



## **Department of Psychology**

1<sup>st</sup> Year Graduate Student Poster Presentations

August 22, 2016

Jordan Hall of Science

3:00 - 5:30 PM

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# CLINICAL

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## **Linking Spouse Criticism to Chronic Low-Back Pain: A Test of the Expressed Emotion Model Using Behavioral Observations**

**Ryan P. Egan**

Chronic low-back pain (CLBP) is a common and disabling condition often associated with marital distress. Negative interactions with spouses and others can lead to maintenance and worsening of patient pain. The expressed emotion (EE) model predicts that spouses' criticism and hostility toward patients cause patients' symptoms to worsen. The present study tested the EE model in 72 CLBP patients and their spouses using a within-subjects manipulation of discussion type (conflictual or neutral) followed by a structured pain behavior task (SPBT). Independent observers rated spouse criticism and hostility during the discussion and patient pain behaviors during the SPBT. Patients reported how critical and hostile their spouse was during the discussions and how intense their pain felt during the SPBT. We predicted that a greater degree of observed spouse criticism and hostility during the discussion would lead to increased patient pain during the SPBT. Analyses showed that spouse criticism, but not hostility, predicted subsequent patient pain in both conflictual and neutral discussions. Patients' perceived spouse criticism mediated this association. Furthermore, patients' perceived spouse hostility mediated a pathway from observed spouse hostility to observed patient pain behaviors. These findings provide support for the EE model in CLBP using observational coding methods.

## **Maternal Sensitivity and Child Language in the Context of Maltreatment: The moderating role of elaborative reminiscing**

**Kaitlin Fondren**

This study assessed whether maternal sensitivity and elaborative reminiscing interact to predict the language development of two groups of children: those with a history of maltreatment and those who are developmentally at-risk but have not experienced maltreatment. Data were collected from 109 mothers (61 maltreating) and their 3-to 6-year-old children. Maternal sensitivity was coded from two videotaped free-play sessions and elaborative reminiscing was coded from mothers' child-directed speech during conversations about four past, shared emotional events. Standard scores from the Peabody Picture Vocabulary Test, 4th edition (PPVT-4) were used as a measure of receptive vocabulary for both the mother and child. Results indicated that, for maltreated children, maternal sensitivity was predictive of children's language but only for mothers who were also more highly elaborative during reminiscing conversations. Mothers who were high in elaboration but low in sensitivity had children with the poorest language. For non-maltreated children, maternal sensitivity was not predictive of child language regardless of the amount of elaborative reminiscing. However, greater amounts of elaborative reminiscing significantly predicted children's language scores. These findings provide important considerations for both furthering our understanding of language acquisition in developmentally at-risk samples and for the development of interventions targeting maltreated children.

## **Family Feud: The Mediating Effect of Emotional Security on Interparental Conflict and Adolescent Prosocial Behavior**

**Anh P. Ha**

The current paper empirically assessed the role of security and disengagement as mediators on the effect of exposure to interparental conflict on the degree of prosocial behaviors in adolescents. Participants included 293 adolescents from the sixth wave of a larger, longitudinal study. In addition to reporting exposure to interparental conflicts (Children's Perception of Interparental Conflicts, CPIC; Fincham, 2013), participants completed a self-report assessment for prosocial behaviors (Prosocial Subscale, Strength and Difficulties Questionnaire, SDQ; Goodman, 2001). Furthermore, emotional security was assessed through the Security in the Family Scale (SIFS; Forman & Davies, 2005). Analyses with the Secure and Disengaged subscales of the SIFS as mediators yielded significant indirect paths from interparental conflict to the degree of prosocial behavior (Secure:  $b = -0.12$ ,  $SE = 0.008$ ,  $p < 0.05$ ; Disengaged:  $b = -0.12$ ,  $SE = 0.005$ ,  $p < 0.05$ ). However, the regression coefficient between Secure and Prosocial ( $b = 0.13$ ,  $SE = 0.02$ ,  $p < 0.05$ ) and that between Disengaged and Prosocial ( $b = -0.09$ ,  $SE = 0.03$ ,  $p < 0.05$ ) were markedly different, indicating that the Secure and Disengaged subscales of the Security in the Family Scale are differentially predictive of positive social outcomes in adolescents exposed to interparental conflicts.

