Zaki, & Noah D Goodman
Stanford University

Descriptors: Intuitive Theories, Modeling, Reasoning

Everyday, we effortlessly reason about the emotions that both we and other people would feel in response to various events. Although much empirical work has explored such affective cognition – how we reason about emotion – we still lack a formal computational theory of this phenomenon. What features of a situation shape the way we attribute emotions to others, and do we use the same information when inferring our own emotions? How do inferences about future and past emotions vary? Here, we used tools from computational cognitive science to address these questions by examining affective cognition along two dimensions: self/other, and prospective/retrospective. In a between subjects design, participants in the retrospective conditions watched a character play a gambling game or played the game themselves, and then rated the emotions of the player (self or other) in response to the outcome. In the prospective conditions, participants rated the emotions they imagined the player would feel before the player actually gambled. We find two main “positivity” biases, where self and retrospective attributions tend to be more positive and less negative than other and prospective attributions respectively. Modeling revealed that self-retrospective attributions rely the most on the amount players actually won and less on counterfactuals (e.g., what the player could have won), while other-prospective attributions show the opposite trend. These results suggest interesting predictions about affective cognition as it varies in both healthy and clinical populations.

POSTER C-59

EMOTION DIFFERENTIATION, VALENCE FOCUS AND APPRAISAL OVERLAP

Yasemin I Erbas, Eva Ceulemans, Madeline L Pe, Peter Koval, & Peter Kuppens
KU Leuven

Descriptors: emotion differentiation, valence focus, appraisal

Emotion differentiation refers to the level of complexity with which people differentiate between different emotional states. Although it appears to play an important role in psychological well-being, a lot is unknown about what characterizes people high or low in negative emotion differentiation and what underlies these differences. In the current studies we aim to explore how emotion differentiation is a function of valence focus and the overlap in appraisal patterns between people's emotions. We hypothesize that a large focus on the valence aspect of emotions might result in very little attention to characteristics that make the differences between emotions of the same valence more salient, and consequently result in lower levels of differentiation between like-valenced emotions. With regard to appraisal patterns, we argue that large overlap in the appraisals of different emotions may lead to more similarities in the experience of these emotions, and consequently result in lower levels of differentiation. We tested our hypotheses in two experience sampling studies. Participants reported their current feelings and the appraisals of the events that led to their feelings at each sampling moment. Results show that high levels of emotion differentiation were related to lower levels of valence focus and to lower levels of appraisal overlap. These findings suggest that individual differences in emotion differentiation are related to the weight that is given to the valence aspect of an emotion and the role that appraisals can play in the development of the emotional experience.

POSTER C-60

BOREDOM AND AUTONOMIC TONE: TWO EXPERIMENTS

Christopher R Seemann, McWelling Todman, Wendy D'Andrea, & Marcel Kinsbourne
The New School for Social Research

Descriptors: Boredom, Autonomic Tone, Negative Affect

Boredom is an affective state associated with negative outcomes such as the worsening of mental status and drug relapse. Affective states are complex psychophysiological processes that allow an organism to respond to stimuli that evokes an emotion. The following study includes two experiments. The first experiment recruited a non-clinical sample (N=80) of adults to determine the autonomic correlates of personality traits related to boredom. Subjects completed a personality measures and then administered an autonomic baseline. Boredom Proneness was negatively correlated with parasympathetic tone. The second experiment recruited a non-clinical sample (N=40) of adults to determine how the experience of boredom influences autonomic tone. Participants completed both state and trait measures associated with boredom, dissociation, and anxiety and then a reading task, a baseline, an experimental task (reading or vowel counting), and a recovery task. Boredom was higher only in the vowel counting condition, while dissociation and anxiety both increased over the experiment. Heart rate increased only during vowel counting. Parasympathetic tone was the lower in the reading and experimental tasks than in the baseline and recovery tasks. Sympathetic tone was lower in individuals who were told they would be counting vowels. Anticipatory and consummatory boredom are discussed as explanations for these findings, as well as their importance in testing. The relationship between the experience of boredom, trait boredom, autonomic tone, and negative outcomes are also discussed.

POSTER C-61

NEGATIVE AFFECT INTERFERENCE: RELATIONSHIP TO PSYCHOPATHOLOGY, ANHEDONIA, AND AFFECT RATINGS IN A LARGE COMMUNITY SAMPLE

Jonathan M DePiero¹, Sarah Herzog¹, Paul Frewen², & Wendy M D'Andrea¹
¹The New School, ²University of Western Ontario

Descriptors: Anhedonia, Negative Affect Interference, PTSD

A growing body of evidence suggests that some individuals who have difficulty experiencing positive affect report experiencing negative affect states such as shame, guilt, or fear, in situations that should otherwise bring pleasure; this phenomenon is called Negative Affective Interference (NAI). Studies with adult community-dwelling participants evaluated how negative affect interference relates to self-reported psychiatric symptoms (N=600); and traditional anhedonia, emotion regulation problems, and ratings of affective stimuli (N=288). Increased NAI was related to greater overall self-reported emotion regulation problems, depression, and PTSD symptoms ($r_s > .40$, all $p_s < .001$); and was related to both interpersonal ($r = .41$, $p < .001$) and non-interpersonal anhedonia ($r = .37$, $p < .001$). NAI accounted for additional variance in psychiatric symptoms after accounting for anhedonia. Participants with greater NAI, like those endorsing larger hedonic deficits ($r = -.25$, $p < .001$), rated positive normed pictures (e.g. erotica and food) as less arousing ($r = -.25$, $p < .001$) but not as less pleasant. Intrusive negative emotion appears related to self-reported differences in arousal. These findings suggest that NAI has relevance for understanding emotion in psychopathology and that the experience of NAI meaningfully relates to alterations in experience of well-validated emotional stimuli.

POSTER C-62

SOCIAL ANXIETY ALTERS THE SOCIAL REGULATION OF EMOTION

Erin L Maresh, & James A Coan
University of Virginia

Descriptors: social anxiety, threat, social emotion regulation

Social support provided via handholding has been shown to decrease neural reactivity to threat. Whether social anxiety moderates this effect is unknown. To investigate this, sixty-five individuals (35 women) were scanned during a threat-of-shock paradigm while under three counterbalanced conditions: alone, holding the hand of a stranger, and holding the hand of a familiar partner. The paradigm consisted of a series of threat and safety cues presented in a random order. Although social anxiety did not correspond with threat-related neural activity when participants were alone, during both the stranger and partner conditions, social anxiety corresponded with decreased activity in the anterior cingulate gyrus, paracingulate, and occipital cortex. Social anxiety additionally corresponded with decreased activity in the middle and superior frontal gyri, dorsolateral prefrontal cortex, insula, and right supramarginal gyrus during stranger handholding and with the supplementary motor cortex, caudate, putamen, and nucleus accumbens during partner handholding. To explore whether these decreases reflected lower activity to threat cues or higher activity to safety cues in more socially anxious people, we examined the relationship of social anxiety to threat and safety cues separately. In both handholding conditions, social anxiety corresponded with decreased activity to threat cues yet showed no relationship with activity to safety cues. We suggest that the presence of others, particularly unfamiliar others, may reduce vigilance to non-social threats in socially anxious individuals.

