2019 LSU Life Course and Aging Center (LCAC) 16th Annual Research Symposium

Program

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LCAC Student Poster Session
Scientific Abstracts
LSU Life Course & Aging Center

The Life Course and Aging Center (LCAC) is an interdisciplinary and inter-institutional research unit headquartered at LSU. Our faculty and students represent the LSU Colleges of Human Sciences and Education and Humanities and Social Sciences along with seven other higher education institutions throughout Louisiana.

Mission
We engage in multidisciplinary partnerships promoting healthy development and aging across the lifespan.

Vision
Our center will be a nationally recognized leader in the generation, dissemination, and application of lifespan science.

Office Location
Louisiana State University
304 Hatcher Hall
Baton Rouge, LA 70803

Program

8:30am – 9:00am  Registration & Setup Posters
9:00am – 9:05am  Opening & Welcome
Dr. Arend Van Gemmert, Executive Director LCAC.
9:05am – 10:35am LCAC Student Poster Session
Please take the opportunity to meet and speak with our outstanding LCAC students about their research projects while enjoying some breakfast.
10:35am – 10:40am  Introduction Key Note Speaker
Dr. Priscilla (Lilly) Allen, Associate Executive Director LCAC.
10:40am – 11:25am  Key Note Speaker
Dr. Katie Cherry, Department of Psychology, LSU
_Hurricanes, Floods, and Psychological Well-Being: Variables that Matter After Disaster_
11:25am – 11:40am  Discussion/Questions
11:40am – 11:50am  Announcement Winner: Student Poster Presentation Award
Dr. Jan Hondzinski, Faculty Advisor Upsilon Delta
11:50am – 12:00pm  Closing Remarks

Dr. Katie E. Cherry is a Professor of Psychology and a founding member of the LSU Life Course and Aging Center. Her area of research expertise is adult development and aging and challenges to healthy aging after disaster. Her work has been funded by the National Institute on Aging, the Louisiana Board of Regents, the Gulf of Mexico Research Initiative, and most recently by the National Science Foundation. In 2002, she was awarded the Emogene Pliner Distinguished Professor of Aging Studies professorship for her contributions to the field of adult development and aging.

We thank the College of Human Sciences & Education for their continued support.
Further Evidence that Year-to-Year Variability in Performance is an Early Sign of Cognitive Impairment

Alyssa De Vito & Matthew Calamia
Department of Psychology, Louisiana State University

**Purpose:** To examine whether year-to-year performance variability may be a useful tool in the early identification of individuals who may develop future cognitive impairment. **Method:** Participants were 374 individuals diagnosed with dementia and 374 age- and sex matched controls from the Memory and Aging Project (MAP; Age M= 82.80, SD=5.83; 74% female). Longitudinal performance was examined using measures of global cognitive status, attention, memory, language, and executive functioning. For those diagnosed with dementia, data from baseline to 5 years prior to cognitive impairment to focus on variability before the onset of significant decline. Two linear mixed effects models were used to determine differences in cognitive variability between groups over time. Likelihood ratio tests were used to determine which model demonstrated better fit. **Results:** Individuals who were later diagnosed with dementia demonstrated greater year-to-year variability than cognitively stable participants on measures of global cognitive status, attention, language, executive, and most aspects of memory at least 5 years prior to the onset of cognitive impairment (i.e., \(p's < .05\)). There was no difference in variability between those who subsequently developed dementia and those who remained cognitively stable on a task of delayed recall for prose passages (i.e., \(p > .05\)). **Conclusions:** These results largely replicate and extend findings previous findings using in a larger, more diverse sample using a similar neuropsychological battery. These findings suggest that year-to-year variability in cognition may serve as an early sign of cognitive impairment.

**Acknowledgements:** This study has been previously presented at the Annual International Neuropsychological Society Conference, 2019, February 22, New York, NY, USA.