## **Autobiographical Memory Bias in Depression: Remoteness and Valence**

**Dahyeon Kim**

Depression is associated with reduced recall of specific autobiographical memories. Tendency to recall more remote memories may mediate the association between depression and reduced memory specificity (Falco, Peynircioğlu, & Hohman, 2014). To investigate memory specificity and the effects of memory valence in remoteness, participants with major depressive disorder (MDD) ( $n=23$ ) and control participants ( $n=51$ ) completed the Autobiographical Memory Test. The two groups did not differ significantly in the number of specific memories recalled,  $F(1,77)=2.91$ , ns. There was, however, a significant interaction between group and valence in remoteness of specific memories,  $F(1,71)=11.11$ ,  $p < .01$ . More specifically, the MDD group recalled more remote positive memories compared to control group,  $F(1,71)=5.86$ ,  $p=.02$ . In the MDD group, positive memories were significantly more remote than their negative memories,  $F(1,71)=7.27$ ,  $p < .01$ . The association between depression severity and memory remoteness was significant only in the MDD group,  $r(23)=.47$ ,  $p=.02$ . Recalling more remote memories, especially positive memories that are incongruent with a person's current depressed mood, can emphasize the present negativity and thereby perpetuate depression. Treatment for depression should target tendency to recall remote positive memories.

## **Examining the stress-attenuating effects of religious coping via emotion regulation in mid and later-life adults**

**Brandy S. Martinez**

Negative feedback refers to the self-regulating mechanism of the hypothalamic-pituitary-adrenal (HPA) stress axis. Emotion regulation strategies that minimize the negative emotional impact of stress promote adaptive HPA-axis regulation. Using mid and later-life cohort data from the Notre Dame Study of Health and Wellbeing, this study examined: 1) whether religious coping buffers the effects of psychological stress on negative affect, and 2) if this interaction influences negative feedback. The effects of perceived stress, religious coping, and their interaction on negative affect were assessed via daily diary (56 days) data collected April 2013 - March 2014. Negative feedback data was collected between November 2013 and June 2016, and determined by taking a subtraction of plasma adrenocorticotrophic hormone levels following .1mg/kg administration of hydrocortisone in one session, and placebo saline in another. Results of multi-level modeling (MLM) suggest religious coping modifies the stress-negative affect interaction only in the later-life cohort ( $\beta = 0.019$ ;  $p < .01$ ). The random effects derived from the MLM were used as indices of intraindividual variability, and correlated with negative feedback. Results suggest that although religious coping modifies the effects of stress on negative affect, this effect is not significantly correlated with negative feedback functioning.

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## **Clinical/Peace Studies**

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### **Is it the Thought that Counts?: Trauma-Related Belief Cognitions as a Mediator of Trauma Impact**

**Katherine Grein**

Background: Research supports the role of negative trauma-related appraisals in the development of posttraumatic stress disorder (PTSD) following traumatic events. However, prior studies have focused on cognitive distortions, and almost exclusively measured PTSD as a unified construct, despite theoretical considerations of the importance of emotional components of trauma-related appraisals, and indication that trauma appraisals may be more important to the development of certain symptoms than others.

Study objectives: To determine the role of trauma-related beliefs (cognitions) and emotions in mediating the relationship between cumulative trauma exposure and PTSD symptom domains in a sample of 60 pregnant women who had experienced at least one traumatic event.

Hypothesis: Trauma-related beliefs and emotions will mediate avoidance symptoms, whereas emotions alone will also mediate re-experiencing and hyperarousal.

Results: Regression analyses indicated significant direct relationships between cumulative lifetime traumatic event exposure and posttraumatic re-experiencing and avoidance symptoms. Calculations of indirect effect size using the Monte Carlo method demonstrated that beliefs were a significant mediator between trauma exposure and avoidance, whereas emotions mediated the direct pathway for both avoidance and re-experiencing. These findings could have implications for whether clinicians elect to emphasize emotions or cognitions in component-based treatment models, aided by the assessment of symptom patterns.

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# Cognition, Brain, & Behavior

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## **The Differential Fan Effect Over Time**

**Jerry S. Fisher**

Prior research has found that when sets of related facts are stored in separate event models, people show retrieval interference which increases with the number of newly-learned associations (a fan effect). However, when people can easily integrate facts into a common event model, this eliminates the source of interference, and retrieval is unaffected by the number of associations. This difference in interference levels depending on whether facts can be integrated into a common event model is known as the differential fan effect (Radvansky & Zacks, 1991). Prior work has only assessed this pattern of recognition memory when the memory test is given immediately after learning. The aim of our study was to assess the robustness of this pattern of results over longer periods of time of one hour, one day, one week, and two weeks. The results reveal that the reduced interference from integrating information into common event models remains steady through periods as long as two weeks.