POSTER C-63

COGNITIVE AND EMOTION REGULATION CHANGE PROCESSES IN COGNITIVE BEHAVIORAL THERAPY FOR SOCIAL ANXIETY DISORDER

Mia S O'Toole¹, Douglas S Mennin², Esben Hougaard³, Robert Zachariae³, Emmanuel Garcia⁴, & Nicole K Rosenberg⁵

¹Aarhus University, Denmark, ²Hunter College, City University of New York, NY, USA, ³ Aarhus University, Denmark, ⁴Hunter College, City University, Aarhus University Hospital, Risskov, Denmark

Descriptors: Social anxiety disorder, CBT, Mediation

The objective of the study was to investigate variables derived from both cognitive and emotion regulation conceptualizations of social anxiety disorder (SAD) as possible change processes in Cognitive Behavior Therapy (CBT) for SAD. Several proposed change processes, or mediator variables, were investigated: estimated probability, estimated costs, safety behaviors, acceptance, cognitive reappraisal, and expressive suppression. Participants were 50 patients with SAD, receiving a standard manualized CBT program, conducted in groups or individually. All variables were measured pre-, mid-, and post-therapy. Linear mixed analyses revealed that while a change in all process measures significantly predicted clinical improvement, only estimated probability and cost, and acceptance of emotions could be considered significant mediators. The results are in accordance with previous studies, supporting the mediating role of cognitive distortions in CBT for SAD. In addition, acceptance of emotions may be a critical component to clinical improvement in SAD during CBT, although more research is needed on which elements of acceptance are most helpful for individuals with SAD. The study's lack of a control condition limits any conclusion regarding the specificity of the findings to CBT.

POSTER C-64

PERIPHERAL LEVELS OF OXYTOCIN IN RELATION TO AFFECTIVE PROCESSING IN SCHIZOTYPY

Laura K Max, & Nancy S Koven
Bates College

Descriptors: oxytocin, schizotypy, emotional intelligence

Schizotypy is conceptualized as the subclinical presentation of psychosis, involving affective, cognitive, and perceptual disturbances as well as impaired social cognition. The neuropeptide oxytocin, which facilitates emotion recognition, trust, and attachment, is thought to play a role in the etiology of schizophrenia, with evidence suggesting reduced levels as a disease contributor. However, it is unknown whether oxytocin abnormalities are also present in schizotypy. This study examined the degree of correlation among salivary levels of oxytocin, self-reported indices of schizotypy (Schizotypal Personality Questionnaire; Wisconsin Schizotypy Scales; Aberrant Saliency Inventory), and behavioral measures of social cognition (Mayer-Salovey-Caruso Emotional Intelligence Test, MSCEIT; modified Penn Emotion Recognition Task) in a sample of 71 young adults. Oxytocin levels were determined with enzyme-linked immunosorbent assay. Results found that oxytocin concentration was positively associated with degree of socioaffective difficulties and that this relationship was moderated by emotional experiencing ability, as measured by the MSCEIT. No other facet of schizotypy was related to oxytocin concentration. These findings suggest that high levels of oxytocin may contribute to socioaffective impairment and interpersonal problems in a subset of individuals. We speculate that heightened oxytocin causes emotional stimuli to be more salient, prompting hypersensitivity and subsequent withdrawal from social situations. Clinical implications and ideas for future research are discussed.

POSTER C-65

AFFECTIVE DYNAMICS IN BORDERLINE PERSONALITY DISORDER: THEORETICAL MODEL AND EMPIRICAL TEST IN DAILY LIFE

Marlies Houben¹, Ulrich Ebner-Priemer², & Peter Kuppens¹

¹KU Leuven, ²Karlsruhe Institute of Technology

Descriptors: borderline personality disorder, emotion dysregulation, emotion dynamics

Emotion dysregulation has been consistently conceptualized as the core problem of Borderline Personality Disorder (BPD; Lieb et al., 2004; Linehan, 1993). However, a complete picture of how this plays out in the emotional ebb and flow of daily life remains lacking. To fill this gap, we applied the DYNAAFFECT model, an integrative theoretical model of affective dynamics (Kuppens, Oravecz, & Tuerlinckx, 2010), to three independent experience sampling datasets, in which both BPD and healthy participants reported on their core affective states throughout their daily lives. The DYNAAFFECT model describes three processes that underlie individual differences in fluctuations of affective experiences: affective home base, affective variability and regulatory strength. These can be mapped on the different components underlying emotional dysregulation in BPD according to Linehan (1993). We found consistent evidence that BPD patients have a more negative home base, that is also characterized by higher levels of distress, compared to healthy people. Next, BPD patients showed considerably more affective variability, for both valence and distress. We also found indications that BPD patients may be characterized by a weaker regulatory strength, but these findings were less consistent. Overall, our findings show that the affective dynamics in BPD are characterized by large affective fluctuations around an affective baseline that is characterized by high levels of unpleasantness and distress, but not necessarily by a weak regulatory strength. These results partially support Linehan's account.

POSTER C-66

EMOTIONS ARE MORE STICKY IN DEPRESSION

Peter Kuppens
KU Leuven

Descriptors: depression, emotion differentiation, emotional inertia

This paper presents an overarching account of several key characteristics of the emotional dynamics observed in depression. The central hypothesis states that depression is characterized by emotions that, by lack of a better word, are more sticky, both in terms of how they stick to themselves, e.g. how much they carry over from one moment to the next, as to how they stick to other emotions, e.g., how strongly they correlate with or are differentiated from other emotions. Evidence for this hypothesis is presented in the form of analyses of several experience sampling datasets showing that emotional states in the daily lives of individuals with elevated depressive symptoms or with a depression diagnoses are more inert (e.g., they carry over more from moment to the next, expressed in a higher autocorrelation across time), are less differentiated from one another (e.g., reflecting lower levels of emotional granularity, expressed in higher Intra-Class Correlation coefficients across time), and form a more dense overall emotional network (e.g., that is more self-predictive, expressed in stronger cross-lagged relations between emotional states across time). These elements combine into depression being characterized by a more closed emotional system that is more self-perpetuating and less affected by outside influences, which may interfere with the otherwise flexible function emotions play to alert people of important internal and external events.

POSTER C-67

EMOTION IN DAILY LIFE: SIMILARITIES BETWEEN CURRENTLY AND PREVIOUSLY DEPRESSED EMERGING ADULTS

Erin S Sheets¹, Michael F Arme², & Lara A Ray³
¹Colby College, ²Brown University, ³University of California, Los Angeles

Descriptors: Depression, Ecological Momentary Assessment, Stress

Major depressive disorder has been characterized as a disorder of excessive negative affect and deficient positive affect. Few investigations, however, have compared these and other patterns of emotional state between currently and previously depressed individuals to identify vulnerabilities to depression that may be evident in and outside of depressive episodes. The present study employed ecological momentary assessment methods to examine emotion in daily life among depressed and nondepressed individuals. One hundred and eight participants (23 currently depressed, 42 previously depressed, and 43 never depressed emerging adults) were randomly prompted to rate their emotional state up to four times per day for 2 weeks. As predicted, multilevel modeling analyses indicated that currently depressed participants reported greater mean sadness, greater mean anger, and less mean positive affect than previously or never depressed participants. Conversely, previously and currently depressed participants exhibited similar levels of increased stress, anxiety, and guilt relative to controls, and decreased confidence and sense of calm relative to controls. These findings suggest that core aspects of negative and positive affect vary between states of euthymia and depression, while other key patterns of emotional vulnerability may remain stable within individuals at risk for depression.

