

UTAMPA 2025 FALL UNDERGRADUATE RESEARCH FORUM



**FRIDAY, DECEMBER 5TH, FROM 2-4 PM IN FLETCHER
LOUNGE - PLANT HALL, 1ST FLOOR, UNIVERSITY OF TAMPA**



OFFICE OF UNDERGRADUATE
RESEARCH AND INQUIRY

Aiden Auriemma

Dr. Amanda Osuna

1. Patterns in Human Trafficking: A Content Analysis of Victim Impact Statements

The present study explores the complex and sequential experience of human trafficking victims by analyzing the victim impact statements of survivors. Human trafficking remains a pervasive global human rights crisis, characterized by exploitation, coercion, and profound psychological harm. Through a qualitative content analysis, the present study analyzed ten victim impact statements with five statements originating from female survivors and five from male survivors. Three themes emerged from the analysis that showcase the chronological nature of human trafficking. The three themes include: 1) Getting In (which encompasses the methods of targeting and initial vulnerability, including deceptive romantic promises as comfort, economic necessity, as well as misleading the individuals); 2) Living It (which captures the daily reality of life involuntarily being trapped as an indentured servant, characterized by extreme physical and psychological abuse, and the strategic use of intimidation to maintain control); and, 3) Leaving It Behind (which focuses on the escape and reform processes, as well as the support and the subsequent challenges of reintegration, including struggles with relief, having a second chance at life, and creating new programs to help support future kids and adults escape trafficking and reintegrate into society). The findings underscore that human trafficking is not a singular event, but a multi-stage process characterized by distinct emotional and physical harm. By understanding the sequential patterns of human trafficking better intervention points can be created to prevent the victimization of future generations.

Alex Gialanella

Dr. Denis Rey

2. To What Extent do NGOs Focused on Education Incorporate Local Cultural Practices into their Teaching and Program Design?

This paper investigates how education-focused non-governmental organizations (NGOs) incorporate local cultural practices into their teaching and program design they serve. This research conducts a comparative case study of three NGOs, BRAC, Room to Read, and CAMFED. It examines how donor influence, reliance on foreign experts, use of standardized education materials, and collaboration with host-country institutions affect the cultural dynamics within their educational programs. This relationship is important because NGOs are often the main point of contact between development and local communities. The approach that NGOs take can either preserve or erode culture within a region. By analyzing these dynamics, the study contributes to the discussion of how international education programs can account for local traditions while maintaining effective outcomes.

Alexander Rider

Dr. Denis Rey

3. How do human rights NGOs confront states over human rights abuses?

This paper explores how human rights NGOs confront state human rights violations by looking at North Korea, China, and the regions of Ukraine occupied by Russia. The goal is to understand to what extent the effectiveness of NGOs is determined by the state within which they operate, specifically their degree of democracy and their engagement with international actors. The paper is based on the hypotheses that NGOs have greater success in more democratic states and when they build collaborative networks with international organizations, such as the UN, and foreign governments. Using Freedom House political freedom scores as a measure of democracy and qualitative case studies as a measurement of NGO success, the paper analyzes the cases of Human Rights Watch, Amnesty International, and the United Nations Human Rights Monitoring Mission. While domestic NGOs are severely restricted in countries like North Korea and China, they may be more effective in semi-open countries and fields of conflict like in Ukraine due to transnational cooperation. The study thus claims that transnational cooperation and an open political environment in a setting are the deciding factors in whether NGOs are able to hold states accountable for human rights abuses.

Alissa Schutz

Dr. Denis Rey

4. What Strategies Do These NGOs Use to Catalyze Change for Reproductive and Sexual Health Rights (RSHR)?

This project will identify and analyze what strategies non-governmental organizations (NGOs) use in order to catalyze change pertaining to reproductive and sexual health rights (RSHR). I will analyze how shifting the framing of reproductive and sexual health (RSH) issues at the international level, increases access to the United Nations (UN) agenda. I will then be analyzing how NGOs use that access to the UN agenda to impact access to contraception and abortion services in South Asia. I am using a system of most similar design, meaning I am choosing three cases that have vary on my dependent variable, which is change in RSHR. I am choosing three NGOs, they are Center for Reproductive Rights, Guttmacher Institute, and International Planned Parenthood Federation (IPPF). Each having varying levels of change pertaining to access to RSH services, despite all three having equal access to the United Nations. I will be controlling for funding each organization gets in order to alleviate monetary and member mobilization variables that could impact my dependent variable. I am expecting each organization to frame their issues differently based on their respective focus pertaining to RSHR, and that is why I would see a change in the varying outcomes of providing access to RSH services.

Amelia Conner

Dr. Kayla Toohy and Dr. Rachel Zhang

5. Turning Women Into Incubators; Why We Should Be Angry

In June 2022, *Roe v. Wade* was overturned, leaving the legality of abortion to individual states. In response, Texas implemented one of the most restrictive bans in the country, outlawing nearly all abortion procedures with minimal exceptions and introducing criminal penalties for providers and, in some cases, patients. This study examines how the restriction and banning of abortion procedures in Texas may impact foster care system entries at the county level. Within the State of Texas, we analyze information from 249 counties out of 254 counties. Using data from 2015 through 2023, we analyze foster care entries from the Texas Department of Family and Protective Services (DFPS) alongside induced terminations of pregnancy (ITOP) data from Texas Health and Human Services. Independent demographic and economic variables—including poverty, race/ethnicity, and educational attainment—are drawn from the U.S. Census Bureau’s American Community Survey (ACS). By employing bivariate analyses in STATA 18.0, this study evaluates potential connections between changes in abortion laws and foster care entries, providing insight into the broader social consequences of reproductive policy changes in Texas.

Anna Kudla

Dr. Yan Guo

6. The Relationship between Concussion Occurrences and Team Sport Participation in Middle and High School Students

Concussions are a mild form of traumatic brain injury caused by biomechanical forces (Halestead, et al., 2018). The American brain foundation reports that 1.6-3.8 million people sustain concussions annually (American Brain Foundation [ABF], n.d.). In adults the most common causes of concussions come from falling, motor vehicle accidents, and domestic violence with the elderly most commonly receiving concussions from falls . Similarly, young children and toddlers are concussions commonly occur from falling, playground accidents, and motor vehicle accidents with improper car seat installation. In contrast, older children and teens most common causes of concussions are striking to the head, often caused in sports accidents. With highly impactful symptoms such as headaches, difficulty remembering and paying attention, sensitivity to light or noise, sleeping problems, and general feelings of sluggishness, haziness or grogginess, students with concussions struggle to keep up with school work and can fall behind quickly. While there is plenty of education information on how to treat concussions in 12-17 year olds, there is no clear information on the concussion rate in relation to sex, race, region, and family income in relation to the poverty ratio. Understanding these relationships may help to identify groups at higher risk and help in the prevention of concussions in this age group in the future. These results call for a need for a more in depth analysis of the association of race and sport-related concussions in children. There were no statistically significant predictions to be made from region or poverty ratio which indicated these demographic variables do not affect concussion reports. However, there is a discussion to be had about the idea of lower concussion reporting in areas of lower income due to the lack of education about concussions rather than a lower prevalence of concussion occurring. The idea of higher concussion rates in lower income areas due to a lack of education, less funds for proper and updated equipment, and less qualified staff suggested that more in depth analysis of this topic needs to be performed. Overall, the findings of this research backup the need for continued education in concussions for adults involved in middle and high school sports as well as the continued efforts in concussion prevention through updated equipment, qualified coaches, athletic trainers, etc., and possibly rules changes for younger children as they learn the intricacies of their sports.

Anna Kudla, Molly DeMarzo, Alexander Valencia, Sophia Pierce

Dr. Willie Leung

7. Differences in Moderate to Vigorous Physical Activity (MVPA) Among Adults With Anxiety Who Do and Do Not Use Mental Health Medication For Anxiety?

Anxiety disorders are among the most common mental health conditions in the United States, affecting millions of adults each year. Moderate to vigorous physical activity (MVPA) is widely recognized as a behavioral factor associated with improved psychological well-being and reduced severity of anxiety symptoms. However, it is unclear whether MVPA levels differ between adults with anxiety who manage their symptoms with medication compared to those who do not use medication. Understanding this relationship may help identify behavioral trends and inform future interventions that integrate physical activity with mental health treatment approaches.

To compare MVPA between adults diagnosed with anxiety who currently use mental health medication and those who do not take mental health medication

This cross-sectional analysis uses data from the 2024 National Health Interview Survey. Only participants reported having anxiety were included in the analysis. Participants self-reported their current status in taking medication for treating anxiety (yes, no). The dependent variable is MVPA, measured as weekly mins spend in MVPA. Descriptive statistics were performed to summarize the variables of interests. Independent samples t-test were perform to compare the MVPA between the medication status. Adjusted linear regression models were conducted to examine the association between MVPA and medication use while controlling for demographic variables such as sex, income, Disability status, employment, and health insurance.

A total of 2138 participants were included in the analysis with 38.17% of male and 61.83% of female. The independent t-test shows that there is not a statistically significant difference in MVPA levels between adults with anxiety who do and do not take medication ($t=0.033$, $p=0.97$). The unadjusted and adjusted linear regression also found no statistically significant difference in MVPA between participants who take and did not take medication for anxiety (unadjusted beta = -1.28, $p = .97$; adjusted beta = -4.81, $p = .90$).

The results of this analysis suggest that adults with anxiety who take mental health medication do not differ in their levels of MVPA compared to those who do not use medication. The results suggested that medication use has no meaningful relationship with physical activity behavior in this sample. Regardless of medication status among people with anxiety, it is important to engage in physical activity to gain the health-related benefits.

Annabelle Zinn

Dr. Amanda Osuna

8. Incels, Isolation, and Identity: A Qualitative Media Content Analysis

Incels are members of online communities whose worldviews are formed through resentment towards women and self-observed social exclusion. This qualitative study used secondary data from Osuna (2023), who collected online anonymous Reddit posts from incels who expressed interest in leaving incelism. Through a media content analysis framework, three themes were uncovered: 1) psychological wellbeing, 2) dating expectations, and 3) unrealistic expectations about women. The present study contributes to limited literature on how incels form their worldviews through negative views and interactions with women and other perceived negative interactions. This study is important because it provides insight into the broader male mental health crisis, potential online extremism, and evolving social dynamics of men in online spaces. This study contributes to the field of criminal justice by providing key intervention points for incels that could potentially help prevent violent extremism.