## **A Shift in Conversation: Effects of WeHab in Therapeutic Interactions**

**Julaine D. Zenk**

Balance rehabilitation is often a main focus of therapy after a stroke or other traumatic brain injury. However, equipment needed to assess and strengthen balance is expensive and therapists struggle to make time for both thorough assessment and therapy exercises. Due to the expense, therapists often settle on rudimentary instruments that lead to a non-collaborative, therapist-controlled sessions. This leaves patients with a decreased sense of self-awareness and therapeutic understanding. In response, the WeHab system was created as a low-cost, time-saving option for balance therapy and assessment. The name highlights the collaborative therapist-patient interaction that can result with the system's use and alludes to both its low cost and central hardware component. This collaborative interaction was explored and compared to traditional balance therapies in partnership with physical therapists at Memorial Hospital in South Bend, IN. Transcripts of both WeHab and traditional therapy sessions were created and coded to observe the WeHab's effect on therapeutic conversation. Overall, it was observed that the WeHab system lessened the therapists' burden to give constant verbal feedback. Instructions and explanations did not need to be reiterated with the WeHab system and more time was allotted for rapport-building and conversations to build patients' therapeutic understanding.

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# Developmental

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## **Emotional Experience Across the Adult Lifespan: An Accelerated Longitudinal Design**

**Raquael J. Joiner**

Research investigating the course of emotional development across the adult lifespan has primarily used cross-sectional or longitudinal designs. These designs are limited in the information they contain about developmental trends across the life course. Cross-sectional designs confound age with cohort effects, which may not reflect a developmental course. Longitudinal designs provide information about age-related change, but the value is usually restricted by the narrow time scope, attrition of subjects, and the historical context of the cohort during which the data are collected. By using an accelerated longitudinal design, the trajectories of negative (NA) and positive affect (PA) from ages 29 to 82 were investigated, while minimizing the limitations associated with cross-sectional and longitudinal designs. Using data from 1283 participants from The Notre Dame Study of Health & Well-being (Mage=54, 58% female), NA showed a general decline into late adulthood, whereas PA showed a general increase into late adulthood. These trends, however, were not independent of cohort effects. In an attempt to explain cohort differences, income, marital status, education, and self-rated health were added into the model as covariates; nevertheless, cohort differences persisted. Possible mechanisms underlying cohort differences in affective experience throughout adulthood, as well as methodological limitations, are discussed.

## **Problematic Parenting, Children's Dysregulated Representations, and Effortful Control in a Low-Income Sample**

**Amanda Nowak**

The aim of this study was to examine the degree to which children's dysregulated representations of the family environment mediate the relation between mothers' problematic parenting and children's effortful control. The current study included 40 low-income mother-preschool-aged child dyads. Problematic parenting was assessed with both parent report and observational ratings in the laboratory which included inconsistent parenting styles (high on both authoritarianism and permissiveness) and harsh or punitive parenting behaviors during parent-child interactions. Children's representations and effortful control were both assessed from a series of tasks in the laboratory. Structural Equational Modeling provided support that children's more dysregulated representations mediated the association between problematic parenting and low effortful control. The findings support the importance for examining children's internal representations as a process-oriented factor that links experiences with parents and behavioral outcomes in children.

**Talking for baby: How parent's use of internal state language use during parent-infant interactions influences attachment.**

**Molly O'Neill**

As infants grow, parents develop skills that help infants survive and thrive such as mind-mindedness (MM); the appropriate attribution of other's internal states. Mind-minded parents recognize that infants have unique internal desires, thoughts, and intentions. Although current research concludes MM is a significant predictor of infant-parent attachment, little is known concerning father MM or the trajectory of MM. The current study addresses the relation between MM and parent-infant interaction quality as the attachment relationship develops.

Mother- and father-infant dyads (N = 135) participated in the Still Face Paradigm at 3, 5, and 7 months in which infant affect, parent sensitivity, parent internal state language (ISL), and attunement (in progress) were coded. ISL and attunement will address the underlying mechanism of MM in further analyses. At 12 (mothers) and 14 (fathers) months, dyads participated in the Strange Situation in which infants' attachment classifications were identified.

Analyses revealed that ISL is related to sensitivity and attachment classification for mothers and fathers. Similarly, analyses revealed that MM predicts later sensitivity. Relations between MM and attachment will be assessed following the completion of attunement coding. I expect that more mind-minded parents will be more sensitive and more likely to develop a secure infant-parent attachment.