Measuring Individual Community Capacity, Resilience and Recovery Relative to Population Age in Three Louisiana Coastal Parishes

Haojie Zhu\(^1\) & Aimee Moles\(^2\)
\(^1\)Department of Geography & Anthropology, Louisiana State University
\(^2\)Social Research & Evaluation Center, Louisiana State University

Aging populations are especially vulnerable during disasters. They experience more negative impacts and have higher morbidity and mortality rates (Cutter et al., 2003, World Health Organization, 2008). **Purpose:** The purpose of the study was to determine the impact of aging populations on community resilience. **Methods:** As part of a larger transdisciplinary research project, Inland from the Coast: A multi-scalar approach to regional climate change responses, we developed an index of community wellbeing following Burton (2015) and Cutter et al.’s (2010) methods. After an initial literature review,
we identified 50 variables relating to local well-being at the census-tract level in East Baton Rouge, Ascension, and Livingston parishes. Each variable was standardized and rescaled to values between 0 and 1. These indices measure different aspects of resilience in terms of community stress, economic health, built environment, natural environment, and public health and safety. To determine the specific impact of population age, we visually and statistically examined these data. **Results:** An aging population in our study is found to have positive impact on our composite resilience index ($r = .256, p = .01$) and two component indices, which are community stress ($r = .25, p = .01$) and economic health ($r = .26, p = .01$). By drilling down to demographic and socioeconomic variables used to compute these two component indices, we are able to identify both protective and risk factors for aging population in the study area. Protective factors include higher home ownership ($r = .423, p = .01$) and per capita income ($r = .381, p = .01$), lower vacancy rate ($r = .221, p = .05$), better access to telephone ($r = .289, p = .01$), and more religious ($r = .436, p = .01$) and non-profit organizations ($r = .311, p = .01$) per 1,000 residents. Higher rates of disabled individuals ($r = -.225, p = .05$), more people without college degrees ($r = -.194, p = .05$) and more payday loans ($r = -.35, p = .01$) per 1,000 residents, and higher unemployment rates in working age population ($r = -.306, p = .01$) are found to be the main risk factors. Moran’s $I$ and local indicators of spatial associations confirm the clustering of aging population in two local areas within the three parishes. Furthermore, geographically weighted regression shows consistent spatial patterns in the impacts of aging population on our indices. In particular, aging population closer to the suburb has progressively more negative impacts on both composite and component indices. In conclusion, although in general the aging population in this study were found to reside in areas that are more resilient to climate change and experience better community stress and economic health conditions, the spatial clustering of aging population and existence of significant spatial variations in its impact on our indices point to the need for further studies of local impacts of aging population with more granular measures. These studies will help identify localized combination of risk factors for aging populations in different communities.

**Acknowledgements:** The resilience index was the work of multiple research team members and the result of many months of work funded by the National Academies of Sciences, Engineering, and Medicine Gulf Research Program and the Robert Wood Johnson Foundation.

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**Does Disaster Stress Impair Memory for Pictures and Words?**

Katelyn McKneely, Quyen Nguyen, Matthew R. Calamia, Emily M. Elliott, & Katie E. Cherry  
*Department of Psychology, Louisiana State University*

The pictorial superiority effect (PSE) is the finding that memory for pictures exceeds that of memory for matching words. Prior research indicates that people of all ages show a PSE in recall and recognition (Cherry et al., 2012). Present research comes from the LSU Flood Study, an interdisciplinary study of disaster stress and cognition. **Purpose:** We examined free recall of line drawings and matching words in a community-based sample to test the hypothesis that disaster stress would correlate with deficits in memory for pictures and words. **Method:** Participants were sampled from a three-parish area of Baton Rouge that was severely devastated by the 2016 flood (N = 221, age range: 18-89 years). They received multiple tests, including the Montreal Cognitive Assessment (MoCA; Nasreddine et al., 2005), and computerized measures of cognition. Three groups were compared: (1) non-flooded adults as controls, (2) once-flooded adults with structural damage to homes and property in 2016, and (3) twice-flooded adults who had relocated to Baton Rouge because of catastrophic losses in Hurricanes Katrina and Rita and flooded again in 2016. **Results:** Results yielded
a PSE in free recall for all disaster exposure groups. Self-reported disaster stressors were unrelated to cognitive performance. Follow-up analyses on clustering in free recall indicated that participants’ encoding and retrieval strategies were similar across all groups. **Conclusions:** We found that non-flooded, once-flooded, and twice-flooded adults performed comparably on these measures of cognition. Thus, single and multiple disaster exposures do not appear to disrupt cognition assessed with traditional, laboratory-based measures.

**Acknowledgements:** This research was supported by a grant from the National Science Foundation (Award Number 1708090). We thank Katie Stanko, Alyssa DeVito, Masab Mansoor, Cayman Loader, Allison McBride, and Victoria Desidare for their assistance with the research effort.