Aofie Scott, Mark Mottola, Kayley Hellenbrand

Dr. Kenneth Houghton

9. I Second That Emoji: Examining Emotional (In)Validation in Text Messaging

Emotional validation is essential for maintaining healthy relationships and contributes to well-being and relationship satisfaction. In face-to-face interactions, validation is often conveyed through extralinguistic cues such as tone and facial expressions. Because texting lacks these cues, texters rely on linguistic markers, including emojis, to express emotional meaning. Although emojis add emotional nuance, little is known about how they interact with validating or invalidating language in supportive conversations. We examined how readers interpret emojis within emotionally (in)validating text messages.

Across two experiments, undergraduate participants rated the supportiveness of fictitious text exchanges beginning with a negative-event disclosure. Response messages varied by language (validating vs. invalidating) and emoji presence. In Experiment 1, linear mixed-effects models revealed a strong main effect of Validation: validating messages were rated as more supportive than invalidating ones. Messages containing smiley emojis were rated slightly less supportive overall. Planned comparisons indicated that smileys significantly decreased supportiveness for invalidating messages only, suggesting that emojis can worsen perceived support when incongruent with message tone. These findings suggest that texters use emojis as emotional cues similar to facial expressions, and their effects depend on conversational context. Experiment 2 tested this interpretation by presenting (in)validating texts with(out) frowny emojis. Data has been collected and is being analyzed.

Ariella Palmieri

Dr. Willie Leung

10. Association Between Meeting Aerobic Physical Activity Guidelines and High Cholesterol Among Adults with Type 2 Diabetes

Hyperlipidemia (HL) is a common comorbidity among individuals with Type 2 diabetes (T2D) and contributes to increased cardiovascular risk. Aerobic physical activity is known to improve lipid metabolism, yet limited research has evaluated this relationship among adults with T2D using nationally representative data.

This study examined whether meeting aerobic physical activity guidelines is associated with high cholesterol among U.S. adults with T2D. It was hypothesized that individuals meeting the guideline of ≥ 150 minutes of moderate-to-vigorous physical activity (MVPA) per week would have lower odds of high cholesterol compared to those who did not.

A secondary data analysis was conducted using the 2022–2024 National Health Interview Survey (NHIS). The analytic sample included 4,600 adults aged ≥ 18 years with self-reported T2D. High cholesterol status was defined by self-reported physician diagnosis. Aerobic activity was assessed using weekly minutes of MVPA and categorized as meeting or not meeting aerobic guidelines. Survey-weighted logistic regression models estimated the association between meeting aerobic guidelines and high cholesterol.

Among 4,600 adults with T2D, the mean age was 63.7 years, and 66.5% reported high cholesterol. Participants averaged 173.0 minutes of MVPA per week, and 42.8% met aerobic guidelines. Meeting aerobic guidelines was associated with lower odds of high cholesterol (OR = 0.83, 95% CI [0.70–0.98]).

Adults with T2D who met aerobic physical activity guidelines had lower odds of reporting high cholesterol. These findings suggest that promoting regular aerobic activity may support healthier lipid profiles and help reduce cardiovascular risk among individuals with T2D.

Ashleigh Bogart

Dr. Amanda Osuna

11. Special Issues in Criminal Justice: Qualitative Methods

This study aimed to shed light on how the victims of Larry Nassar navigated healing from trauma. A qualitative document content analysis was conducted using ten victim impact statements that were publicly available and randomly selected from over 156 statements. The victim impact statements were cleaned, anonymized, and analyzed using MAXQDA qualitative coding software. Most victims appeared to be pre-teen and teenage victims who had previously endured sexual abuse by Larry Nassar. Two main themes emerged from the qualitative document content analysis: 1) support, and 2) trauma. Support focused on elements assisting victims during their healing journey, and trauma focused on factors of the abuse that created such a traumatic experience for each victim. Through these findings, we not only shed light on the abuse endured by the victims at the hands of Larry Nassar, but we also contribute to the growing body of knowledge on institutional betrayal (such as failing to protect students from being abused) and institutional courage (such as taking accountability for the harm in the aftermath). Ultimately, the present study provides insight into how sexual abuse can occur in institutional settings, how victims are affected, and how they might begin a journey of healing from their experiences of sexual violence and trauma.

Bridget Klaus, Thomas Rosenblum

Dr. Willie Leung

12. Strength Training Associated with Better Everyday Functioning in Overweight and Obese Adults

People who are overweight or obese (OW/OB) often have more difficulty completing activities of daily (ADL), such as dressing or bathing, than those with a healthy body weight. Resistance training (RT) has been shown to improve performance in these types of activities, but there is limited large-scale evidence supporting this relationship in OW/OB populations. The purpose of this study is to examine the association between RT and ADL performance among OW/OB people using population level data.

Data from the 2022–2024 National Health Interview Survey were used to analyze adults aged 18 and older, who were grouped according to body mass index (BMI): healthy weight (18.5–24.9 kg/m²), overweight (25–29.9 kg/m²), and obese (30 kg/m² or higher). Participants reported their level of difficulty performing ADL—categorized as no difficulty, some difficulty, a lot of difficulty, or unable to do—and how often they engaged in RT each week. Adjusted ordinal logistic regression models, incorporating survey weighting methods, were run separately for each BMI category.

A total of 54,701 adults were included in the analysis. Among them, 31.75% were categorized as having a healthy weight, 34.20% as overweight, and 34.05% as obese. The average frequency of RT across all participants was 1.35 sessions per week, with significant differences among the three BMI groups ($F = 369.32$, $p < .01$). Participants with a healthy weight reported engaging in RT most frequently. Over 90% of respondents indicated no difficulty performing ADL. However, 0.66% of healthy-weight adults, 0.60% of those who were overweight, and 0.95% of those classified as obese reported experiencing substantial difficulty completing ADL. Differences in self-reported ADL difficulty among BMI groups were statistically significant ($F = 10.73$, $p < .01$). When examining the full sample, each additional RT session per week was associated with a 13% lower likelihood of reporting greater ADL difficulty (OR = 0.87, 95% CI [0.83, 0.90]). Stratified analyses revealed that each extra weekly RT session corresponded to a 16% decrease in the odds of higher ADL difficulty among healthy-weight adults (OR = 0.84, 95% CI [0.77, 0.91]), an 11% decrease among those overweight (OR = 0.89, 95% CI [0.82, 0.96]), and a 9% decrease among those with obesity (OR = 0.91, 95% CI [0.85, 0.97]).

There are positive benefits in participating in RT for ADL. Therefore, all adults, regardless of obesity categories, should continue to engage in RT.

Caroline Evans

Dr. Brett Hemric

13. Photoredox-Catalyzed TEMPO Disproportionation toward Alcohol Oxidation

Visible light is a mild, readily available, and sustainable source of energy and can be used to selectively initiate chemical reactions in organic synthesis. One such transformation is the production of a mild, yet broadly applicable oxidant which can be accomplished via a process known as “disproportionation.” While traditional dark (light-free) approaches are dependent on strong and caustic acids which create harsh conditions and raise environmental concerns, this work harnesses the energy of visible light into chemical energy to promote this disproportionation under mild and sustainable conditions. Photophysical kinetics and spectrophotometric properties were investigated to elucidate mechanistic underpinnings. This exciting and novel strategy enables substrate oxidation with high efficiency while maintaining compatibility with acid-sensitive materials. Therefore, through the application of visible light, this novel process mitigates the requirement for harsh acids, allowing safer, less toxic, and more sustainable conditions toward chemical synthesis while expanding our knowledge of light-initiated oxidations.

Caroline Kelly

Dr. Yvonne Franco

14. Bridging the Gap: A Growing Literacy Educator's Journey to Support a Struggling Reader

This study explores how a preservice teacher implemented intentional fluency strategies to support a below-grade-level fifth-grade student. Research on fluency interventions demonstrates the importance of targeted instruction for struggling readers. As noted by Fry (2025), “In their meta-analysis of interventions for struggling adolescent readers, Scammacca and colleagues (2007) examined interventions aimed at improving reading fluency, vocabulary, and comprehension, as well as word study interventions targeting reading accuracy with unfamiliar words.” Over the course of a 14-week semester, four primary strategies were employed: decoding multisyllabic words, reading texts aloud to enhance fluency, applying appropriate expression in both reading and writing, and decoding words containing prefixes and suffixes. As a future educator, examining my literacy instruction is meaningful because it allows me to better understand how to support emerging readers and writers, diagnose specific language arts challenges, and tailor my instruction to address the literacy needs of below-level learners.

Harrison Greene, Isabella Martinez, Grant Catello, Carter Alvarado

Dr. Willie Leung

15. Evaluation of BMI Differences Across Levels of Urbanization Among U.S. Adults

Body mass index (BMI) is commonly used as an indicator of physical health, BMI utilizes an individual's height and weight ratio to categorize people into various weight status classes. It has been investigated whether BMI differs among different levels of urbanization among U.S. adults. This study will give us an insight into how geographic location can potentially affect the weight-related health of individuals.

To compare the BMI between the different levels of Urbanization (Large central metro, Large fringe metro, medium and small metro, nonmetropolitan) among U.S. adults, using data from the National Health Interview Survey. Two main statistical analyses were used, adjusted/unadjusted multiple linear regression models and one-way ANOVA test to compare our target variables. The sample used consisted of 28,229 U.S. adult citizens in varying levels of urbanization from the 2024 National Health Interview Survey. The independent variable being tested is the urbanization level consisting of four different levels (e.g., large central metro, large fringe metro, medium and small metro, and nonmetropolitan). Our target dependent variable is the individual's BMI value calculated based on participants' self-reported height and weight.

A total of 28,229 participants were included in the analysis. The mean BMI for the large central metro was 27.59 kg/m², large fringe metro was 21.16 kg/m², medium and small metro was 28.34 kg/m², the nonmetropolitan was 22.91 kg/m², overall BMI for the population was 27.92 kg/m². The standard deviation 5.51. The one-way ANOVA (with a bonferroni adjustment), adjusted, and unadjusted linear regression models all show the results are statistically significant ($p < .05$), suggesting difference in BMI between the different urbanization levels. After successfully running the adjusted linear regression model, urbanization level was still a statistically significant predictor for an individual's BMI level ($p\text{-value} < 0.05$).