**Maternal Reminiscing Quality in the Context of Child Maltreatment: Implications for Child Regulatory Outcomes**

**Ruth Speidel**

This study investigated the role of the quality of maternal reminiscing in associations between child maltreatment and child regulatory outcomes, including lability/negativity (L/N), emotion regulation (ER), and inhibitory control (IC). These outcomes represent integral and distinct aspects of a child's regulatory repertoire; while L/N taps into the automatic, bottom-up processing involved in self-regulation, ER and IC tap into the cognitive-based, top-down processing involved in regulation. Participants included 105 maltreated and 61 demographically matched, nonmaltreated children (ages 3 to 6) and their mothers. Dyads participated in a joint reminiscing task about four past, emotional, shared experiences. Mothers were rated on a series of Likert scales as a measure of their affective quality of reminiscing. Mothers provided parent report accounts of their child's ER and L/N while children participated in an assessment of IC. Results indicated a negative association between maltreatment and maternal reminiscing quality. Maltreated children displayed heightened L/N compared to nonmaltreated children, and no significant differences emerged with respect to ER or IC. Maternal reminiscing quality mediated associations between child maltreatment and ER and IC, but not L/N. The results indicate that reminiscing is an important mechanism linking maltreatment to top-down aspects of self-regulation. Implications and future directions are discussed.

## **Pre- and Postnatal Depressive Symptoms in Relation to Trajectories of Parenting**

**Dianna Tran**

Maternal depression has been shown to be correlated with adverse parenting behaviors and child externalizing behaviors. Our study aims to determine how maternal depression affects the trajectories of parenting over time, and if these patterns differ across risk groups.

Data from the present study were derived from the Parenting for the First Time project (Borkowski et al., 2011). The present study included 5 waves of mothers' self-reported depressive symptoms based on responses to the Beck Depression Inventory-II (Beck et al., 1996), and 4 waves of observed positive and negative parenting during infant-mother play in the home.

Using multilevel models, we examined the extent to which trajectories of maternal depression predicted trajectories of positive and negative parenting. Results showed that greater depressive symptoms predicted lower initial levels (est =  $-.006$ ,  $p < .05$ ), but steeper increases in parental negativity over time levels (est =  $.001$ ,  $p < .05$ ). Furthermore, greater depressive symptoms predicted lower initial levels levels (est =  $-.007$ ,  $p > .05$ ), and not change in parental positivity over time levels (est =  $.006$ ,  $p < .05$ ).



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# Quantitative

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## Effects of Item Preknowledge on Measurement Outcomes in CAT

**Alex Brodersen**

Within continuous testing programs there is a constant concern of “stolen” items. This concern has been met with a growing body of literature on the detection and treatment of these cases. However, there is little investigation into how item preknowledge affects ability estimation. Two purported advantages of computerized adaptive testing (CAT) are the large size of the item bank in comparison to the actual number of administered items and its self-adjusting nature, making it less vulnerable to item theft. However, in reality item sharing and pooling (Chang & Zhang, 2002) is a serious issue for CAT. Additionally, as has been noted by Chang & Ying (2008) and Cheng & Liu (2015), step size in CAT can be much larger earlier in a test than later. Consequently, if an examinee has preknowledge on an item that appears early in the test, it can have a large effect on the ultimate ability estimate. Furthermore, in some common item selection procedures, highly discriminating items are selected first, leading to large step size and producing a compounding effect. A simulation study and an analytical derivation of the expected gain in the ability estimate when an examinee gained preknowledge on an item is presented.

## Local Solutions of Geomin Rotation

**Minami Hattori**

In exploratory factor analysis, factor loadings are rotated to improve interpretability. A promising factor rotation criterion is the Geomin criterion. However, the Geomin rotation frequently produces multiple local solutions. Unawareness of this issue may lead to its suboptimal use. We report a simulation study that explores the frequencies of local solutions and the rates of sample global solutions matching population global solutions. The findings include: (1) that multiple local solutions exist in most situations; (2) that sample global solutions match population global solutions more frequently when communality values are higher or sample sizes are larger; and (3) that sample local solutions may match the population global solutions. Recommendations for researchers are discussed.

**Model evaluation with small N and/or large p: RMSEA and CFI by an empirically corrected test statistic**

**Lin Xing**

RMSEA and CFI are the two most widely used fit indices for evaluating the adequacy of a SEM model. They are typically calculated by the likelihood ratio statistic  $T_{ml}$ . Under the normality assumption,  $T_{ml}$  approximately follows a chi-square distribution when the number of observations (N) is large and the number of variables (p) is relatively small. However, in practice, p can be rather large and N is always limited due to not having enough participants. Previous studies showed that RMSEA and CFI do not behave well with either a large p or small N. RMSEA usually over-rejects a correct model for "small" N, and CFI tends to be worse as the number of variables in the model increases. Following an empirically corrected  $T_{mle}$ , we are interested in whether RMSEA and CFI defined via the new statistic would behave better. Results indicate that the new RMSEA and CFI could be much closer to their population values and the type I error rates are reduced to about 5% even for the condition with N as small as  $2p$ .