

Undergraduate Honors Research Festival

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UNIVERSITY OF
WASHINGTON

Cheryl Kaiser, Ph.D.
Professor and
Chair

Chantel Prat, Ph.D.
Associate Professor and
Honors Program Advisor

Carrie Perrin
Director, Psychology
Undergraduate Advising

Zoom Link: <https://washington.zoom.us/j/99850211355>

Cognitive Neuroscience

(Note that times for all talks are PDT)

Elaine Currie - 2:00 pm

Sponsors: Lee Osterhout, Ph.D., Professor
and Chantel Prat, Ph.D., Associate Professor

Just Close Your Eyes: What the Brain at Rest Reveals About Memory

This study aimed to dissociate the functions of the beta and theta frequencies of neural activity as they relate to two different types of memory. Resting state EEG recordings were correlated with scores from measures of long-term and working memory to identify whether either frequency could reliably predict the outcome of either behavioral measure. Analyses revealed that lower levels of theta in the right parietal region at rest predicted higher scores on a measure of long-term memory, in line with previous research. These findings indicate a potential future technology to assess individuals' memory abilities through short, task-free EEG recordings.

Sophie Ziliak - 2:06 pm

Sponsor: Brian Flaherty, Ph.D., Associate Professor

The Error Related Negativity Indicates Shared Neurobiological Etiology Between ADHD and Anxiety Symptoms in ADHD

We addressed the neurobiological origin of coexisting anxiety in ADHD using an event related electrophysiological potential (ERP) component, the error-related negativity (ERN), which occurs after a task error. ERN amplitude is greater with increased anxiety, but weaker with increased ADHD. We tested whether 1) anxiety symptoms and ADHD have separate origins, indicated by anxiety being associated with increased ERN in children with ADHD symptoms or 2) they share an origin, evidenced by no effect of anxiety on ERN. Participants (n = 75) ages 7-11 completed two visual ERP tasks, and mean ERN amplitude was extracted. Linear regression analysis assessed whether anxiety explained variance in ERN amplitude above and beyond that explained by ADHD severity. ADHD symptoms were associated with ERN amplitude ($\beta = 0.27$, $p = .029$) but anxiety did not explain additional variance. Results were consistent with shared neurobiological etiology for ADHD and anxiety symptoms in these children.

Savannah Cassis - 2:12 pm

Sponsor: Chantel Prat, Ph.D., Associate Professor

Relating Individual Differences in Event Segmentation, Alpha Frequency, and Working Memory

People segment observations they perceive from ongoing activity in the world around them into uniquely distinct events in order to comprehend and make predictions on what will happen next. There is typically agreement on where to segment, and segmenting in a similar, normative fashion predicts subsequent memory and performance of everyday activities. The segments that are created, referred to as event modules, are thought to be working memory representations as part of a cognitive control process that contains relevant and unifying components. This study investigated if individual differences in resting-state EEG and working memory capacity scores are predictive of how one segments. The results showed a moderate negative correlation between segmentation and Alpha and IAF power. These findings suggest further exploration of the relationship between event segmentation and neural oscillations would be beneficial for understanding how one perceives events.

Emotion Regulation and Expression

Naomi McQuary - 2:18 pm

Sponsors: Chantel Prat, Ph.D., Associate Professor
and Jason Wood, Friday Harbor Labs

The Wailing Whales: Killer Whale Vocalizations in the Context of Grief

This study explored the acoustic mourning behaviors of Southern Resident killer whales (*Orcinus orca*). Using recordings from a hydrophone located in off San Juan Island, the vocalizations produced by a killer whale pod directly after a pod member's death were compared to vocalizations produced in a non-death context. As expected, observed mourning behaviors were coupled with changes in the relative uses of different call types by members of the bereaved pod. Furthermore, several prosodic characteristics of the S1 call were altered when used in a grief context, including call segment durations and sideband intervals. These findings may help scientists monitor the affective states of killer whales in a non-intrusive manner.

Macey Schallert - 2:24 pm

Sponsor: Kevin King, Ph.D., Associate Professor

The Real-Time Relation Between Shame and Alcohol Use

There is a growing interest in the emotion of shame as a predictor for numerous negative outcomes, including alcohol misuse. Further, prior studies suggest that shame motivated drinking may be of particular interest in males, due to their higher likelihood to drink to cope with negative emotions and perceived failures of masculinity. The current study used Ecological Momentary Assessment (EMA) to measure momentary feelings of shame and their association to alcohol use. Further, we examined sex differences with respect to theories suggesting that males may be more likely to experience drinking to cope with shame in particular. No main effect for shame was found on any of the drinking outcomes with or without sex moderation.