POSTER C-68

ONE-YEAR RELATIVE STABILITIES OF TEMPERAMENT, DEPRESSION, AND SOCIAL ANXIETY IN A CLINICAL SAMPLE RECEIVING TREATMENT

Kristin Naragon-Gainey¹, & Timothy A Brown²
¹University at Buffalo, State University of New York, ²Center for Anxiety and Related Disorders, Boston University

Descriptors: Trait-state models, Temperament stability, Psychopathology

In the past, it was believed that a basic distinction between traits and disorders is that traits have greater temporal stability. However, it is becoming clear that some symptoms are as or more stable than traits (e.g., Prenoveau et al., 2011; Roberts & Mroczek, 2008; Shea & Yen, 2003). This issue has rarely been examined in clinical samples receiving treatment, where change in trait ratings may be confounded with change in symptoms in standard analytical approaches. The current study used the "trait-state-occasion" latent variable model (TSO; Cole et al., 2005) to estimate stability by separating the stable components of two temperaments (i.e., neuroticism and extraversion) and two disorders (i.e., depression and social anxiety) from transient influences such as current mood state. Individuals who enrolled in cognitive-behavioral therapy for anxiety and related disorders (N = 555) were assessed 3 times over the course of one year with interview and self-report measures. The TSO model revealed that extraversion was highly stable (80% stable variance). The other three constructs decreased in mean level, but also demonstrated at least moderate stability (60-90% stable variance). While depression and social anxiety were less stable during treatment, they returned to very high rates of stability following active treatment. The results suggest that neuroticism is more responsive to change than extraversion during CBT, and provide further support of spectrum models of psychopathology-personality associations that make little distinction between affective traits and symptoms.

POSTER C-69

SELF-REFERENT INFORMATION PROCESSING BIASES PROSPECTIVELY PREDICT INCREASES IN RUMINATION IN ADOLESCENTS

Samantha L Connolly¹, Jessica L Hamilton¹, Lyn Y Abramson², & Lauren B Alloy¹
¹Temple University, ²University of Wisconsin-Madison

Descriptors: Rumination, Self-referent information processing, Adolescence

Rumination may predispose individuals to depression and is potentially rooted in negative information processing biases in which individuals attend to and remember negative information. Indeed, several studies have found that negative attentional biases predict increases in rumination. The current study analyzed self-referent information processing biases and rumination during adolescence, a period associated with rises in cognitive vulnerabilities and depression. At Time 1, 214 adolescents (mean age = 12.4) completed a self-report measure of rumination (CRSQ) and a Self-Referent Encoding Task (SRET) in which they indicated whether positive and negative adjectives were self-descriptive and subsequently engaged in free recall of task adjectives. At Time 2 (T2; mean months to follow-up = 11.8), participants completed the CRSQ. Hypotheses were partially supported; specifically, endorsing more negative self-referent words on the SRET predicted increased rumination at T2 (Beta = .12, p = .05) and endorsing more positive self-referent words predicted increased distraction and problem-solving, considered adaptive alternatives to rumination, at T2 (Beta = -.15, p < .05). A trend was also found in which those who recalled a lesser proportion of endorsed positive self-referent adjectives displayed increases in rumination relative to distraction/problem-solving at T2 (Beta = -.12, p = .06). This study is the first to find support for a potentially causal link between self-referent information processing biases and rumination in adolescents through the use of a prospective design.

This work was supported by NIMH grants MH79369 and MH101168.

POSTER C-70

SELF-REPORTED EMOTION REGULATION IN CURRENT AND REMITTED DEPRESSION AND RELATIONSHIP TO SYMPTOM CHANGE OVER SIX MONTHS

Lauren M Bylsma¹, Vanessa Panaite², & Jonathan Rottenberg²
¹University of Pittsburgh, ²University of South Florida

Descriptors: Emotion Regulation, Major Depression, Remitted Depression

Emotion regulation (ER) deficits have long been considered a vulnerability factor for depression. Investigations of fully remitted depression have been limited, and it remains unclear if ER strategies are state or trait-like. Preliminary evidence suggests that individuals remitted from depression show more maladaptive ER strategies compared to controls (Brockmeyer et al., 2012; Davantzato et al., 2013; Ehrling et al., 2010), although not unanimously (Joormann et al., 2006). We examined 3 different maladaptive ER scales (Difficulties in Emotion Regulation, Penn State Worry Questionnaire, and the Response Styles Questionnaire) in 49 current MDD, 24 remitted depressed (RMD) and 45 healthy controls, with a 6-month follow-up. All 3 ER scales were highly correlated with each other and across the 2 timepoints ($p < .001$). All groups showed significant differences in the expected direction: MDDs (more maladaptive ER), followed by RMDs, and controls ($p < .01$). Within the MDD group all scales were associated with depression severity ($p < .01$). Further, increases in depression symptoms over 6 months in the MDD and RMD groups were associated with increases in ER difficulties indexed by the PSWQ and the RSQ ($p < .05$) only. Results suggest that RMD is still associated with elevated ER difficulties in the absence of symptoms. In addition, scales measuring maladaptive ER are relatively stable over time, although changes in ER are also associated with depression symptom changes over time, suggesting both state and trait-like effects.

NIH R21 MH077669

POSTER C-71

EMOTIONAL RESPONDING TO SOCIAL AFFILIATIVE INTERACTIONS IN SCHIZOPHRENIA

Cristina Garcia¹, Lauren Catalano¹, Kristen Bradshaw¹, Julie McCarthy¹, Melanie Bennett², & Jack Blanchard¹

¹University of Maryland, College Park, ²VA Capitol Healthcare Network (VISN 5) Mental Illness Research, Education, and Clinical Center (MIRECC), Baltimore, MD

Descriptors: schizophrenia, emotion, anhedonia

Emotional responding to a range of evocative stimuli appears intact in individuals with schizophrenia. However, few studies have examined emotional responding to social stimuli in this disorder. Given that negative symptoms of social anhedonia and asociality are central to schizophrenia, it is important to determine how these symptoms are related to responding to affiliative social interactions. Using a novel social affiliation task, we examined subjective responding in healthy controls and individuals with schizophrenia to determine if schizophrenia is associated with more anhedonic responding. Fifty participants with schizophrenia or schizoaffective disorder and 20 controls viewed and responded to a video of an affiliative interaction partner. Participants completed questionnaires assessing mood, their subjective reactions to the partner (e.g., how trustworthy the partner was), and their willingness to interact with the partner. Contrary to expectations, there were no group differences in negative or positive affect, subjective reactions to the partner, or willingness to interact with the partner. Clinical ratings of negative symptoms were unrelated to subjective reactions within the schizophrenia group. These results indicate that despite clinical ratings of social anhedonia and asociality, individuals with schizophrenia show subjective responses in mood, partner appraisals, and willingness to interact that are similar to healthy controls. These findings indicate the need to explore other factors that give rise to negative symptoms and social impairment in this disorder.