The BMI differs between different levels of urbanization among U.S. adults. Specifically, medium and small metros were found to have the highest mean BMI, with education found to be a significant contributing factor within our analysis. Given that BMI is higher in medium and small metro areas, targeted interventions for this area are needed to support weight management and lifestyle modifications, specifically considering the unique needs of residents in these areas.

Chloe Schonert

Dr. Binod Rimal

16. Post-Covid Florida End of Course Algebra 1 Exam Trend Analysis

The state of Florida requires that students take several End of Course Exams to receive a high school diploma. These scores are then used to determine school and district grades, inform curriculum development and resource allocation, identify areas for improvement, and provide predictive analytics for at-risk students.

In this analysis, we aimed to identify trends in on-target and underperforming Florida school counties in the post-Covid era through visualization.

We've found that total number of students has risen each year since 2021. We also observed that though students' mean scores have been decreasing, the number of students passing the exams (scoring a level 3 or above) is steadily increasing.

Christiana teddi Rollins

Dr. Victorio Reyes Asili

17. The Lie of Equal Education: Why It Doesn't Exist and Why It's Failing Black Students

In 1954, *Brown v. Board of Education* legally mandated the integration of public schools, affirming that Black and white students should have access to equal educational opportunities. Since then, however, America's efforts toward achieving educational equity—through initiatives such as Individualized Education Programs (IEPs), Free Lunch Programs, and the No Child Left Behind Act—have often been superficial. These pedagogical approaches have largely assumed that creating surface-level equality in instruction alone would ensure the academic success of Black students. As Carter G. Woodson observes in *The Education of the Negro*, “The mere imparting of information is not education; above all things, the effort must result in making a man think and do for himself.” Teaching Black children to think for themselves requires more now than it ever has before, and textbooks are not enough. Black students need fathers and resources, their education requires both stable support systems and material resources. While schools cannot provide fathers, they can advocate for and ensure access to the resources necessary for students to fully engage in their own learning. Though as a system we have known all of this to be true, the education system has demanded that Black students prioritize academic performance over basic survival—forcing them to learn while hungry, exhausted, and emotionally unsupported—and then penalizing them when they struggle under conditions we wouldn't subject ourselves to. This systemic failure helps explain the persistent academic disparities affecting Black students today.

It is time to remove the red, white, and blue-colored lenses through which we view education and acknowledge that as society evolves, so too must our approach to teaching. True educational equity requires confronting structural inequities and creating environments in which Black students can thrive both academically and personally.

Christina Dyakiv, Maria Ramos

Dr. Willie Leung

18. Muscles & Memory: The Power of Resistance Training for Adults 65+ with Dementia

There is strong evidence to support that resistance training contributes greater functional independence, by improving activities of daily living (ADL) performance in older adults. This study aims to identify the associations of resistance training guidelines and ADL disability among individuals 65+ years old with dementia.

A total of 504 participants with dementia whose age ≥ 65 years old from the 2022 to 2024 National Health Interview Survey were included in the analysis. Participants were asked if they have ADL disability (yes or no) and whether they met the resistance training guidelines (yes or no). The association of meeting the RT guideline on ADL disability was analyzed through using both unadjusted and adjusted binary logistic regression.

48.12% (95% CI [42.91, 53.37]) of participants reported no ADL disability while 51.88% (95% CI [46.63, 57.09]) reported having ADL disability. Both the unadjusted and adjusted binary logistic regressions found no statistically significant associations between resistance training guideline and ADL disability (unadjusted OR = 0.56, 95% CI [0.31, 1.03]; adjusted OR = 0.75, 95% CI [0.41, 1.36]). Although the results are not statistically significant between meeting resistance training guidelines and ADL disability, older adults should still engage in resistance training. People with dementia may face challenges with engaging in resistance training, therefore we must identify and overcome these challenges.

Cian McLaughlin

Dr. Binod Rimal

19. AI Spartan Roadmap: Smart Course Planning for Automated Student Advising

Planning an academic schedule is often time-consuming and challenging for students, especially when considering each unique student's path with multiple semesters and satisfying all education requirements. Many students do not fully plan, which can lead to scheduling mistakes, delayed graduation, or missed opportunities. A course recommendation and planning system can help students and advisors efficiently map out a personalized path to graduation. In this project, we are building an automated course roadmap system for UT students. First, we gather course data from the university catalog for each program of study. Once collected, the data is used to implement a recommendation engine that will include filters that support customization based on a student's major, minor, interests, and other paths the university allows students to take. For the pilot phase, we are focusing on programs offered in the Department of Mathematics to establish a strong foundation before expanding to the entire university. This system will enhance academic planning by offering students and advisors a clearer understanding of all valid course sequences and graduation pathways for each unique student. By saving time, reducing scheduling errors, and delivering personalized guidance, this solution may help improve a student's experience in degree planning at UT.

Diego Cordova

Dr. Ryan Cragun

20. The Infernal Schism: Analyzing the Causes and Events behind the Departure of Congregations from The Satanic Temple

Research surrounding organizational splits has typically operated under the assumption that schisms occur due to some type of change within the organization, which members view as undermining the fundamental values of the group. During the summer of 2024, The Satanic Temple (TST) underwent its own schism in which ministers either left or were removed from their positions following the firing of a Canadian minister. Drawing on interviews with twenty individuals - some who left TST and others who stayed - this paper explores the factors that led to this schism. What distinguishes this schism from those previously examined by scholars is that there was no organizational change that preceded these events. Rather, many ex-members cited the firing of this minister as the tipping point, arguing that this was an abuse of power by the highest level of leadership in the organization. Other factors, including political activism and differences in perceived organizational goals, also played an important role in the dismissal and departure of many of the organization's members.

Armani Brown, Dominic Fanutti

Dr. Khyam Paneru

21. Logarithmic Modeling of Pupil Services Predictors

Pupil services include, but are not limited to, counseling, guidance, and support for students' psychological needs. Rising concerns about mental health have increased interest from both the public and policymakers in how much funding schools dedicate to these services. This study used a regression analysis using 2023 fiscal-year expenditure data from New York schools, sourced from the National Education Resource Database (NERD\$), to explore the relationship between pupil service spending and key factors. A logarithmic transformation was applied to the data to improve the regression model fit, given the exponential distribution. The results showed that expenditures on special education significantly influence overall pupil service costs. The study also identified several charter schools as outliers affecting the spending patterns.

Elizabeth Brown

Dr. Jonathan Lewallen

22. Corporate Environmentalism and Policy Narratives at Walt Disney World

This research is ongoing and I am currently in the coding process. The research question for this project is “Why does Disney World create certain environmental policies?” The goal of this project is to bridge the gap between policy and corporate understanding using Disney as a case study.

The first part of this research project is coding for policy qualities in Disney’s environmental policy overtime using the U.S. Policy Agendas Project code book and the narrative framework. The second part of this research will be finding the motives for Disney’s policy overtime by using the narrative framework and applying the corporate environmentalism strategy.

The narrative framework will be used to show how Disney’s use of story elements throughout the policy process reflects their policy stance and goals, and how other organizations use story elements regarding Disney’s environmental policies. The corporate environmental strategy examines volunteered and non-government regulated policy in companies. I will examine how Disney fits this model.

These findings from this project have further applications as researchers can use these motives to develop ways to increase effective environmental policy from Disney and similar companies.

Elizabeth Wilson, Lea Hinsley

Dr. Michael Middlebrooks

23. Autotomy as a defensive mechanism of *Dondice jupiteriensis*

Nudibranch sea slugs are a group of non-shelled gastropods, the group of mollusks that includes snails. The loss of a shell has led to the evolution of alternative defensive strategies for these slugs. Autotomy, the self-induced loss of a body part, is a possible physical defense mechanism in nudibranchs. The objective of this study was to evaluate the effectiveness of autotomy as a defense mechanism in nudibranchs. *Dondice jupiteriensis* is a recently described species of nudibranch found throughout the Caribbean and Gulf of Mexico. Species of the *Dondice* genus can autotomize cerata, small appendages on their dorsal surface, under stressful situations. *Dondice jupiteriensis* nudibranchs were introduced to the peppermint shrimp, *Lysmata* spp. for ten-minute interactions. Most slugs were attacked by the predator, with all slugs autotomizing when attacked. Most interactions consisted of a single fatal attack, with shrimp consuming the body of the slug and temporarily discarding cerata. The slugs that survived had a greater size compared to those that were rapidly consumed, suggesting the size ratio of predator to prey could influence survival. We have found that ceratal autotomy is not an effective defense mechanism in *D. jupiteriensis*; instead, they may rely on crypsis or nematocyst sequestration for protection.

Ella Bentivegna

Dr. Yvonne Franco

24. The Power of Play: A Game-Based Approach to Phonics Instruction

This study examined the ways a preservice teacher applied intentional phonics strategies to support an English Language Learner in Kindergarten. Research on phonological awareness shows that when instruction includes visual support and interactive activities, learners are better able to internalize sound–symbol relationships (Sparks, 2019). Over the course of a 14-week semester, three key strategies were implemented: letter naming practice, phonics instruction, and game-based literacy activities, to target the students' decoding needs. Findings suggest that the student demonstrated improved letter-sound recognition, began blending sounds more fluently during reading activities, and showed increased accuracy through self-correction during phonics games. As a future teacher, investigating my literacy instruction is essential because it informs me how to support emerging readers, particularly English Language Learners, in developing literacy skills in a second language.

Emily Postiglione

Dr. Yvonne Franco

25. Integrating Art into Literacy Instruction: How Creative Strategies Improve Students' Ability to Comprehend and Interpret Texts

This study examines how a preservice teacher and her collaborating teacher used creative, art-based strategies to strengthen fourth-grade students' reading comprehension.

Comprehension involves more than decoding; it requires understanding vocabulary, using background knowledge, and applying strategies that help readers make meaning from text. As Duke, Ward, and Pearson (2021) note, no single instructional method meets the needs of all learners, making a balanced approach essential. Over a 14-week semester, three creative strategies were implemented: color coding, visualizing and sketching scenes from texts, and using graphic organizers. These activities encouraged students to connect ideas, think critically, and express understanding through art. Findings showed that students were more engaged and motivated when creative elements were included, and many demonstrated a deeper connection to the material. This study is meaningful to me as a future educator because it highlights the power of integrating art into literacy instruction. Creative approaches not only make reading more enjoyable but also promote deeper comprehension, self-expression, and a lasting love of learning.