Yasmeen AlAwadhi - 2:30 pm

Sponsor: Kevin King, Ph.D., Associate Professor

What Emotion Regulation Strategies Are Related to Anxiety Symptoms? An Ecological Momentary Assessment Study

Emotion regulation (ER) refers to an individual's capability to deal with and respond to emotional experiences. Anxiety symptoms may alter individual patterns in regulating emotions. To test the effect of anxiety symptoms on ER strategy use, we used ecological momentary assessment (EMA) on a sample of undergraduate students from a single university. We hypothesize that higher levels of anxiety symptoms will be associated with increased maladaptive ER strategy use, compared to decreased adaptive strategy use. Our findings will build on previous research by shedding light on the effect that anxiety symptoms have on emotion regulation strategy use in real time via the use of EMA.

Cognition: Effects of Culture, Beliefs, and Biases

Elizabeth Abel - 2:36 pm

Sponsor: Kristina Olson, Ph.D., Professor
Princeton University

Essentialism in Multiracial and Transgender Children

Essentialism is a psychological concept that emphasizes groups, (i.e., race, gender) as categorically distinct. Studying racially- & gender-diverse children, then, and how their identities influence perceptions of others is important, as this supports stronger understanding of essentialism. To test if children think differently about social groups, 6-11-year-olds completed an essentialism task (Rhodes & Gelman, 2009). Data were collected from monoracial cisgender (n=60), monoracial transgender (n=67), and multiracial cisgender (n=62) children. Results indicate that, across groups, children essentialize race, $F(1,181)=1.40$, $p=0.24$, $\eta^2 < 0.01$, and gender, $F(1,181)=0.89$, $p=0.35$, $\eta^2 < 0.01$, to a similar degree, ultimately suggesting identity might not strongly modify essentialism.

Aleksandra Umanskaya - 2:42 pm

Sponsor: Chantel Prat, Ph.D., Associate Professor

Bilingualism and Biases in Financial Decision Making

Previous studies found that emotionality in the second language varies with age of acquisition. Past findings also suggest that cognitive load is affected by language proficiency. This study investigated how emotionality (age of acquisition) and cognitive load (proficiency) of a bilingual's second language influence financial decision-making. Among risk-seeking individuals, early bilinguals were more biased than native speakers. Compared to native speakers, low proficiency bilinguals had larger loss-aversion and risk-seeking biases. Contrary to past studies showing that bilinguals are less biased than native speakers for socio-emotional decision-making, our study found that bilinguals are more biased than native speakers for financial decisions.

Ally Sowers - 2:48 pm

Sponsor: Tony Greenwald, Ph.D., Professor

Experiences Shape Bias: Job Duties of Police Officers affect Changes in Implicit Bias Over Time

Using two Implicit Association Test (IAT) measures of associations of Black Americans and Native Americans with weapons, this study investigated how the strength of implicit bias in police officers changes with years of policing experience. Analyses revealed with experience, lower ranking officers exhibited increased IAT scores; higher ranking officers exhibited decreased IAT scores. Job duties associated with lower ranking positions place officers at greater risk of negative, stereotype-affirming situations, which may strengthen biases over time. Meanwhile, higher ranking positions entail maintaining positive relationships with organizations and addressing concerns, especially around race; these counter-stereotypical experiences may reduce existing biases over time.

Program Break

Measurement and Methods

Carol Wei - 3:00 pm

Sponsor: Brian Flaherty Ph.D., Associate Professor

Comparing Different Operationalizations of Chronic Stress and Their Associations with Depressive Symptoms

While conventionally, psychological constructs tend to be measured numerically, we want to explore the effect of different operationalizations of the construct. In the current study, we take chronic stress as an example construct and collect 607 responses about chronic stressful events and depressive symptoms. We apply Principal Component Analysis as continuous operationalization and Cluster Analysis as categorical operationalization to interpret chronic stress in different ways and predict the depressive symptoms as the outcome. Although the associations between chronic stress and depressive symptoms given by different operationalizations are not significantly different in our sample, we still need to pay attention to the categorial operationalization of psychological construct.

Betty Wang - 3:06 pm

Sponsors: Frederick Shic, Ph.D., Associate Professor
and Sara Jane Webb, Ph.D., Professor

On the value of data loss: A study of atypical attention in autism spectrum disorder using eye tracking

Data loss in eye-tracking studies is often considered a nuisance variable or noise. This study examined the value of data loss in eye tracking and proposed a new method to utilize lost data in predicting clinical characteristics of autism spectrum disorder. We found that data loss due to blinking was associated with a lack of interest in social cues, and data loss due to non-compliance predicted a greater severity in ASD symptoms. These results suggest that the loss of data in eye tracking is meaningful as a measure of diminished social attention and a reflection of clinical characteristics in ASD.

Mental Health: Causes and Interventions

Jasmine Lee - 3:12 pm

Sponsor: Cynthia Levine, Ph.D., Assistant Professor

Role of Ethnic Identity and Sense of Belonging on Depressive Symptoms

Depression and the impairment it causes is a widespread problem in the United States. Using two samples, I investigated the relationship between a sense of belonging and depressive symptoms and a possible moderator of this relationship. The results show that in a national sample of U.S. adults and in a University of Washington undergraduate sample, those who have a higher sense of belonging have a lower level of depressive symptoms. Additionally, the results from the UW study showed that among individuals of Asian descent, having a strong ethnic identity buffers against the effect of low belonging on depressive symptoms.