POSTER C-72

VULNERABILITY TO COGNITIVE DISTRACTION IS GREATER IN THOSE WITH HIGH DEPRESSIVE SYMPTOMS AND REDUCED BY INDUCED POSITIVE MOOD

Joshua D Rooks, & Amishi P Jha
University of Miami

Descriptors: Working Memory, Depression

The current study aimed to determine cognitive vulnerability in dysphoria/depression. Using a non-clinical sample of healthy undergraduates ($N=54$), we investigated if individual differences in depression, and induced mood reveal specific impairments in working memory (WM) maintenance and interference processes. Participants completed one of three (Positive, Neutral or Negative) 10-minute mood induction phases prior to a WM delayed-recognition task. Demand levels (high vs. low) of WM maintenance (memory load of 2 items vs. 1 item) and delay-spanning distractor interference (confusable vs. not confusable with memoranda) were manipulated using a factorial design during the task. Overall, task accuracy was sensitive to load and interference demands, with higher performance on low vs. high load trials as well as high vs. low interference trials. Higher depressive symptoms were associated with poorer task performance. In the neutral mood group, those with high vs. low depressive symptoms suffered from poor performance on high interference but not high maintenance trials, suggesting a vulnerability to cognitive distraction in those with high depressive symptoms. This pattern was also present for negative mood, but not positive mood. Those with high depressive symptoms and induced positive mood outperformed the other mood groups on high interference trials. These results suggest that depressive symptoms may be associated with a vulnerability in the capacity to disregard cognitive distraction during working memory; and that positive mood states may dampen this vulnerability.

POSTER C-73

THE EMOTIONAL COST OF HUMANITY: ANTICIPATED EXHAUSTION AND EMOTION REGULATION PREDICT DEHUMANIZATION

C Daryl Cameron¹, Lasana T Harris², & B Keith Payne³

¹University of Iowa, ²Duke University, ³University of North Carolina

Descriptors: Emotion regulation, Compassion, Dehumanization

Although mind perception is a basic part of social interaction, people often dehumanize others by denying them mental states. Many theories suggest that dehumanization happens in order to facilitate aggression or account for past immorality. We suggest a novel motivation for dehumanization: people dehumanize others to avoid emotional exhaustion. In four experiments, we show that dehumanization is strongest for those who have motivation to avoid emotional exhaustion and the ability to skillfully regulate emotions. In Experiments 1 and 2, we examined whether participants high in trait empathy—who would be more at risk for exhaustion because they would empathize in the first place—engaged in greater dehumanization of stigmatized relative to neutral targets. In Experiment 1, high-empathy participants used fewer mental state verbs to describe a day in the life of a drug addict, compared to a neutral individual. In Experiment 2, high-empathy participants made reduced implicit humanness judgments of a drug addict (vs. positive and neutral targets), and this effect only emerged for skilled emotion regulators. In Experiments 3 and 4, we measured and manipulated anticipated exhaustion concerns directly. In Experiment 3, participants who anticipated high emotional exhaustion showed reduced mind attribution to a drug addict compared to a neutral individual. Experiment 4 revealed that dehumanization was strongest for skilled emotion regulators who were led to anticipate being emotionally overwhelmed. These findings support a motivated emotion regulation account of dehumanization.

POSTER C-74

EMOTIONAL LICENSING AND POLITICAL GROUP MEMBERSHIP: SHIFTING STANDARDS OF EMOTIONAL APPROPRIATENESS

Jacqueline S Smith, Marianne LaFrance, & John F Dovidio
Yale University

Descriptors: emotional appropriateness, group processes, emotion expression

Who is seen as passionate and who gets labeled hysterical or hotheaded? Norms of appropriate emotional expression operate in most if not all social contexts, but the boundaries of what is deemed appropriate may shift with the group membership of the expresser. We hypothesized that outgroup members are given less latitude to express emotion than ingroup members. In a between-subjects design, participants read a brief scenario in which a target expressed either anger or happiness. We also varied target gender and political group membership (Democrat or Republican). Participants evaluated the situational appropriateness of the intensity and type of emotion expressed and rated the target on perceived competence and capacity for emotional control. As predicted, emotional expressions by political outgroup members were judged as less appropriate than the same expressions by ingroup members, and female outgroup members were seen as even less appropriate than male outgroup members. Outgroup members were also perceived to be less competent and having less emotional control, effects which were mediated by judgments of appropriateness. Furthermore, participants not only judged outgroup members as expressing too much emotion, but actually perceived outgroup members to be expressing more anger and more happiness than ingroup members. Together these findings suggest that the boundaries of appropriate emotion may be shifted in order to undermine or justify unfair treatment toward members of groups other than one's own, a bias that may obstruct opportunities for cooperation and compromise.

This research was supported by a Grant-in-Aid from the Society for the Psychological Study of Social Issues awarded to the first author.

POSTER C-75

U CAN'T TOUCH THIS: SPATIAL TOPOGRAPHY OF SOCIAL TOUCHING

Juulia Suvilehto, Enrico Glerean, & Lauri Nummenmaa
Aalto University

Descriptors: Interpersonal touch

Background: Social touching is the most intimate way of human communication. It can be used for communicating positive and negative affect, and promoting social bonding. Consequently, temporal and spatial patterns of touching behavior might be expected to vary depending on the type of social relationship, yet this hypothesis remains unexplored in humans. Methods: Participants (n=91) completed an online questionnaire regarding their social network as well as touching behavior with different members of their social network. Additional 155 participants were shown front and back silhouettes of human bodies, and asked to color the bodily regions where different members of their social network could touch them, or where they think they could touch the corresponding individuals. Results and discussion: Strength of interpersonal emotional bond correlated with the experienced pleasantness of that person's touch, as well as with likelihood of touching that person in different social settings. Moreover, the stronger the bond was, the larger areas of the bodies the subjects felt comfortable touching or being touched on. The acceptable areas of touching also diverged in different layers of an individual's social network with people in closer layers being allowed to touch at more locations. We conclude that spatially selective touching patterns may promote establishment and maintenance of social bonds in humans.

POSTER C-76

SOCIAL POWER AND EMPATHY: WHAT ROLE DO POSITIVE EMOTIONS PLAY?

Alta du Pont, & James Hambrick
Princeton University

Descriptors: Positive Emotions, Power, Empathy

Power, positive emotions, and empathy play a vital role in social processes, often leading to social benefits (e.g. social connectedness, helping behavior, Fredrickson, 1998), but also social costs (e.g. increased stereotyping, Fiske, 1993). This study built upon prior research that connects power with decreased empathy (Galinsky, Gruenfeld, & Magee, 2003), power with increased positive emotion (Berdahl & Martorana, 2006), and positive emotions with increased empathy (Fredrickson, 1998). Specifically, this study analyzed positive emotionality, differentiating between self-focused positive emotions (e.g. pride) and other-focused positive emotions (e.g. gratitude) to determine if self-focused positive emotions mediate the inverse relationship between power and empathy. Participants (n = 121; mean age = 20.07; 51% female) were randomly assigned into a high or low power condition, and completed a power priming essay task. They answered a series of emotion and empathy questionnaires, and completed a physical perspective taking empathy task. The results indicated that, contrary to expectations, power and empathy were not related. However, both power and empathy were linked with positive emotionality, suggesting that social power and empathy are related to unique aspects of positive emotions. Further analysis indicated that power was correlated with self-focused positive emotions, while empathy was linked with other-focused positive emotions. Future studies examining negative affect and alternative types of power must be explored to gain further insight into these findings.