Erin Krenkel, Lauren Holschauer, Sara Stowell, Caleigh Kim

Dr. Willie Leung

26. The Association Between Hearing Aid Use and Motor Vehicle Accident Risk in Adults 65 and Older

Motor vehicle accidents are a major health risk among older adults, and can significantly affect their independence, mobility, and overall quality of life. As adults age, physiological changes, particularly hearing loss, can limit their ability to recognize auditory cues, essential to safe driving. Hearing aids are wearable devices that amplify and clarify sound, helping improve auditory awareness to support driver safety. Understanding how hearing aid use can influence motor vehicle accident risk is crucial for understanding key risk factors that impact driver safety and public health among aging populations.

Data were obtained from a nationally representative sample of U.S adults aged 65 and older using the 2024 National Health Interview Survey. Participants self-reported their hearing aid use and their involvement in a motor vehicle accident within the past year. Descriptive analysis was used to characterize the variables of interest, and demographic factors including biological sex, body mass index, race, educational level, and income were examined. The Chi-Square Test of Independence and both unadjusted and adjusted binary logistic regression models were used to assess the association between the variables.

The unadjusted and adjusted binary logistic regression models both show no statistically significant association between hearing aid use and the risk of motor vehicle accidents among adults aged 65 and older in the U.S. These results suggest that hearing aid use alone does not meaningfully influence the likelihood of accident involvement within this population. However, older adults should continue to use caution when driving, as age-related changes in sensory processing, reaction time, and mobility may influence driver safety.

Eugene Jang

Dr. Binod Rimal

27. Human Activity Recognition

The Human activity recognition (HAR) traditionally relies on supervised learning models trained on large volumes of labeled motion data collected from wearable or smartphone sensors. For my project, I intend on distinguishing human activities such as walking, sitting, standing, and lying. Using the UCI HAR dataset, which contains a time and frequency domain feature originating from accelerometer and gyroscopic sensor signals, I will apply clustering algorithms to discover natural groupings within the data. The dataset includes 561 engineered features extracted from 2.56-second sliding windows recorded from 30 subjects. My analysis includes feature scaling, dimensionality reduction (PCA), and the evaluation of multiple clustering methods such as K-means, hierarchical clustering, and DBSCAN. Cluster quality is assessed using metrics such as silhouette score, Davies-bouldin index, and visualization-based plots. The results should highlight the extent to how separable each activity classes are based solely on sensor signal data and identifying the challenges of overlap across similar motion patterns.

Holly Rushing

Dr. Colter Ray

28. Loneliness Advice Messages: What is Communicated and What is Perceived as Effective?

Lonely individuals often receive or seek advice about how to resolve their loneliness; however, the perceived effectiveness of such messages can vary. This study creates a typology of loneliness advice messages based on 865 messages recalled by 309 adults who were currently or previously lonely. Findings showed that advice messages occur across 17 different categories and that these categories differ in their average perceived effectiveness and frequency of use. Those communicating advice to someone experiencing loneliness can use these findings to understand the various advice messages they can communicate and the typical effectiveness or ineffectiveness of various advice messages.

Isabella Penzone

Dr. Jeffrey Neely

29. Examining Media Bias and Its Effects on Gen Z

News outlets have turned to social media to disseminate their stories more quickly to reach larger audiences. Many people gravitate towards social media, especially young adults who are the most likely to get news on social media platforms. Social media is one of the primary ways that misinformation is spread; young adults being most likely to believe in this information. Additionally, people tend to prefer articles and news sources that align with their political beliefs. Furthermore, habits of getting one-sided news could lead to unhealthy behaviors like “othering” and selective exposure, which can best be explained by cognitive dissonance theory. This research aims to uncover media bias and its effects on young adults by looking at whether politically engaged college students’ perceptions of political bias in social media news sources are associated with their preferred means of accessing news and political information at the University of Tampa. Qualitative data was collected by interviewing 11 students who are involved in politically affiliated clubs. Results found that students perceived bias, and the platforms and news outlets they choose to look at are due to credibility and selective exposure. Suggestions for a larger sample of politically inclined students from other universities were discussed.

Jasmine Vidovich, Madison Tessar

Dr. Yan Guo

30. Patterns of Physical Activity and Their Association with ADHD Diagnosis Among University Students: Findings From the NCHA-III Survey

The association between the amount of physical activity and attention-deficit/hyperactivity disorder (ADHD) among college students remains poorly understood. To address this gap, we examined the relationship between physical activity and self-reported ADHD diagnosis using locally collected surveillance data.

We analyzed cross-sectional data from the University of Tampa's National College Health Assessment (NCHA-III), particularly the answers to the questions that assess students' participation in physical activity. Multivariable logistic regression model was used to estimate adjusted odds ratios (AORs) and 95% confidence intervals (CIs) for the association between physical activity levels and ADHD diagnosis, controlling for demographic covariates.

Of the 632 students included in the analysis, 84 (13.3%) reported an ADHD diagnosis. Students who engaged in 1–5 hours of leisure-time physical activity per week had significantly higher odds of reporting ADHD compared with students who reported no physical activity (AOR = 2.3, 95% CI: 1.15, 4.76). In contrast, students who reported performing strengthening exercises at least one day in the past week had lower odds of ADHD diagnosis (AOR = 0.29, 95% CI: 0.10, 0.86).

Further research involving multi-institutional student populations is needed to confirm these findings and inform targeted physical activity interventions.

Jenna Nicolette

Dr. Denis Rey

31. How Do NGOs Deliver Humanitarian Food Aid During Armed Conflicts?

This study examines how non-governmental organizations (NGOs) deliver humanitarian food aid during armed conflicts. Through a comparative case study of Gaza, Syria, and Yemen, the study analysis how the level of direct negotiation with armed actors affects the actual amount of food aid delivered relative to planned distributions. The independent variable is the level of negotiation, and the dependent variable is the proportion of food aid actually delivered compared to planned distributions and control variables including; culture, population, and GDP. I found high levels of engagement in Syria correspond with greater delivery success, while restricted negotiation in Gaza results in significant shortfalls. Yemen presents a mixed case, reflecting partial negotiation and moderate outcomes. This research highlights the critical role of negotiation strategies in humanitarian effectiveness and suggests that political access can substantially enhance the reach and reliability of food aid in conflict zones.

Jessica Sullivan

Dr. Rebecca Waggett

32. Zooplankton as Indicators of Ecosystem Health in Tampa Bay

Zooplankton play a crucial role in marine food webs, bridging phytoplankton primary producers with a diversity of larger oceanic consumers (fish, crustaceans, jellyfish, etc.). Additionally, copepods, as the dominant zooplankton taxa, serve as valuable indicators of the environmental health of an ecosystem. This study monitored zooplankton abundance, diversity, and reproductive rates in Tampa Bay during the summers of 2023 and 2025, establishing a baseline to assess ecosystem resilience in response to future harmful algal blooms (HABs) and tropical storm events, which are frequent occurrences along Florida's southwest coast. Preliminary results indicate that zooplankton community composition was influenced by a suspected *Trichodesmium* bloom in July 2023, corresponding with higher egg and fecal pellet production. These findings underscore the sensitivity of zooplankton communities to environmental changes and their potential utility as early indicators of ecosystem disturbances.

Jillian Rachlin

Dr. Willie Leung

33. Association Between Insurance Type and Flu Vaccination Status Among Children Aged 6-17 Years

To prevent the negative health impacts of influenza, children are recommended to get vaccinated each influenza season. Access to healthcare often varies by insurance type, which may influence whether children receive recommended vaccinations for influenza. To examine the association between different insurance types and receiving a flu vaccine in the past 12 months among children 6-17 years old.

Data from the 2024 National Health Interview Survey (NHIS) were analyzed. The sample included children aged 6-17 with reported insurance status. The independent variable was the type of insurance (e.g., public, private, other). The dependent variable was flu vaccination in the past 12 months (yes, no). Analyses included descriptive statistics, chi-square test of independence, and unadjusted and adjusted logistic regression to assess the association between insurance type and vaccination status.

A total sample of 5,165 children 6-17 years old was included. The mean age is 11.89, 51.5% female and 48.54% male. Chi-square analysis found no statistically significant association between variables ($\chi^2 = 0$, $p = 1.00$). Both the unadjusted and adjusted logistic regression found no statistically significant association as well (OR range from 1.00-1.00, 95% CI [1.00, 1.00]).

The absence of significant findings suggests that flu vaccination may be due to equally accessible across insurance types, likely because flu shots are widely available and affordable regardless of insurance coverage. Many public places, like pharmacies, offer flu vaccinations for free or at a low cost. To increase this accommodation, elementary schools could offer flu vaccinations during school hours. This can further expand accessibility to all children regardless of their demographic background.

Julia Gonzalez

Dr. Yvonne Franco

34. Supporting a Developing Reader Through Phonics-Based Instruction

This study investigates how a preservice teacher applied phonics-based strategies to support her developing reader's literacy skills in a second-grade classroom. Research indicates that —— (Abernathy, 2024; Hauck, 2021). Three strategies were implemented over a 14-week semester: phonemic blending exercises, pictorial supports, and phonics decoding activities. Findings suggest that the student benefited most when visual resources were incorporated, particularly when images were displayed alongside corresponding words. Additionally, segmenting individual phonemes and identifying letter blend sounds during word decoding proved effective. As a future educator, this study informs how I will support struggling readers throughout my teaching career.

Kaelei Olig, Jasmine Vidovich

Dr. Yan Guo

35. Differential Risk and Protective Factors Across Suicidal Ideation, Plans, and Attempts: Evidence from a Nationally Representative Sample

Suicide remains a leading cause of death in the United States, yet limited research has examined how risk and protective factors differ across distinct stages of suicidality. This study investigates demographic, socioeconomic, and behavioral factors associated with suicidal ideation, planning, and attempts.

We conducted a cross-sectional analysis of 43,687 adults from the 2023 National Survey on Drug Use and Health (NSDUH), a nationally representative sample. Multivariable logistic regression models estimated adjusted associations between selected factors and past-year suicidal ideation, plans, and attempts.