Cristian Rivera Nales - 3:18 pm

Sponsor: Shannon Dorsey, Ph.D., Professor

Effectiveness of a transdiagnostic evidence-based treatment on improving child clinical outcomes in Washington state community mental health

The Washington State CBT+ initiative trains community mental health-based clinicians in cognitive-behavioral approaches for four presenting problems: depression, anxiety, behavior difficulties, and posttraumatic stress. We tested symptom change from the first symptom assessment (baseline) to the last administered assessment in a treatment session for children who received each of the four psychotherapies. We explored whether time related to symptom improvement. Outcomes suggest that children treated by a CBT+ trained clinician may demonstrate symptom reduction for their primary clinical problem, but time was not associated with greater improvements.

Kristen Pedersen - 3:24 pm

Sponsor: Bob Kohlenberg, Ph.D., Professor

A Brief Intervention to Increase Social Connection in College Students: A Randomized Trial

Social connection is fundamental to humans' mental & physical well-being, & without it dysregulation occurs. Developed with Functional Analytic Psychotherapy's (FAP) principles of Awareness, Courage, & Love, a three-week group intervention aimed to increase social connectedness in undergraduates. The intervention condition (n=16) engaged in various exercises involving self-disclosure & responsiveness to others', the main components of Reis & Shaver's Interpersonal Process Model. The control group (n=14) took part in a study hall. Intervention participants reported increased feelings of belonging on campus and closeness to each other. Results underscore the potential for FAP-based psychological interventions to increase students' feelings of belonging and social connectedness.

Parenting

Katie Spink -3:30 pm

Sponsor: Lynn Fainsilber Katz, Ph.D., Research Professor

Parent Meta-Emotion Philosophy and Dyadic Adjustment in Families of Children with Cancer

This study examined the relationship between parental philosophy about emotion and dyadic adjustment in the first year following a pediatric cancer diagnosis. Primary caregiver (PC) and secondary caregiver (SC) dyads (N=57) individually completed parent meta-emotion philosophy (PMEP) interviews at 3 months post-diagnosis to assess parental philosophies about emotions. Caregivers also reported on dyadic adjustment at three timepoints across the first year post-diagnosis. Results indicated that PCs who had higher awareness of negative emotions, as well as higher discrepancies in awareness and acceptance of negative emotions between them and their partner reported trajectories of declining dyadic adjustment during the first year of treatment. Additionally, PCs who had higher discrepancies in awareness and acceptance of negative emotions between them and their partner reported lower overall levels of dyadic adjustment at one year post-diagnosis. Initial data suggests that caregiver concordance in PMEP following a pediatric cancer diagnosis predicts dyadic adjustment over time.

Elaine Liu - 3:36 pm

Sponsor: Liliana Lengua, Ph.D., Professor

The Relation Among Parent Education, Parental Guidance and Preschoolers' Socioemotional Competence

Young children often need external support from their parents to develop socioemotional competence. Will parents with higher education generate more parental guidance to support their children's socioemotional development? This study examined 1) whether parental guidance is associated with parent education 2) the relation between parental guidance and preschoolers' socioemotional competence, and 3) whether parental guidance mediates the relation between parent education and preschoolers' socioemotional competence. 49 preschoolers and their parents were videotaped completing two parent-child interaction tasks together. Though the results did not indicate significant correlations between factors, these results provide us a better understanding of how parent-related factors could contribute to the development of children's socioemotional competence.

Maria Ilac - 3:42 pm

Sponsor: Liliana Lengua, Ph.D., Professor

Test of the Association of Parental Negative Control with Child Social-Emotional Competence

Children with low social-emotional competence (SEC) have poorer outcomes than those with higher SEC. Parental negative control may be detrimental to SEC. I predicted parental negative control would negatively correlate with SEC in preschool-age children ($N = 50$). However, results show no significant correlation between negative control and SEC, $r(49) = -.08, p = .583$. Post-hoc tests examining scaffolding and SEC revealed a moderate association, which was insignificant likely due to a small sample size, $r(49) = .201, p = .162$. While negative control may not correlate with SEC, future research should examine the relation between scaffolding and SEC with a larger sample.

Yongping Zhuang - 3:48 pm

Sponsor: Liliana Lengua, Ph.D., Professor

Social Stress in Infancy: How Parent-Infant Interactions Relate to Infant's Response in Still Face Paradigm

This study investigated whether mothers' interactiveness and positivity during a naturalistic play task were related to infants' negativity and self-soothing during a still-face task. We hypothesized that mothers' positive affect and interactiveness during the naturalistic play task would negatively relate to infants' negative affect and positively relate to self-soothing. Further, we used exploratory analyses to assess for possible relations among parent behaviors in a free play task and infant behaviors in the still-face task. Observational data of the interactions between 103 low-income mothers and their six-month-old infants were collected and analyzed. None of the four hypotheses were supported, however, exploratory findings showed that mothers' interactiveness in the free play task was related to infant's positivity in the still-face task.