POSTER C-77

VALIDATION OF THE EMOTIONAL REACTIVITY SCALE IN A COMMUNITY SAMPLE OF ADOLESCENTS: REACTIVITY TO AN IN-VIVO STRESSOR

Benjamin G Shapero, Olga V Obratzsova, Jared K O'Garro-Moore, Lisa E Johnson, & Lauren B Alloy
Temple University

Descriptors: Reactivity, Validation, Stressor

Individual differences in emotional reactivity may help explain why some people are vulnerable to developing psychological problems in the face of stress (e.g., McLaughlin et al., 2010). Nock et al. (2008) recently developed the Emotional Reactivity Scale (ERS) to assess more general subjective experiences of emotional reactivity including emotional sensitivity, intensity, and arousal duration. The ERS could make a considerable contribution to literature examining vulnerability factors for psychopathology, yet more studies are needed to support its validity. The goal of the current project was to assess the construct validity of the ERS in comparison to reactivity to an in-vivo stressor. A community sample of adolescents (N=103; Mage=15.19; 51% male, 56% African American) completed the ERS (alpha=.95) and then participated in a modified Trier Social Stress Task. Participants were instructed to interview for a summer job and were recorded giving a two minute speech. Participants rated their level of distress before and after their speech on a thermometer ranging from not at all distressed (0) to very distressed (8). Results indicated significant racial differences (t=2.84, p=.006), with Caucasian participants reporting higher levels of distress compared to African American participants. After controlling for racial differences, the ERS predicted emotional reactivity to the in-vivo stressor (Beta=.23, t=2.40, p=.019). This study further supports the construct validity of this comprehensive assessment of the subjective experiences of emotional reactivity.

This research was supported by the National Institute of Mental Health (NIMH) grant MH79369 to Lauren B. Alloy and F31MH099761 to Benjamin G. Shapero.

POSTER C-78

TRAIT RUMINATION MODERATES THE EFFECT OF EXECUTIVE CONTROL TRAINING

Meghan E Quinn¹, Daniel C Keil², Sarah Utke², & Jutta Joormann¹
¹Northwestern University, ²Philipps University of Marburg

Descriptors: executive control, stress, rumination

The ability to regulate emotions during times of stress plays an important role in risk for psychopathology and resilient responding. Individual differences in executive control may critically affect this ability. Training executive control may therefore improve emotional adjustment to stressful events. The aims of the current study were to examine whether executive control training affects biological stress response and to investigate whether trait rumination moderates the training effect. Using a student sample, executive control was trained with two versions of the n-back task, one with neutral and one with affective stimuli. The training groups were compared to a control condition on changes in salivary cortisol following a stress induction. Results indicate that trait rumination moderated the training effects. For participants low on trait rumination, condition assignment had no effect on cortisol reactivity. For participants high on trait rumination, however, the training compared to the control condition resulted in diminished cortisol reactivity. These results highlight the link between executive control and stress reactivity and emphasize the importance of examining moderators when investigating the effects of executive control training.

POSTER C-79

SPEECH ANTICIPATION DIFFERENTIALLY FACILITATES VERBAL AND SPATIAL WORKING MEMORY

Andrew O Davis, Katherine E Vytal, Katherine M O'Connell, Elizabeth A Hale, Ambika Mathur, David M Quispe-Escudero, Monique Ernst, & Christian Grillon
National Institute of Mental Health

Descriptors: Anxiety, Working Memory, Social Stress

Anxiety can often be distracting or incapacitating. The maladaptive aspects of anxiety have been empirically studied in relation to working memory (WM). Induced anxiety via threat of shock has been shown to differentially impair spatial and verbal WM performance depending on task difficulty. However, little is known about the impact of social stress on these types of WM. Here, we use speech anticipation to induce anxiety in healthy adults, and examine its impact on both spatial and verbal WM. Subjects performed spatial and verbal n-back tasks of increasing difficulty (3 loads: 1, 2, and 3-back) under two conditions: one where they anticipated giving a speech to a panel of judges, and another where they anticipated reading a story aloud to themselves. Physiological measures and self report were used to probe anxiety. In contrast to threat of shock, speech induced-anxiety differentially improved spatial and verbal WM performance. Specifically, verbal WM was facilitated across loads, whereas spatial WM was only facilitated under high-load. Selective improvement in verbal WM under a social stressor like speech anticipation may be evolutionarily adaptive by preferentially processing verbal information over spatial in certain situations, such as resolving verbal conflict. These findings provide an alternative perspective for current theories about socially induced anxiety and its potentially adaptive nature, and may lead to the development of different clinical interventions that target social anxiety.

POSTER C-80

SOCIAL STRESS IMPAIRS WORKING MEMORY DURING DIFFICULT TASKS AND BLUNTS STARTLE

Ambika Mathur, Katherine Vytal, Phillip Allen, Jennifer Weinstein, Katherine O'Connell, David Quispe-Escudero, Andrew Davis, Elizabeth Hale, Monique Ernst, & Christian Grillon
NIH

Descriptors: social stress, psychophysiology, working memory

Past findings suggest that non-physical stress (e.g. social stress) impacts cognitive performance on difficult tasks whereas threat-of-shock disrupts performance on easy tasks. However, the Yerkes-Dodson law claims there is an optimum level of stress for task performance: performance may be either facilitated or impaired depending on the amount of stress. Here we examine the effect of social stress on cognitive performance and defensive responding in healthy adults. Cognitive performance is collected using a verbal N-back task with three levels of difficulty, and defensive responding is assessed physiologically via EMG recordings of the startle reflex. Social stress is induced by having research staff monitor performance and provide negative comments (e.g., "you really must do better") in runs that alternate with a control condition (no feedback/observation). Preliminary findings (N=8) show social stress facilitates working memory performance on easy tasks but impairs performance on difficult tasks, contrary to the effects of threat-of-shock. Further, high load reduces defensive responding, resulting in blunted EMG startle. Results suggest the way in which social stress interacts with working memory supports the Yerkes-Dodson model; cumulative stress from observation and task difficulty suggests that moderate stress (i.e. social stress + easy task) facilitates performance, while high stress (i.e. social stress + difficult task) results in impaired performance. As the sample increases, we expect to validate these findings and show modulation by subjective anxiety.