Past-year suicidal ideation, plans, and attempts were reported by 7.1%, 2.3%, and 1.0% of adults, respectively. Major depressive disorder and alcohol/substance use were strong and consistent risk factors across all suicidality outcomes. Older age was inversely associated with ideation, plans, and attempts. Several factors demonstrated stage-specific associations: education was protective for suicide plans and attempts but not ideation; demographic characteristics including sex, race/ethnicity, sexual orientation, and rural/urban residence showed differential patterns across suicidality stages.

Findings highlight distinct profiles of risk and protection for ideation, planning, and attempts. Understanding these differential patterns can inform targeted, stage-specific prevention and intervention strategies, particularly for populations at elevated risk due to mental health and substance use conditions.

Kamily Cruz

Dr. Shanda Vereen

36. Reframing Preconception Care: A Closer Look at Male Usage, Need, and Conception Intentions

Preconception care and family planning play a critical role in improving perinatal outcomes. Although these services have traditionally focused on women, there is increasing recognition of the important role men play in reproductive planning and perinatal health through preconception health services (PHS) and education. Despite this, men continue to face limited access to high-quality PHS. This study is a secondary analysis of data from the 2022–2023 National Survey of Family Growth (NSFG) examining men's need for PHS, their use of PHS, and factors associated with receiving preconception, infertility, and family planning services. Need for PHS was defined as respondents or their partners not being sterile. Childbearing intention was based on self-reported desire to have a child in the future. Receipt of PHS was defined as receiving one or more of the following: infertility services, condom counseling, HPV vaccination, family planning services, HIV or STI testing, or a testicular exam. Logistic regression models assessed associations between sociodemographic characteristics and each outcome. Among 968 male participants, 82% had a need for preconception services, and 32% intended to have children. Of those with a PHS need, 82% reported receiving at least one service. However, use of infertility and family planning services remained low, with only 10% and 7% of men accessing these services, respectively. Younger age, being married, and having children were inversely associated with both PHS need and childbearing intention ($p < 0.05$). Black race and LGBTQ+ identity were positively associated with PHS receipt ($p < 0.05$). These findings highlight persistent gaps in male engagement with PHS despite demonstrated need. Public health efforts should adopt more inclusive and targeted strategies to reduce barriers and increase male participation in PHS to improve reproductive and perinatal health outcomes.

Kathryn Russell

Dr. Yvonne Franco

37. The Impact of Kinesthetic Movement on Letter Naming Fluency

This study examines ways a preservice teacher applied kinesthetic movement strategies with her kindergarten students, alongside her collaborating teacher. Research on kinesthetic strategies detail ways in which teachers develop letter naming fluency among their young learners in the elementary classroom (Center for Effective Reading Instruction & International Dyslexia Association; Buckingham, Wheldall, & Wheldall, 2019; Lott et al., 2010). Over the course of a 14-week semester, three key strategies were implemented: letter matching, letter-sound correspondence activities, and beginning sound activities. Findings suggest that the student began recognizing letters as having corresponding sounds, matching pictures to their beginning letters, and self-correcting letter sounds. As a future teacher, this study is significant to me as a future educator, because it teaches me how to apply research-based strategies for facilitating letter naming fluency.

Kayley Hellenbrand, Mark Mottola, Aoife Scott

Dr. Kenneth Houghton

38. Size Matters

This study examines how text message length affects recipients' emotional engagement, responsiveness, and perceptions of a conversational partner's investment. Texting lacks face-to-face cues like facial expression and tone, so texters rely on structural features to convey social meaning (Houghton et al., 2018; Kalman & Gergle, 2014). Prior research indicates short messages can seem abrupt while longer messages appear more thoughtful or engaged (Houghton et al., 2018; Kemp et al., 2025; Herring & Androutsopoulos, 2015). Research on in-person disclosure has suggested that the act of reciprocation increases feelings of investment, implying that length may play a similar role. Participants ($n = 200$) will view 18 fictional exchanges. Each will begin with Partner A's positive or negative emotional disclosure; Partner B's responses will be blurred but vary in length: short, 1–3 words; medium, 2–3 lines; long, 8–9 lines. All participants will rate their perceived partner investment, receptiveness, likelihood of responding, and expected response delay using 5-point scales. Data will be analyzed with mixed-effects ANOVAs (2×3). We predict from our pilot data that the longer responses will yield higher ratings of investment, receptiveness, and responsiveness, with significant interactions between valence and length. Findings will further understanding of how message length conveys social meaning in text communication.

Kevin Wehrle

Dr. Binod Rimal

39. Modifiable Lifestyle Factors as Predictors of Risk for Health Conditions

Chronic diseases like Type 2 Diabetes are often driven by long-term daily behaviors, yet standard risk assessments rely heavily on invasive clinical testing rather than patient history. Quantifying the impact of specific, modifiable daily habits enables public health officials to target the exact behaviors that statistically matter most for disease prevention. Here, my goal was to evaluate the predictive power of non-invasive lifestyle survey questions in identifying individuals at high risk for diabetes without the need for initial blood work. I balanced a dataset of over 250,000 CDC survey responses using RandomUnderSampling and trained a Random Forest Classifier to rank behavioral features by their predictive power. I also will use Logistic Regression to determine the highest risk indicators of diabetes, as well as implement an ADABOOST Model and compare its performance to the Random Forest Classifier. The Random Forest Model achieved 78% recall on 71% accuracy, and revealed that "Physical Activity" was a significantly stronger predictor of health outcomes compared to other modifiable lifestyle habits. Use case is that corporate wellness programs can utilize this model to create non-invasive "Risk Scorecards" that incentivize employees to adopt the specific habits that mathematically reduce their risk the most.

Kirsten Banks, Lea Hinsley, Susan Bell

Dr. Michael Middlebrooks

40. An Analysis of Gastropod Populations in a Mixed *Caulerpa prolifera* and *Halodule wrightii* Seagrass Bed

The rhizophytic green macroalga, *Caulerpa* spp., has gained notoriety for invading subtidal landscapes and displacing local flora and fauna. In Tampa Bay, some areas that have seen a reduction in the cover of the seagrass *Halodule wrightii* have been colonized by large beds of *Caulerpa prolifera*. This study was conducted to determine if there was a significant difference between the gastropod community composition of *C. prolifera* and *H. wrightii* beds. Core samples from ten spatially independent 0.1m² sections of *Caulerpa* sp. and *H. wrightii* dominated communities were collected in January and June 2023 from Old Tampa Bay, FL. Samples were preserved in 70% ethyl alcohol and processed using a dissecting scope. Any gastropods found were counted and identified to species level. In January, there was a significantly greater population of *Bulla occidentalis* in the seagrass samples than the *Caulerpa* samples. In June, there were significantly more *Prunum apicinum* in the seagrass samples than the *Caulerpa* samples. The remainder of the gastropod species showed no significant difference in their abundance between the two ecosystem types. While the replacement of seagrass with rhizophytic algae results in a reduction of some epifaunal species, the algae may provide a similar canopy structure to *H. wrightii* and support a similar gastropod community.

Kshmeya Chopra

Dr. Marius Pelmus, Seton Hall University

41. The role of metal and substituents in the photostability of Zn(II) and In(III) phthalocyanines

Metal phthalocyanines are highly conjugated macrocycles used in photodynamic therapy (PDT), optoelectronics, photocatalysis, catalysis, etc. Their long-term aerobic stability under intense radiation is a property important for their chemical, optical and biomedical applications. Fluorination is expected to enhance the Pcs stability. We report the photodegradation resistance of six PcM (F_{64} PcZn, F_{64} PcInCl, $(tBu)_4$ PcZn, F_{16} PcZn, F_{16} PcInCl, and H_{16} PcZn), data aimed at providing insights into the role of the metal, degree of fluorination, and modulation by axial ligands. The spectroscopic analysis of the data suggests that an increase in the metal center radius and charge destabilized the Pcs, but the replacement of H by F increased the molecular photostability independent of other structural variations. These findings will be used for the design of robust materials.

Lauren Lamm

Dr. Denis Rey

42. How Do NGO's Deliver Healthcare to Communities Affected By Natural Disasters?

This study examines how non-governmental organizations (NGOs) deliver healthcare to communities affected by natural disasters. Drawing from comparative case studies from Direct Relief, the American Red Cross, and Doctors without Borders, the research explores how response time, funding, personnel, and travel need all affect the accessibility and quality of healthcare services. The independent variables represent NGO capacity, while the dependent variable measures healthcare access and service provision. Through this framework, this study proposes that faster response times, higher funding levels, increased personnel, and reduced travel needs correspond with greater healthcare accessibility and effectiveness. The research emphasizes that NGO performance in disaster contexts depends on coordinated resource mobilization and efficient logistics. This theoretical model provides a foundation for future empirical research evaluating how operational capacity influences humanitarian health outcomes.

Liana Merlo, William Casey, Robert Postal, Brooke Gable

Dr. Willie Leung

43. The Impact of Skipping Meals on Repetitive Injuries in Children Ages 6 to 17

Proper nutrition is essential for growth, development, and overall health of children, but some children fail to meet their nutritional needs due to a variety of factors such as lifestyle, busy schedule, or limited food access. Research has investigated the relationship between adequate nutritional intake and physical health and development with consistent meal patterns being recognized as essential for maintaining energy and promoting muscle health in active children. However, one specific area remains understudied, if there is a direct relationship between a habit of skipping meals and having repetitive injuries among children and adolescents aged 6 to 17.

To examine the association between skipping meals and repetitive strain injuries.

The data used was from the 2024 National Health Interview Survey. The population consisted of U.S. children aged 6-17 years, who participated in a nationally representative health survey and provided data on meal skipping behaviors and repetitive injuries. The independent variable was meal skipping, measured as a nominal variable indicating whether the child skipped one or more meals (yes/no). The dependent variable was repetitive injury status, measured as a nominal variable indicating whether the child reported a repetitive injury (yes/no). Descriptive analysis was used to summarize the variables of interest. The association between skipping meals and repetitive injuries was evaluated using a chi-squared test of independence, assessing whether the two variables were statistically associated. In addition, a binary logistic regression model was used to estimate the odds of experiencing a repetitive injury based on meal skipping status.

Total sample of 1086 participants, the average age was 11.77 years, and 51.93% male and 48.07% female. Of these participants, 10.50% had repetitive injuries, and 89.50% did not. Binary logistic regression showed that the children who do not skip meals have a higher likelihood of not having repeat injury (OR = 0.67, 95% CI [1.10, 2.30]). When comparing the variables through Chi square test, there was a statistically significant relationship between skipping meals and having repetitive strain injuries ($\chi^2=3.71$, $p = 0.05$). Showing that skipping meals does influence children between the ages of 6 to 17 having repetitive strain injuries.