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**Behavioral and neural effects of performing a dual motor and cognitive task: a study in elderly brains**

Krystal Kirby¹,², Sreekrishna Pillai², Robert Brouillette³, Jeffrey Keller³, Alyssa De Vito⁴, John Bernstein⁴, Arend W. A. Van Gemmert¹, & Owen Carmichael²

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Execution of cognitive tasks during walking, driving, and other motor activities is common in older adults but task performance effects on execution of these dual-tasks (DT) in this population are not fully understood. The study examined the behavioral changes and neural patterns of a dual cognitive and motor task in an elderly population. **Methods:** 42 cognitively healthy older adults aged 61 to 91 (33 female) completed a cued rhythmic finger tapping and AX – Continuous Performance Task (AX-CPT) separately (i.e., single-task or ST), and simultaneously (DT). **Results:** Compared to the single task, motor performance worsened in the dual task. Finger tapping cadence decreased (p < 0.001) and standard deviation of tapping cadence increased. In addition to this, accuracy of the AX-CPT task decreased significantly (p < 0.001) and reaction time increased during the dual task, indicating worsened cognitive performance. These results indicate mutual interference, a negative dual task effect (DTE) for both tasks, without priority for the motor or cognitive task. Preliminary imaging results show significantly decreased activation (corrected p<0.05) in 10 of 11 ROIs, including the right parietal cortex and right occipital lobe during the dual task, compared to the single task. **Conclusions:** Neural resources are split and reduced when trying to perform two tasks simultaneously, resulting in worsened performance of each compared to the single tasks. Reduced motor task performance in a dual-task setting could contribute to falls during distracted walking or accidents during distracted driving.

**Acknowledgements:** This study has been presented at the Dallas Aging and Cognition Conference, January 28, 2019 in Dallas, TX. The authors would like to thank Kori Murray, Kevin McKlveen, and Lauren Harrington for contributions to this work. Funding was provided by the Pennington Biomedical Research Foundation, the Louisiana Collaborative Biomedical Research Program, and a generous donation from the Lyle family.
An Update on the Validation of a Computerized Measure of Cognition and Quality of Life in a Sample of Cognitively Healthy Older Adults

Kyreal Jackson\textsuperscript{1}, John Bernstein\textsuperscript{2}, Matthew Calamia\textsuperscript{2}, & Alyssa De Vito\textsuperscript{2}

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Paper-and-pencil tests are a useful method of detecting age-associated cognitive decline. However, they also have a host of shortcomings such as long test-taking time and high cost to administer. Web-based tests have recently been developed as an alternative means of assessing cognitive abilities, although few studies have explored the level of agreement between paper-and-pencil and computerized tests. **Purpose:** A computer-based assessment would allow older adults to gain insights into their cognitive abilities independently, in the comfort of their own homes. **Method:** A total of 92 cognitively healthy older adults (mean age 76.5 years, 79.3\% female, 96.7\% non-Hispanic, 93.5\% Caucasian) completed paper-and-pencil measures of cognitive abilities typically subject to age-associated cognitive decline (e.g., immediate and delayed memory, processing speed) and self-reported quality of life. They also completed a novel computerized measure designed to tap similar domains. **Results:** Pearson’s correlation coefficients revealed weak to moderate correlations for immediate recall (r=.33 to .43, p<.05) and processing speed (r = .67, p<.05) on the paper-and-pencil and computerized measures. Quality of life was also moderately correlated (r=.70, p<.05) across the two measures. **Conclusion:** Findings suggest that the computerized measure may have utility in the assessment of cognitive abilities in the cognitively healthy older adult population, although more research with larger samples is required.

**Acknowledgements:** We thank Anna Romero, Ashley Pomes, and Jackson Green for their assistance with the research effort.

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Self-Reported Ageism in College Students: Does Aging Knowledge Matter?

Marla J. Erwin\textsuperscript{1}, Katie E. Cherry\textsuperscript{1}, & Priscilla D. Allen\textsuperscript{2}

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\textsuperscript{2}School of Social Work, Louisiana State University