Society for Affective Science 2014 Inaugural Conference • Author Index

A

Aaron, Rachel V	2
Abdi, Hervé	23
Abecasis, Donna	21
Abramson, Lyn B	38
Abramson, Lyn Y	26, 36, 39, 57
Acevedo, Amanda M	40
Adalio, Christopher	3
Adams, Ashleigh Molz	36
Adcock, R Alison	24
Ahrens, Anthony H	20
Akil, Huda	12, 31
Al-Dajani, Nadia	18
Aldao, Amelia	10
Alhomaizi, Dalal	23
Allen, Joseph P	3
Allen, Kat	26
Allen, Nicholas B	4, 5, 6
Allen, Phillip	60
Alloy, Lauren B	9, 26, 36, 38, 39, 57, 59
Almeida, David M	13
Alvarado, Nancy	7
Amaral, David	4
Ames, Daniel L	42
Anbari, Zainab	34
Anderson, Eric	23, 27
Andreano, Joseph M	43
Anholt, Gideon E	11
Arditte, Kimberly A	14
Arieli, Dan	48
Armey, Michael F	57
Atlas, Lauren Y	2
Atzil, Shir	23
Aurbach, Elyse L	12, 31
Averbeck, Bruno B	13
Azrielant, Shir	48

B

Baillon, Aurélien	52
Balderson, Nicholas L	22
Balderston, Nicholas L	22
Baldner, Conrad	14
Bansal, Ravi	37
Barch, Deanna M	53
Barnard, Kobus	39
Barrett, Frederick S	46
Barrett, Lisa	4, 8, 15, 23, 27, 28, 48, 54
Barrett, Lisa Feldman	23, 27, 28, 32, 43, 44, 54
Barsalou, Lawrence W	54
Baskin-Sommers, Arielle R	22
Basnakova, Jana	42
Beaton, Derek	23
Beckes, Lane	22
Belleau, Emily L	22, 42, 43
Bennett, Melanie	58
Benson, Taylor L	2
Berkum, Jos JA	42
Bernat, Edward M	24
Bernhardt, Boris	26
Berry, Daniel R	6
Betz, Nicole J	28
Bickart, Kevin	23
Birk, Jeffrey L	5, 10, 30, 49
Blair, James	1, 2, 3, 5, 44
Blair, James R	37
Blair, Karina S	37
Blanchard, Jack	15, 58

Blandino, Peter	12, 31
Bliss-Moreau, Eliza	4, 35
Bloch, Lian	50
Boccagno, Chelsea	51
Böckler, Anne	19
Boden, Matthew T.	37
Booker, Jordan A	20
Boswell, Rebecca G	29
Bradshaw, Kristen	58
Brand, Ann	36
Bratman, Gregory N	12
Brethel-Haurwitz, Kristin M	51
Brislin, Sarah J	1
Brose, Annette	37
Brown, Casey L	22
Brown, Kirk W	6, 49
Brown, Timothy A	57
Bui, Eric	27
Buqo, Tom	47
Burke, Taylor A	36, 39, 40
Burke, Taylor E	38
Butler, Emily A	39
Bylsma, Lauren M	58
Byrne, Michelle L	5, 6

C

Callaway, Dallas	38
Cameron, C Daryl	58
Campellone, Timothy R	16, 36
Cannon, Molly	10, 15
Caouette, Justin D	34
Caponigro, Janelle M	16, 29, 36
Carter, R Mckell V	24
Casad, Bettina J	8
Caseras, Xavier	42
Casey, BJ	46
Castle, Elizabeth	3
Castro, Vanessa L	46
Catalano, Lauren	58
Catterson, A Daniel	50
Cavanagh, James F	2
Cavanagh, Sarah R	30, 49
Ceulemans, Eva	55
Chagany, Alysha	40
Chang, I-Chin	37
Charles, Susan T	13
Chaudhury, Sraboni	12, 31
Cheng, Yanhua	47
Chentsova-Dutton, Yulia	25
Chesney, Samantha A	9
Choi, Eunsoo	25
Christensen, Andrea	17
Clark-Polner, Elizabeth	44
Clore, Gerald L	33
Coan, James A	3, 56
Cohen, Alex S	38
Cohen, Avihay	41
Cohen, Noga	11
Colibazzi, Tiziano	37
Condon, Paul	15, 19, 32
Connolly, Samantha L	39, 57
Costanzo, Michelle E	44
Costa, Vincent D	13, 22
Covington, Alanna	15
Cox, James L	8
Crawford, Bonni K	4
Cunningham, William A	41, 42

D

Daily, Gretchen C	12
Dalili, Michael N	18
Dancy, Christopher L	33
D'Andrea, Wendy	15, 20, 30, 55
D'Andrea, Wendy M	55
Daniels, Teresa E	43
Danvers, Alexander F	54
D'Arcey, Trevor	35
Daros, Alexander R	30
Daryanani, Issar	36, 39
Davidovitch, Shlomit	51
Davis, Andrew	11, 17, 60
Davis, Tchikima S	12
Davis, Tchiki S	31
Daw, Nathaniel	2
Deanna, Barch M	3
Delany, Faustina	6
De Leersnyder, Jozefien	45
Demaree, Heath	9, 13, 33, 53
Demers, Lauren A	21
De Mulder, Hannah NM	42
DePiero, Jonathan	15, 30, 55
de Raedt, Rudi	14
Desbordes, Gaëlle	19
DeSteno, David	19, 39
Dickens, Leah	39
Dickerson, Bradford C	23, 43
Dickerson, Sally S	32
Dickert, Stephan	52
Doll, Bradley B	2
Dorfman, Julia	17
Doron-Halamish, Aya	30
Dovidio, John F	59
Doyle, Cameron M	27
Dunbar, Robin	24
Dunn, Elizabeth W	32
Dunsmore, Julie C	20
du Pont, Alta	52, 59
Dutcher, Janine M	3, 53
Dutra, Sunny	38
Dutra, Sunny J	41
Dutton, Yulia E Chentsova	5, 39
Dyson, Margaret	6

E

Ebner-Priemer, Ulrich	56
Eich, Teal S	38
Eisenberger, Naomi I	1, 3, 23, 53
Eldar, Eran	14
Eldesouky, Lameese	50
Elizabeth, Kensinger A	54
Engen, Haakon G	9
Ennis, Michael	10, 35
Epstein, Emerson M	47
Erbas, Yasemin I	55
Ernst, Monique	6, 11, 17, 18, 60
Escudero, David Quispe	11
Evans, C John	42

Society for Affective Science 2014 Inaugural Conference • Author Index

F

Fairhurst, Merle T	45
Fedechko, Taylor L	15
Fehertoi, Nicholas	15
Fehse, Kai	1
Feldman-Barrett, Lisa	23
FeldmanHall, Oriol	13
Ferrer, Rebecca	29, 32, 52
Finn, Peter R	17
Fischer, Laura	27
Fitzgerald, Erin J	49
Ford, Brett Q	12, 31
Fortunato, Andrea	20
Franz, Peter	46
Freed, Steven	15, 20
Fresco, David M	9
Frewen, Paul	55
Fruchter, Eyal	41

G

Garcia, Cristina	58
Garcia, Emmanuel	56
Gardner-Schuster, Erica E	30
Garshasebi, Madison J	10
Genevsky, Alexander	43
Gentzler, Amy L	11, 40
Geraci, Marilla	37
Gerber, Andrew J	37
Gerkens, David R	33
Giese, Martin A	17
Gilam, Gadi	41, 48
Gilbert, Kirsten	38
Glerean, Enrico	59
Goer, Franziska K	11
Goh, Suzanne	37
Gold, Alexandra	5
Gold, Andrea L	18
Goldin, Philippe	10
Goldsmith, H Hill	25
Gomes, Alyssa	5
Gonen, Tal	14
Gonzalez, Marlen Z	3
Goodman, Nina	32
Goodman, Noah D	55
Goodman, Robert J	49
Gordon, Nakia S	9
Gotlib, Ian H	37, 53
Gouzoules, Harold	21
Graff, Kaitlin	32
Grano, Roni Y	21
Greenbaum, Hannah	16
Green, Jeff D	6
Grenen, Emily G	29
Grillon, Christian	11, 17, 60
Gross, James	10, 12, 16, 31, 50
Grossmann, Tobias	45
Gruber, June	11, 38, 41
Grühn, Daniel	47
Guan, Jinyan	39
Gunther, Kathleen	15
Guntychik, Evgeny	1
Guyer, Amanda E	34