Children who have a habit of skipping meals significantly impacts whether they have repeated strain injuries or not. These results encourage that consistent eating leads to a lesser chance of sustaining an injury.

Lily McGarr

Dr. Yvonne Franco

44. The Journey of Making Meaning: A Comprehension Study with an English Language Learner

This study shows how a preservice teacher used intentional comprehension strategies in order to support an English Language Learner in third grade. Research shows that using explicit vocabulary instruction, structured discussion, and teacher modeling can promote comprehension for multilingual learners and English language learners (Chen, 2023; Blitz, 2025). Over ten weeks working with the student, different comprehension strategies were implemented using engaging literacy thematic lessons targeting point of view, main idea, character traits, and setting. Baseline assessments were also used, including DIBELS and the Elementary Reading Attitude Survey, which showed Dallas's strong decoding and fluency skills but indicated difficulty in interpreting meaning and using text evidence to support his ideas. During instruction, he practiced rereading, using sentence stems, and making predictions to explain his understanding. By the end of the 10 weeks, Valentino had shown increased confidence in sharing his ideas with the teacher, improved accuracy, and greater engagement with texts. As a future educator, this experience deepened my understanding of how scaffolded and explicit comprehension instruction helps English language learners transition their fluent reading into a more thoughtful, meaning-making process.

Grayson Borgeas-Beach, Olivia Cook, Lindsey Louder, Ella Astor

Dr. Willie Leung

45. The Investigation of the Relationship Between the Frequency of Strength Training and Experiencing Psychological Distress among U.S. Adults in Healthcare

Psychological distress is a growing concern among U.S. adults working in healthcare due to the demanding nature of the profession. The purpose of this study is to examine the association between strength training participation and psychological distress among U.S. adults employed within the healthcare sector. Given the demanding and often high stress nature of healthcare occupations, understanding the potential mental health benefits of physical activity, specifically frequency of strength training, is of relevance.

Liza Walker

Dr. Emily Durkin

46. Identification and Exploration of a Parasitic Trematode (*Saccularina magnacetabula*) in Tampa Bay Ladyfish

Within Florida waters, the species richness of parasitic worms, specifically trematodes, has not been cataloged since the early 20th century. There have been few updates in recent years, leaving space for the question of existing host-parasite relations for the Gulf of Mexico and the Atlantic. In a 2022 study, a new genus and species of parasitic trematode in the family Didymozoidae was discovered in the fins of ladyfish, *Elops hawaiiensis*, and named *Saccularina magnacetabula*. A genetic and anatomical analysis was performed, laying the groundwork for new comparisons to this established species. In the fall of 2024, yellow parasitic worms were discovered within the fins of *Elops saurus*, a species of ladyfish in the Tampa Bay area. Since this initial discovery, we have performed thorough data collection, anatomy comparison, and genetic analysis of our unidentified worm and compared it to *S. magnacetabula*.

This project explores the ecological, genetic, and anatomical aspects of this parasitic trematode. Here, we have performed DNA analysis on two specific genes and used an image analysis software for anatomical measurements. With this knowledge, we contribute to the newly developing list of parasite species inhabiting Florida and the geographical distribution of possible *S. magnacetabula*, which opens the floor for further study on host specificity for this trematode.

47. Strength Training Participation and Sleep Problems Among U.S. Adults

Sleep problems are common among adults and can negatively affect daily functioning and long-term health. While physical activity is often linked to better sleep, the correlation between strength training participation and specific sleep problems has not been fully explored in the general population. The purpose of this study was to examine the correlation between participation in strength training and sleep problems, specifically trouble falling asleep, among U.S. adults. Data from the 2024 National Health Interview Survey were used for this cross-sectional analysis. A secondary data analysis was conducted using a sample of 29,375 adults aged 18 and older. Participants were classified as meeting the strength training guideline if they reported engaging at least 2 times of strength training per week. Participants also self-reported how often they have trouble falling asleep (e.g., never, some days, most days, and every days. The correlation between strength training and trouble sleep was evaluated using Chi-Square Test of Independence and Cramer's V. A total of 29,375 participants with a mean age of 53.78, with 45.86% of female and 54.14% of male, were included in the analysis. 31.33% met the strength training guidelines and 68.67% did not meet the guidelines. Also, 44.17% reported never having trouble falling asleep, 40.16% had trouble falling asleep some days, 9.55% had trouble falling asleep most days, and 6.12% of participants had trouble falling asleep every day. The Chi-Square test revealed a statistically significant correlation between strength training guidelines and trouble falling asleep ($\chi^2 = 158.54$, $p < .001$). Cramer's V found a small correlation ($V = 0.07$, $p < .001$). Findings showed a small but statistically significant correlation between strength training guidelines and sleep problems. Adults who participate in strength training experience slightly different patterns of trouble falling asleep compared to those who do not. Although the correlation was modest, the results suggest that strength training may play a role in sleep health and warrant further investigation.

Madison Ahern

Dr. Yvonne Franco

48. Seeing, Saying, and Doing: Engaging Young Learners in Letter-Sound Recognition

This study analyzes ways a preservice teacher applied multi-sensory activities to support a kindergarten student's development of letter-sound recognition skills. Research within early literacy instruction emphasizes how phonemic awareness and letter recognition are foundational to reading fluency and comprehension in order to later develop other crucial reading skills (Adams, 1990; Ehri). Multiple strategies were implemented throughout the course of this study, including tactile letter tracing, sound-movement matching, and phonics-based games. Findings indicate that the student became more confident in identifying letter-sound relationships and showed increased engagement when literacy concepts were introduced through interactive, hands-on activities or online games. This study is significant to me as a future educator because it demonstrates how multi-sensory instruction can help young learners solidify foundational reading skills in an engaging and developmentally appropriate way.

Giana D'Aprile, Christopher Cutrone, Grace Madigan, Madison Gillan

Dr. Willie Leung

49. The Association Between Healthcare Workers and Anxiety Disorders

Many studies in the past have found healthcare workers experiencing mental health crises during and after COVID-19, as well as studies on healthcare workers' mental health in general. However, there is very little literature that looks at anxiety in healthcare workers on their own. Because healthcare workers continue to face demanding workloads, high patient volumes, and chronic occupational stress even beyond the pandemic, it is important to understand whether working in healthcare itself is associated with anxiety. Data from the 2024 National Health Interview Survey were analyzed for this study. Our independent variable was whether someone worked in health care, and our dependent variable was having an anxiety disorder. We also included age, sex, ethnicity, education level, and hours worked per week as demographic variables. We first conducted a descriptive analysis to summarize the characteristics of the study sample. Frequencies and percentages were calculated for all variables. A Chi-Squared Test of Independence, along with bivariate and multivariable logistic regression models, was performed to determine the association between working in healthcare and anxiety.

The total sample size was 16,722 participants with the mean age of 45.18 years and a standard deviation of 14.72. 49.98% of participants are male and 50.01% are female. Among the total sample, 11.71% reported working in the healthcare setting and 88.29% reported not working in the healthcare setting. Less than 20% of the participants (18.48%) reported experiencing anxiety, while 81.52% reported not having anxiety. The Chi-Squared analysis found an association between working in a healthcare setting and anxiety ($\chi^2 = 40.43$, $p < .05$). The unadjusted and adjusted logistic regression found that participants not working in healthcare were less likely to report having anxiety (OR = .69, 95% CI [0.62, 0.78]; adjusted OR = 0.85, 95% CI [0.75, 0.96]).

Our key finding indicates a statistically significant association between an individual's profession and their likelihood of reporting anxiety. These results highlight the need for organizational strategies and policies that proactively address mental well-being and ensure healthcare professionals have access to appropriate mental health resources.

Madison Gillan, Kendal Gouner

Dr. Yan Guo

50. The Association Between Physical Activity and Asthma

Asthma is a significant public health concern affecting millions of people in the United States. Although physical activity may trigger symptoms in some individuals, regular exercise has been shown to improve lung function and support symptom management. Despite this, population level evidence on the relationship between meeting physical activity guidelines and asthma remains limited.

Data from the 2024 National Health Interview Survey were analyzed for this study. The independent variable was meeting the 2018 Physical Activity Guidelines, and the dependent variable was having been diagnosed with asthma. Covariates included age, sex, ethnicity, and education level. Descriptive statistics were calculated for all variables. Bivariate and multivariable logistic regression models were used to determine the association between physical activity and asthma.

The sample included 32,629 adults. Overall, 14.75% reported an asthma diagnosis, and 48.97% met physical activity guidelines. In the bivariate analysis, meeting physical activity guidelines was associated with a lower likelihood of asthma (OR=0.88, 95% CI [0.82, 0.93]). After adjusting for demographic variables, the association remained significant (aOR=0.86, 95% CI [0.28-0.36]).

Adults who met physical activity guidelines were significantly less likely to report asthma, even after accounting for demographic factors. These findings suggest a potential protective role of regular physical activity and highlight the importance of promoting exercise in asthma prevention and management efforts.

Jordan Serrano, Maile Fisher, Olivia Verderber, Saphina Giangreco

Dr. Willie Leung

51. Exploring the Link Between Sunburn and Chronic Fatigue Syndrome Diagnosis

Chronic Fatigue Syndrome (CFS) is a complex condition that is characterized by prolonged fatigue and immune dysfunction. Lifestyle and environmental factors, such as UV exposure and sunburn frequency may play a role in its onset. There is a gap in previous literature that examines the relationship between sunburns and the diagnosis of this condition.

This study utilized data from the 2024 National Health Interview Survey. Participants self-reported the quantity of sunburns they have had during their lifetime, whether they have been diagnosed with CFS or not, as well as several demographic variables, including age, sex, race, income, and region of residence. Descriptive analysis was performed to summarize variables of interests. Chi-square test of independence and adjusted and unadjusted simple binary logistic regression were used to examine the association between variables.