The term, ageism, refers to any form of personal or institutional prejudice or discrimination based on chronological age. Ageism may encompass attitudes and prejudices, as well as behaviors, highlighting the complex nature of ageist behaviors observed among students and professionals alike (Allen, Cherry, & Palmore, 2009). **Purpose:** We examined the prevalence of self-reported ageist behaviors in a sample of college students who ranged in age from 18 to 59 years to test the hypothesis that aging knowledge would be associated with self-reported ageist behaviors (positive and negative). **Method:** The study sample was comprised of adults who were enrolled in classes at Louisiana State University (n = 110). Most of these students were traditional aged college students (18-25 years old). Participants completed the Relating to Older People Evaluation (ROPE; Cherry & Palmore, 2008), the Facts on Aging Quiz (FAQ; Palmore, 1998), and the Knowledge of Memory Aging Questionnaire (KMAQ; Cherry et al., 2003). **Results:** Results indicated that positive ageist behaviors were more frequent than negative ageist behaviors. Men endorsed positive and negative ageism items more often than women.
Follow-up analyses on participants’ responses to the two aging knowledge questionnaires showed that increased knowledge of aging was significantly correlated with diminished reports of negative ageist behaviors, after controlling for age and gender. **Conclusions:** These results imply that self-reported ageist behaviors are associated with aging knowledge. Strengthening college curricula by including course offerings in adult development and aging may improve self-reported ageist behaviors among college students.

**Acknowledgements:** We thank Mary Robichaux, Allison Eldridge, Tia Bradley, Kelli Broome, Lane Fontenot, and Nicole Lowenhaupt for their assistance with the research effort.

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**Trends in Non-Medical Prescription Drug Use Among Younger and Older Adults**

Sarah E. Choate, Gregory L. Purser, & Scott E. Wilks  
*Department of Social Work, Louisiana State University, Baton Rouge, LA*

As the older adult population continues to grow, new concerns in the field of substance abuse and nonmedical prescription drug misuse are emerging. In order to address efficiently the growing problem, studies examining the epidemiologic patterns must be conducted. The **purpose** of this study was to provide updated evidence regarding the trends in prescription drug misuse among younger and older adults with a specific aim to observe how changing demographics in the older adult group have impacted prescription drug misuse and to also compare trends between age groups. **Methods:** Data for this study come from the National Survey on Drug Use and Health, from 2002 to 2016. Sample sizes varied by year resulting in a total sample size of n=836,696 and an overall mean sample size of n=55,780. Trends were examined graphically using fitted regression lines with year regressed on drug use. Next, logistic regression models which included sociodemographic variables were created to compare the 2002 and 2016 samples. **Results:** Results indicate an overall upwards trend in the misuse of all categories of prescription drugs among older adults, while the younger adult group showed a positive trend in tranquilizer and stimulant use. **Conclusions:** The combined increases of the older adult population and their prescription misuse calls for an augmented effort from both researchers and practitioners alike. Rigorous screening and interventions in older adult populations will become an increased necessity as the opioid epidemic continues to result in higher overdoses and deaths.

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**Aging and neuropathological changes in bilateral transfer between limbs**

Reuben N. Addison & Arend W. A. Van Gemmert  
*Fine Motor Control and Learning Laboratory (FMCL), Department of Kinesiology, Louisiana State University*

**Introduction:** Bilateral transfer can be described as a situation in which a learned skill, practiced on one side of the body is performed on the opposite side of the body following training. The strength of the transfer of information from one part to the other varies, and this is known as the asymmetry of inter-limb transfer. Studies have shown how the transfer of some movement parameters changes with age and neuropathology. The mechanisms responsible for these changes have not received extensive attention. **Purpose:** The purpose of this study was to explore bilateral transfer performance asymmetries of a visuomotor task (aiming movements with a pen to targets shown on a monitor). The findings of this study serve as a baseline to investigate visuomotor task performance as result of transfer.
of learning in older adults and individuals suffering from disease associated with neuropathology of the brain. **Methods:** Thirty-two young adults were recruited and divided equally across four groups. Two groups trained a visuomotor task with the right hand while the other two trained it with the left hand. Of these two groups, one group trained and performed the task during retention with the same hand (ipsilateral groups) whereas the other group trained and performed the task with different hands (bilateral groups). Performance (Movement time, Normalized jerk, and Pathlength) before and after training was collected to determine learning effects. Thus, half of the participants’ trained hand was tested (retention), while the other half of the participants’ untrained hand was tested (inter-limb transfer). A 4(RRR, LLL, LRL, RLR) x 2(pre-/post training test) ANOVA with group as between factors and test-time as within factors was performed. **Results:** Results indicated retention occurred for all groups on all variables (i.e., normalized jerk (F (1,28) = 12.111, p= 0.00), movement time (F (1,28) = 16.209, p= 0.00) and pathlength (F (1,28) = 23.834, p=0.00)). Differences in retention between groups occurred only for pathlength (F (3,28) = 3.78, p= 0.0215). **Discussion:** Based on the results, learning occurred but only pathlength showed differences in rate of learning between groups. Further research need to address whether this pattern of findings changes as result of aging and/or neurological disease.