H

Haase, Claudia M	8, 50
Hackett, Patrick D	21
Hagman, William	52
Halberstadt, Amy G	26, 46
Hale, Elizabeth	11, 17, 60
Hambrick, James	59
Hamilton, Jessica L	26, 36, 39, 40, 57
Han, Jung Hwa	3
Hankin, Benjamin	12
Hanson, Jessica L	22
Hardan, Antonio Y	16
Hari, Riitta	24
Harle, Katia	16
Harmer, Catherine J	18
Harms, Madeline B	41
Harris, Lasana T	58
Harris, Michael	8
Hastings, Paul D	36
Haworth, Kevin	45
Hay, Aleena C	11
Helion, Chelsea	46
Helmstetter, Fred J	22
Helsing, Marie	52
Henderson, Catherine	34
Hendler, Talma	14, 21, 41, 48
Henik, Avishai	11
Hensel, Athena K	6
Heritage, Allan J	34
Herringer, Lawrence G	35
Herschel, Lukas	28, 47
Herzog, Sarah	55
Hirvonen, Jussi	24
Hoffmann, Holger	8, 28, 47
Hoppmann, Christiane	32
Houben, Marlies	56
Hougaard, Esben	56
Huang, He Crane	16
Huettel, Scott A	24
Human, Lauren J	32
Hunt, Ruskin H	41
Hwang, Soonjo	5
Hyönä, Jukka	24

I

Inagaki, Tristen K	1
Insel, Catherine S	46
Intratur, Nathan	41
Irwin, Michael	1, 3
Isaacowitz, Derek	7, 10, 48
Issar, Daryanani	40

J

Jääskeläinen, Iiro	24
Jacobi, Nori	21
Jacobson, Ryan	8
Jakont, Gilan	41
James, Coan A	22
Jameson, Kimberly A	7
James, Thomas W	17
Janata, Petr	46
Jarcho, Johanna	18
Jazaieri, Hooria	10
Jessar, Allison J	9
Jevtic, Ivana	1
Jha, Amishi P	58
John, Oliver P	50
Johnson, Lisa E	59
Johnson, Michelle R	10, 35
Joormann, Jutta	14, 49, 60
Joseph, Allen P	22
Juergensen, James	9, 13, 53

K

Kaess, Michael	5
Kahler, Julie	47
Karcher, Nicole R	18
Karmon, Anat	7
Kaskan, Peter M	22
Keil, Daniel C	60
Kelley, William M	41
Kendziora, Kimberly T	36
Kennedy, Andrew	36
Kerns, John G	18
Keshaviah, Aparna	27
Kessel, Ellen M	6
Keynan, Jakob N	41
Kiehl, Kent A	22
King, Brandon G	28
Kinsbourne, Marcel	55
Kleckner, Ian	4, 23
Klein, Daniel N	6
Klein, William M	52
Klimes-Dougan, Bonnie	36
Kline, Alexandra	4
Klumb, Petra	32
Knutson, Brian	43
Kober, Hedy	29, 41
Koellinger, Philipp D	52
Koenigs, Michael R	22
Kogan, Aleksandr	38
Koivisto, Mika	24
Kopec, Justin	8, 48
Koval, Peter	29, 37, 50, 55
Koven, Nancy S	21, 56
Kraft, Tara L	40
Kreibig, Sylvia D	31
Kring, Ann M	16, 29, 36
Krishnan, Anjali	23
Ksander, John C	54
Kujawa, Autumn J	6
Kuppens, Peter	29, 37, 50, 55, 56, 57
Kurten, Lauren E	9

Society for Affective Science 2014 Inaugural Conference • Author Index

L

LaFrance, Marianne	59
Lähteenmäki, Mikko	24
Lake, Allison J	17
Larcinese, Hanna	31
Larsen, Jeff T	38
Larson, Christine L	16, 22, 25, 42, 43, 45
Lauren, Alloy B	40
Lavin, Elaine	19
Lawrence, Andrew	35
Lawrence, Andrew D	4
Lee, Clinton C	34
Lee, Ihno	50
Lemery-Chalfant, Kathryn	25
Leopold, David A	22
Leung, Jenny	32
Levenson, Robert W	8, 21, 44, 50
Levy, Benjamin J	12
Lewis, Elizabeth J	37
Lieberman, Matthew D	3
Lindquist, Kristen A	27
Line, Löken S	45
Lin, Tamar	48
Lipp, Ilona	42
Liu, Jun	37
Longo, Gregory S	14
Lord, Catherine	51
Lori, Adriana	21
Luby, Joan L	3, 53
Luking, Katherine R	53
Luo, Jayson	3
Lwi, Sandy J	8, 21
Lynn, Spencer K	27, 28
Lyons, Sam H	35
Lyusin, Dmitry	47

M

MacCormack, Jennifer K	26, 46
Machin, Anna	24
Maguire, Caroline	32
Maher, Emily	15
Mankus, Annette M	50
Man, Vincent	42
Maren, Stephen	31
Maresh, Erin L	56
Marquardt, Craig A	24
Marsh, Abigail A	51
Martin, Donna M	51
Martin, Elizabeth A	18
Maruskin, Laura A	31
Mascaro, Jennifer S	21
Mather, Mara	34
Mathur, Ambika	11, 17, 60
Mauss, Iris B	12, 31
Max, Laura K	56
May, Christine	9, 13, 53
Mayville, Elena	10
McCall, Cade	34
McCarthy, Julie	58
Meffert, Harma	1, 2
Meiran, Nachshon	7, 30
Meir-Hasson, Yehudit	41
Mendes, Wendy B	46
Mennin, Douglas S	56
Mesquita, Batja	45
Mestitz, Lauren	32
Meyer, Meghan L	3, 23
Miller, Willa B	19
Minshew, Reese	30
Mischel, W	46
Miskovich, Tara A	16, 22, 42

Mitz, Andrew R	22, 43
Moieni, Mona	1
Moldovan, Emil	31
Molina, Michelle	51
Monk, Christopher S	51
Moran, Erin K	29, 36
Mor, Nilly Dr	51
Morton, Jenny L	8
Mote, Jasmine	16, 36
Movellan, Javier	16
Moyal, Natali	11
Muhler, Nils	4, 35
Mulder, Hannah De	25
Mullarkey, Michael	20
Munafò, Marcus R	18, 48
Murphy, Kevin	42
Murray, Elisabeth A	43
Murray, Elizabeth A	22
Murty, Vishnu P	24

N

Naragon-Gainey, Kristin	57
Neiman, Jamie S	53
Nelson, Lindsay D	24
Neta, Maital	41
Newman, Joseph P	22
Ngo, Nhi	7
Nolan, Zachary T	3, 5
Nook, Erik	7, 27
Nummenmaa, Lauri	24, 59

O

Obraztsova, Olga V	59
Ochsner, K N	46
O'Connell, Katherine	11, 17, 60
O'Garro-Moore, Jared K	36, 38, 59
Oleynick, Victoria C	31
Olino, Thomas	6
Olson, Ingrid R	44
Ong, Desmond C	55
Opitz, Philipp C	5, 10, 30, 49
Osborne, Elizabeth A	14
Otero, Marcela C	44
O'Toole, Mia S	56
Ovsyannikova, Victoria	45
Owren, Michael	54