A total of 9,937 participants were included in the analysis. The mean number of sunburn quantity was 2.93 occurrences (SD = 3.58). 1.48% of participants reported having CFS diagnosis. The Chi-square analysis indicated no significant association between sunburn quantity and CFS diagnosis ($\chi^2 = 12.70$, $p = 0.94$). The unadjusted logistic regression also showed that there was no association between sunburn quantity and the diagnosis of CFS ($\chi^2 = 16.14$, $p = 0.81$). From the unadjusted regression, sunburn quantity is associated with a higher likelihood of receiving a CFS diagnosis (OR = 1.02, 95% CI [0.17, 1.08], $p = 0.52$). Our adjusted logistic regression showed there was no association between sunburn quantity and the diagnosis of CFS ($\chi^2 = 0.46$, $p = 0.50$). From the adjusted regression, sunburn quantity was associated with a higher likelihood of receiving a CFS diagnosis (OR = 1.01, 95% CI [0.96, 1.07], $p = 0.70$).

Our findings suggest that sunburn frequency is not associated with the likelihood of developing CFS. These results imply that other biological or environmental factors may better explain CFS onset. Future studies might explore immune or genetic contributors using longitudinal designs to better understand the contraction of this condition.

Marc Patterson

Dr. Binod Rimal

52. Sip Smart: A Data-Driven Approach to Wine Recommendation

Selecting the right wine can be challenging due to the vast variety of brands, types, and quality levels available in the market. To address this challenge, I developed a wine recommender system that tailors suggestions to individual user preferences, including previously liked wines, wine type, brand, and quality considerations. Using the Wine Quality Dataset from Kaggle, we implemented content-based, collaborative, and hybrid filtering techniques to generate personalized recommendations. The automated recommendations were found to be realistic and closely aligned with user tastes. This recommender system can be deployed in liquor stores, restaurants, used by individual consumers, or even in wineries themselves. By helping users quickly identify wines they are likely to enjoy, the system enhances customer satisfaction, supports business growth, and saves time.

Mary Sives, Ava Doreste, Caleigh Kim, Neha Shrestha, Nicole Hals

Dr. Mary Martinasek

53. Using Journey Mapping to understand Barriers to Vaping Cessation

Vaping continues to be prevalent on college campuses. Vaping can lead to cardiovascular, mental health, physiological and other risks. Many students wish to quit vaping but may be unaware of the resources available or are unable to navigate the system. Journey mapping helps public health by identifying gaps in access to care or treatment, thereby improving the experience. This study used journey mapping help understand barriers to vaping cessation at UTampa. This information will help the health center improve student awareness and access for help.

Michelle Reading and Jodi Gavin

Dr. Willie Leung, Dr. Yan Guo

54. Lyme Disease: Epidemiological Patterns in the U.S. (2010-23)

Lyme disease, *Borrelia burgdorferi*, is a vector-borne disease in the United States and a persistent public health concern, with an estimated 476,000 cases annually (CDC, 2024). Although prior studies have identified higher incidence in the Northeastern region and during the summer and fall months, limited evidence exists on demographic disparities across the country. Purpose: To examine the epidemiological patterns and demographic determinants of Lyme disease in the United States from 2010 to 2023. Methods: National Lyme Disease Surveillance data from the Centers for Disease Control and Prevention (CDC) were analyzed for 2010–2023. Variables included sex, age group, region, season, and year. Descriptive analyses were conducted to assess case counts and incidence rates, and temporal trends were evaluated to identify emerging patterns across demographic and geographic strata. Results: From 2010–2023, incidence rates were highest among males (12.94 per 100,000), adults aged ≥ 65 years (17.01 per 100,000), and residents of the Northeastern region (388,027 cases). Seasonally, most cases occurred in summer (178,465 cases), and 2023 recorded the highest case count (89,468). Overall, a gradual increase in reported cases occurred over time. Conclusions: Lyme disease continues to pose a growing burden in the U.S., with marked geographic, seasonal, and demographic discrepancies. These findings underscore the need for targeted public health interventions, particularly enhanced awareness and preventive measures among older adults and residents in high-incidence regions.

Molly DeMarzo and Brooke Gable

Dr. Willie Leung, Dr. Yan Guo

55. The relationship Between Anxiety and Eating disorders Among Undergraduate College Students at the University of Tampa

Anxiety and eating disorders are seen as being significant mental health obstacles among college students who face pressures such as academics, social life, athletics, and overall well-being. Eating disorders can include anorexia nervosa, bulimia nervosa, and binge eating. These all can pose both psychological and physiological risks. Understanding the relationship between anxiety and eating disorders can better allow for prevention and intervention among college campuses. The purpose of this research is to examine whether anxiety is associated with eating disorders among undergraduate students at the University of Tampa. This cross-sectional analysis looked at data from the NCHA-III Fall 2022 University of Tampa Institutional Data Report. The sample included 634 college students with a complete profile with info regarding anxiety and eating disorder status, age, sex, and race. The dependent variable was eating disorder status, measured as nominal (yes or no). The independent variable was anxiety, also measured as nominal (yes or no). The association between these variables was shown using bivariate and multivariate logistic regression to show odds ratio, adjusted odds ratio, and 95% confidence interval. 35% of college students reported anxiety while 6% reported having/being diagnosed with an eating disorder.

Anxiety was seen to be strongly associated with eating disorders (OR=5.52, 95% CI [3.25, 14.27]).

Adjusting for our demographic variables, anxiety remained significant (AOR=1.12, 95% CI [1.07, 1.16]). Data indicates that anxiety is a significant predictor regarding eating disorders among college students. These results show a need for prevention programs and screenings regarding mental health on college campuses.

Kate Kelly, Kaitlin Price, Caitlin Sepac, Nathan Yachtis

Dr. Willie Leung

56. Does Time Spent in the Sun Improve Restfulness?

Sleep quality is essential for overall health, and there is growing evidence that environmental factors such as natural sunlight while tanning could possibly influence sleep. While there is extensive research on sleep cycles, there is limited research on whether the frequency of tanning in the sun can affect one's feeling of waking up well rested. The purpose of this research is to examine the correlation between time spent in the sun and feeling well rested after sleep. Data was collected from the 2024 National Health Interview Survey (NHIS) to perform this project. The population of our study comprised 29,542 participants across the country aged 18 or older. Participants self-reported how often they spent tanning in the sun within the last 12 months. Participants also self-reported in general how well rested they felt on a scale of 1-4. To determine the correlation between the frequency of participants tanning in the sun and having a feeling of being well-rested, we used Cramer's V test and the Chi-Square test of Independence.

A total of 29,542 participants were included in the analysis (average age = 53.81 \pm 18.60; 45.90% male and 54.10% female). The median value of participants feeling well rested was 3 on a scale of 1-4. Therefore, 12,483 participants reported feeling well rested on most days. The median value of participants that spent time in the sun on a scale of 1-6 was 5 meaning they reported never being in the sun with 66.03% of participants. Based on the results of the chi square test of independence there is a correlation of time spent in the sun and feeling well rested ($\chi^2 = 326.90$, $p < 0.05$). The Cramer's V test found a positive, but negligible correlation between time spent in the sun and feeling well rested ($V = 0.06$, $p < 0.05$).

This study explored whether time spent in the sun can affect how well rested people feel after sleep. There is no significant impact seen when examining this, but limited sample size and self-reporting data could influence these conclusions.

Olivia Rayola

Dr. Yvonne Franco

57. The Impact of Competition-Based Activities on Literacy Development

This study investigated ways a preservice teacher engaged her fifth-grade English Language Learner in competitive, interactive activities to help him develop his phonemic awareness skills. Research on competitive based learning (CBL) inspires students to achieve better success as well as increase intrinsic motivation since learners are pushed to go beyond their current capabilities in an attempt to win the game or activity. (McGuire, 2025). Numerous strategies were implemented within a 14-week semester, all with a focus on competition, including: vowel target toss, vowel team soccer, vowel Go-Fish, and a mystery word game. Findings indicate that the student felt engaged and intrinsically motivated while increasing in performance when participating in competition-based learning. This study is significant to my work as a future teacher of literacy because it teaches me how to engage older students in phonemic awareness while still encouraging them to work to the best of their ability.

Paige Clark

Dr. Yvonne Franco

58. Building Reading Confidence Through Multisensory Strategies

This study analyzed ways a preservice teacher applied confidence building reading strategies with a developing reader in first grade, while working in communication with the student's classroom teacher. Thomson and Kucirkova (2025), highlights how multisensory approaches can support students' engagement and confidence with reading by drawing upon existing research. The article suggests creating a comfortable, supportive learning environment to help struggling readers remain focused and positive towards reading. During this 14-week semester, the teacher implemented strategies that addressed the student's lack of confidence including positive reinforcement, sound-letter correspondence activities, and interactive learning opportunities. Findings suggest the student's confidence improved when she interacted with activities based on her interest and engaged in multi sensory experiences. The student also responded well to positive reinforcement and individual student-teacher interaction. This study is meaningful to me as a future educator, as it taught me how to apply research-based strategies to support a learner's individual literacy needs, specifically showing me how to build confidence in early struggling readers.

Rohan Khanal

Dr. Binod Rimal

59. Learning the Stock Market Pulse: LSTM and GRU for Price Movement Prediction

Predicting stock price movements is challenging due to the highly volatile, nonlinear behavior of financial markets and their dependence on numerous external factors. In this study, we aim to predict the directional movement of the S&P 500 closing price—whether it will move up or down—using historical market data. To capture temporal dependencies and complex patterns in the time series, we implement two deep learning sequence models: Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) networks. We conduct a comparative analysis of multiple model configurations for both architectures and evaluate their performance using accuracy, precision, recall, and F1 scores. Our results identify the best-performing model for directional prediction of the S&P 500. The findings of this research can support both individual and institutional traders in making more informed investment and trading decisions.

Ryan Homer

Dr. Rose Hilmo

60. Bryde's Whales: A Whale Call Density Study

Ocean bottom seismometers (OBSs), which are typically used to detect earthquakes, can instead be used as an opportunistic sensor to detect powerful, low-frequency whale calls. The “Biotwang” call, which was recently attributed to Bryde’s whales in the Marianas region of the Pacific Ocean, is of low enough frequency to be detected by the OBSs. In this study, we are using data from a network of OBSs deployed from 2012-2013 near the Marianas Trench to investigate the seasonality of Bryde’s whale calls and calculate their spatial densities using distance sampling. We have visually confirmed occurrences of this “Biotwang” call within the data. Using metrics from these known calls, we will make a synthetic template call and utilize spectrogram cross correlation to automatically detect “Biotwangs” recorded on the OBSs. The distance to each call will then be calculated using multipath ranging. Multipath ranging was developed to estimate distances to fin whales using calls recorded on a single OBS. Distances are estimated through measuring the recorded timings of call echoes (multipaths) from seafloor and sea surface reflections and comparing them with predictions from a sound propagation model. We have observed multipaths of “Biotwangs” on Marianas OBSs which suggest multipath ranging would also work for this species. We will then apply point-transect distance sampling to ranges to estimate seasonal changes in “Biotwang” spatial call densities. This showcases the utility of density estimation through multipath ranging and highlights broader possibilities in using OBSs as a passive acoustic monitoring tool for characterizing whale populations.