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**Resilience after the 2016 Flood: Does Age and Disaster Status Matter?**

Katie E. Stanko, Laurie C. Landrieu, Katelyn McKneely, Quyen Nguyen, Alyssa De Vito, Matthew R. Calamia, Emily M. Elliott, & Katie E. Cherry  
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Resilience is measured as one’s ability to adapt in the face of adversity, trauma, or extreme stress. In the Great Flood of 2016, many were forced to undergo stressful situations regarding personal safety as they were displaced from their homes in the wake of the 2016 flood. **Purpose:** We compared age groups and disaster exposure to assess the psychological resilience within and then between each group. Younger adults ranged from 18 to 41 years, middle-aged adults ranged from 42 to 59 years, and older adults ranged from 60 to 87 years. **Method:** The study sample was comprised of an adult lifespan sample who were exposed to the 2016 flooding in Baton Rouge (n = 202, M age = 50.44 years, Range: 18-87 years). These persons completed a variety of cognitive and health-related measures across three days of testing. Participants completed the Connor-Davidson Resilience Scale (CD-RISC), an assessment aimed at identifying state resilience of an individual. Participants were sampled to form three groups based on disaster exposure: no structural damage due to flood (n = 65), flooded (n = 71), and flooded and received damage during Hurricane Katrina in 2005 (n = 65). **Results:** A 3 (Age) by 3 (Disaster Exposure) ANOVA revealed no significant effects of disaster exposure on resilience. However, age group trended towards significance, and post-hoc comparisons demonstrated the younger group scored lower than the older adults. **Conclusions:** These results imply that younger adults, regardless of disaster status, may have less resiliency than older adults.

**Acknowledgements:** This research was funded by a National Science Foundation grant to Drs. Cherry and Calamia. This support is gratefully acknowledged. We thank Masab Mansoor, Katelyn McKneely, Allison McBride, Cayman Loader, Alyssa DeVito, Jordan Quadorrah, Julia Rawls, Taylor York, Lilly LaPlace, Quyen Nguyen, Brooke Bose, Tim Carroll, Taylor DelGreco, and Victoria Disedare for their assistance in testing participants and data entry. We thank Father Mike Moroney – St. Alphonsus Catholic Church, Mary Stein – Goodwood Library, Stephanie Mayeux – Ascension Parish Library-Galvez, Jenna Jauregui – Bluebonnet
E-cigarette Use and Perceived Benefits among Current College Student Problematic Drinkers in College

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1Louisiana State University
2Yale University
3VA Pittsburgh Healthcare System

E-cigarette (e-cig) use continues to be a concern among college students, with increasing rates of use and favorable social perception, despite health consequences (Littlefield et al., 2015; Trumbo & Harper 2013). **Purpose:** The present study sought to elucidate the relationship between use and views of e-cigs among current college students identified as problematic drinkers. **Method:** Current undergraduate students (n= 1,820) completed an online assessment, including the Alcohol Use Disorders Identification Test (AUDIT), Risk and Benefits of E-Cigarettes (RABE), and questions of current/past E-cigarette use. **Results:** Among identified problematic drinkers (39.8%; AUDIT score ≥ 8), 52.2% reported ever trying an e-cig in their lives. Additionally, 26.3% admitted to trying an e-cig over the past year and 12.4% reported using an e-cig within the past month; this was higher than reports from their counterparts [Chi Square (3) = 55.06, p < 0.01]. Only 6.6% of problematic drinkers reported ever using an e-cig daily, with 2.8% reporting daily e-cig use in the past month, which was higher than non-problematic drinkers [Chi Square (3) = 8.01, p=0.05]. Problematic drinkers endorsed perceived benefits of e-cigs [F(1,1307) = 19.10, p= 0.01]. However, there were no differences regarding the perceived risks of e-cigs. **Conclusions:** Results indicate that college students engaging in hazardous drinking behaviors are more likely to try and use e-cigs than non-problematic drinking counterparts. Given the risks associated with e-cig use, including its role in initiation of conventional cigarettes and risky behaviors, it is important to develop targeted interventions to provide information regarding the effects of e-cigs.