P

Pagliaccio, David	3
Palitz, Sophie	27
Palmer, Cara A	11, 40
Panaite, Vanessa	58
Papa, Anthony	47
Park, Sohee	2, 17
Pasternak, Eran	21
Patel, Nilam	6
Paulus, Martin	16
Payne, B Keith	58
Pedersen, Gloria	46
Pedersen, Walker S	22
Pederson, Walker S	42
Pe, Madeline L	29, 50, 55
Pensoneau, Dana	8
Penton-Voak, Ian S	18, 48
Persky, Susan	52
Peterman, Joel S	17
Petersen, Steven E	41

Peterson, Bradley S	37
Phelps, Elizabeth A	2, 13
Phlipp, Koellinger D	33
Phillips, Jennifer M	16
Phillips, Mary L	41
Pine, Daniel	6, 17, 18, 37
Podell, Rebecca W	16
Ponzio, Allison	34
Posner, Jonathan	37
Powers, Alisa	46
Prater, Katherine E	31
Pressman, Sarah D	40
Proudfit, Greg H	6
Purcell, Amanda L	38
Putnam, Philip T	43
Pyalanda, Erica M	4

Q

Quaglia, Jordan T	49
Quigley, Karen	4, 8, 15, 28, 48
Quinn, Meghan E	60
Quispe-Escudero, David	17, 60

R

Ramsey, Meagan A	11, 40
Raskin, Maryna V	30
Ray, Lara A	57
Raz, Gal	14, 21, 48
Reed, Rebecca G	39
Reeves, Elizabeth J	11
Rhodes, Sarah E	43
Rilling, James K	21
Ritter, Frank E	33
Robinson, Oliver	17
Rogers, Megan L	26, 46
Rohrbach, Morgan	44
Rooks, Joshua D	58
Rosenberg, Erika L	28
Rosenberg, Nicole K	56
Rosen, Dana	6, 17, 18
Rothschild, Leah	26
Rottenberg, Jonathan	58
Roy, Michael J	44
Rubenstein, Liza M	26
Rudebeck, Peter H	43
Ruiz, Sarah K	34
Ruocco, Anthony C	30
Russell, James A	37
Ruzic, Luka	23
Ryder, Andrew G	5

S

Sams, Mikko	24
Samson, Andrea C	16
Sanders, Patricia	35
Sankovich, Michael	32
Sapozhnikova, Anna	21
Sardarian, Soseh	50
Saron, Clifford D	28
Satpute, Ajay B	23, 44
Schiller, Alexander J	33
Schmiedek, Florian	37
Schultz, Doug H	22
Schulz, Marc S	19
Schwartz, Orli S	5

Society for Affective Science 2014 Inaugural Conference • Author Index

Scott, Nikia	26
Scott, Sarah ME	54
Sears, Lauren T	8, 48
Seemann, Christopher R	55
Seligman, Nicole D	9, 36
Senft, Nicole M	39
Shackman, Alexander J	2, 16
Shallcross, Amanda J	12
Shany, Ofir	41
Shapero, Benjamin G	59
Shapiro, Martin S	35
Sheeber, Lisa	5
Sheets, Erin S	57
Sheppes, Gal	7, 12, 30
Sherdell, Lindsey	53
Shermohammed, Maheen	24
Shiota, Lani N	14
Shiota, Michelle L	19
Shiota, Michelle N	54
Shpigelman, Lavi	21
Shurick, Ashley A	50
Siegel, Erika	8, 15, 23, 48
Siegle, Greg	20
Silvers, Jennifer A	46
Silvia, Salazar	32
Simmons, Julian G	4, 5
Simon, Naomi M	27
Sinclair, Stephen	5
Singer, Neomi	21
Singer, Tania	9, 19, 26, 34
Slovic, Paul	43, 52
Smith, Bruce W	47
Smith, David V	24
Smith, Edward E	38
Smith, Jacqueline S	59
Sokol-Hessner, Peter	13
Son, Jae-Young	7
Soreq, Eyal	21
Sponheim, Scott R	24
Spotorno, Nicola	42
Stange, Jonathan P	9, 26, 36
Stanley, Jennifer	32
Stehr, Daniel A	7
Steinbeis, Nikolaus	26
Stellar, Jennifer	29
Stoeckel, Maggie	26
Stout, Daniel M	16, 22
Struiksma, Marijn	25, 42
Stuart, Barbara K	36
Suri, Gaurav R	12
Surti, Kruti	8
Suvilehto, Juulia	59
Swartz, Johnna R	51
Sykes, Annie	26

T

Tabak, Benjamin A	3
Tarrasch, Ricardo	21
Taubitz, Lauren E	25, 43, 45
Teslovich, Theresa	46
Thomas, Katie M	41
Thompson, Renee J	37, 50
Thrash, Todd M	31
Timpano, Kiara	14
Tisler, Christoph	8
Todman, McWelling	55
Todorov, Alexander	42
Touroutoglou, Alexandra	23, 43
Traue, Harald C	8, 28, 47
Treffers, Theresa	1, 33, 52
Troiani, Vanessa	44
Troy, Allison S	12, 31
Tseng, Angela	37, 41
Tugade, Michele	52
Tugade, Michele M	32, 51
Tuominen, Lauri	24
Turner, Cortney A	12
Tusche, Anita	19

U

Uliaszek, Amanda A	18
Ungerleider, Leslie G	22
Urban, Emily J	13
Urry, Heather L	5, 10, 30, 49
Utke, Sarah	60

V

Van Bavel, Jay J	13
van Berkum, Jos	25
Vanderlind, William M	49
Van Hulle, Carol A	25
VanTieghem, Michelle R	2
Vastfjäll, Daniel	43
Västfjäll, Daniel	52
Verstaen, Alice	21
Vicaria, Isabel M	48
Victoria, Shuster	20
Vujovic, Lara	10
Vytal, Katherine	60

W

Wager, Tor D	23, 44
Waldburger, Lucas C	9
Waldinger, Robert J	19
Waters, Sara F	46
Watson, Stanley J	12, 31
Waugh, Christian E	53
Weinstein, Jennifer	60
Weissbrod, Carol	26
Weng, Johannes	28, 47
Whalen, Paul J	41
Whillans, Ashley V	32
White, Stuart F	1, 3, 5, 44
Whittle, Sarah L	4, 5
Wiggins, Jillian Lee	51
William, Klein	32
Williams, Craig	7
Williams, Kipling D	23
Williams, Lisa A	35
Wilson-Mendenhall, Christine	23, 54
Wise, Richard G	42
Woodman, Geoffrey F	34
Wormwood, Jolie B	8, 28, 48

Y

Yang, Tianming	43
Yee, Claire I	19
Yim, Christine	9
Yimenu, Bethlehem	9, 13, 33, 53
Yovel, Iftah DR	51

Z

Zachariae, Robert	56
Zahn-Waxler, Carolyn	36
Zaki, Jamil	7, 27, 55
Zald, David H	34
Zanesco, Anthony P	28
Zemskova, Julie A	22
Zhang, Xuan	54