Sabrina Cannistraci

Dr. Yvonne Franco

61. Teaching Reading Through Diagnostic Assessment and Instruction (ESOL-infused course)

This study examined how a preservice teacher used intentional phonics and vocabulary strategies to support Channing, a second-grade student who moved from Russia just one week before school started. Research shows that explicit modeling, visual supports, and repeated practice help English Language Learners build foundational skills in a new language (Gillon, 2018). Over a 14-week period, I focused on three key strategies: sound-by-sound blending with gestures, picture-supported vocabulary routines, and simple sentence frames to help him apply new words in context. These strategies were chosen to support Channing as he learned English phonemes, built confidence decoding unfamiliar words, and connected vocabulary to meaning. Findings show that Channing made steady progress, he blended CVC words with more accuracy, recognized common short, vowel patterns, and used picture clues to understand and use new vocabulary. He also began self-correcting sounds when they did not match the letters, which showed growing awareness of English sound-symbol relationships. As a future teacher, studying my own literacy instruction helps me better understand how to support students who are learning English for the first time. This experience showed me how important it is to use clear modeling, consistent routines, and strong visuals to help ELLs grow as readers.

Sahid Burgos

Dr. Denis Rey

62. How Does Regime Type Affect Human Rights Protection by NGOs in Latin America?

This research examines how regime type influences the ability of human-rights NGOs to operate and protect rights in Latin America. It argues that variations in political openness, surveillance capacity, and regime hybridity shape how NGOs interact with the state, how citizens perceive legitimacy, and how uncertainty emerges within civil society. Using a Most Similar Systems Design, the study compares Chile, Ecuador, and El Salvador, three countries with shared historical and cultural backgrounds but contrasting political structures. The analysis combines data from CIVICUS, V-Dem, Freedom House, and Latinobarómetro to test four hypotheses on regime restrictions, international legitimacy, self-censorship, and legal uncertainty. Findings demonstrate that as regimes become more restrictive, NGO activity narrows, public trust in government declines, and civic space contracts. These results highlight the central role of regime type in shaping the strength and autonomy of human rights advocacy across the region.

Salvatore Palmeri, John Rempe

Dr. Khaym Paneru

63. Analysis of Abalone Rings

Accurately estimating abalone age is vital in marine biology, fisheries management, and ecological monitoring, but traditional methods are labor-intensive and destructive. Since shell rings reliably indicate age, statistical models predicting ring count offer a practical alternative for assessing large abalone populations. In this study, we examined regression techniques using dimensions and weight-based features from the Abalone dataset obtained from the UCI Machine

Learning Repository. After removing infant abalones and treating sex as a binary variable, we sampled 500 individuals. We analyzed data patterns through graphs and summary statistics. Our regression comparisons started with continuous predictors, added sex as a categorical variable,

and employed a log-transformed response to meet linear regression assumptions. Diagnostic checks, including residual plots and influence measures, evaluated model fit and identified influential observations. Removing influential observations and refitting the log-transformed model improved the model. Results indicated all predictors had similar, modest associations with ring count. Including sex didn't significantly enhance the model, but transforming the response and removing influential observations did. Overall, a properly transformed linear regression model can effectively predict abalone age from physical traits.

Sophia Briggs, Rachel Shikhmanter, George Hanakis, Pedro Jaunarena

Dr. Willie Leung

64. The Relationship Between Household Region and Cancer Diagnosis Among Older Adults in the United States

Cancer is one of the leading causes of morbidity and mortality in the United States. Geographic differences can influence health outcomes through variations in environmental exposure, healthcare access, and lifestyle factors. Understanding whether region of residence plays a role in cancer diagnosis can help identify potential health disparities and guide public health interventions. The purpose of this research is to determine whether the region of residence (Northeast, Midwest, South, or West) is associated with the likelihood of having a cancer diagnosis among older adults in the United States.

A cross-sectional secondary data analysis was conducted using data from the 2024 National Health Interview Survey (NHIS). Only participants age 65 or above were included in the analysis. Participants self reported their house hold regions (e.g., Northeast, Midwest, South, West) and have they ever had cancer (yes/no). Chi square test of indepenence were preformed to examine the association between the variables. Unadjusted and adjusted logistic regression were also preformed to determine wether the region of residence influenced cancer diagnosis among older adults. The adjusted regression were adjusted for Northeast, Midwest, South, West.

A total of 10162 older adults in the US were participants in the study. The sex of the participants consisted of 5773 females and 4389 males. The employment of the participants consisted of 1658 non-employed and 8504 employed. The Chi-Square Test indicated no statistically significant relationship between region and cancer diagnosis, $\chi^2 = 2.58$, $p > 0.05$. Similarly there were no statistical significant associations found in both the unadjusted and adjusted logistic regression between region of residence and cancer diagnosis ($p > .05$).

These results indicate that household region is not a significant factor in predicting cancer diagnosis among older adults in the United States. Even though different regions may have differences in healthcare or the environment, those differences don't seem to strongly impact cancer rates. Other things, like a person's age, family history, income, habits, and access to doctors, are probably more important. Future research should focus on these variables to better understand regional health disparities and improve targeted cancer prevention strategies.

Sophia Mazziotta

Dr. Yvonne Franco

65. Building Confidence Through Phonics: Supporting an ELL Student's Decoding Growth

This study examines ways a preservice teacher implemented word recognition and multisensory phonics strategies to support a second-grade English Language Learner's decoding skills and confidence during one-on-one reading instruction. Research on phonics-based instruction highlights the effectiveness of systematic and explicit methods for improving early literacy skills (Buckingham, Wheldall, & Wheldall, 2019). Three main strategies were applied across a twelve-week tutoring period, including multisensory phonics activities, repeated pattern recognition practice, and visual-verbal modeling. Data from i-Ready, DIBELS, and anecdotal notes showed that Cedar's decoding accuracy increased, and her reading confidence improved as she began identifying word patterns independently. Findings revealed that hands-on, movement-based activities were especially beneficial for maintaining engagement and supporting phonemic awareness. This study is significant to me as a future educator because it demonstrates how targeted evidence-based phonics instruction, including multisensory approaches, can help RLL students better decode and grow confidence as readers.

Sydney Gordon

Dr. Yvonne Franco

66. Building Fluent and Confident Readers: Applying Research-Based Fluency Strategies with an English Language Learner

In this study, we examined different ways a preservice teacher can implement fluency and decoding strategies to support a third-grade English language learner's reading development to become more confident readers. Research emphasizes that strategic, interactive instruction builds students' confidence and accuracy by engaging them in meaningful reading behaviors (Serravallo, 2023). Over a ten-week intervention, two primary strategies were applied—"Act It Out to Smooth It Out," which encouraged expressive, movement-based rereading to smooth phrasing, and "Check the Beginning, Middle, and End," which promoted self-monitoring and decoding accuracy. Findings suggest that the student became more fluent, reread independently to self-correct, and connected actions with meaning to improve comprehension. This study is significant to me as a future educator because it demonstrates how purposeful, research-based fluency strategies can empower English Language Learners to become more confident, expressive, and engaged readers.

Taylor Hollenbaugh

Dr. Yvonne Franco

67. The Connection of Letters and Sounds: A Multi-Sensory Phonics Study for Building Decoding and Language Skills

This study examined the ways a preservice teacher applied targeted phonics-based strategies to support an English Language Learner in fourth grade. Research on effective reading instruction for ELLs emphasizes that integrating language development with the core components of reading—phonemic awareness, phonics, fluency, vocabulary, and comprehension—strengthens literacy growth (Reading Rockets, 2020). Over the course of a 14-week semester, three key strategies were implemented: letter-sound correspondence activities, multi-sensory letter formation, word recognition and decoding practice. Findings suggest that the student improved in recognizing letters and sounds when engaging with multi-sensory materials such as Wikki Stix and picture cards. As a future teacher, this study is meaningful because it highlights how research-based, hands-on phonics instruction can build both decoding and oral language skills for English Language Learners.

Taylor Zuclich and Lexy Izzi

Dr. Theoni Soubdis

68. Math Speaks: Bringing Literacy to Life in the Math Classroom

We conducted a three-day study as part of our internship in an eighth grade geometry classroom. As mathematicians, we wanted to prove if integrating the literacy strategies we were learning in our university classes truly strengthens students' mathematical conceptual understanding. Math vocabulary strategies support students' comprehension of complex terminology in mathematical concepts. The literacy strategies we selected for this study include: Frayer Model/Expert in the Room, Mnemonic Graphic Organizer, Matching Card Game, and Jeopardy. Each vocabulary strategy supports understanding of the mathematical terms necessary to be successful for problem solving. By intentionally embedding literacy strategies into a math classroom, teachers can expect to support students' learning. With this knowledge, we set out to investigate how incorporating specific vocabulary strategies into direct math instruction influences academic learning gains.

Thea Matter, Victoria D. Pacanowski, Shannon M. Biros

Dr. Eric Werner

69. Variation of Tripodal CMPO-Based Ligand Structure and Liquid-Liquid Extraction Protocol Parameters for Enhanced f-Element Separations

Selective extraction of rare-earth elements (REEs) and the actinide thorium(IV) is essential due to widespread application of these metals in medical imaging, electronics, and alternative energy. Improved methods for f-element metal recovery would also enable increased recycling of these valuable metals from discarded consumer products. Due to the similar chemical properties of the f-elements, their efficient separation is a persisting challenge and requires complex procedures. This study focuses on optimizing a biphasic liquid-liquid extraction method that utilizes carbamoylmethylphosphine oxide (CMPO)-based tripodal ligands with either a tris(3-aminopropyl)amine (TRPN) or a tris(2-aminoethyl)amine (TREN) capping structure which have previously shown preference for select metal ions. Utilization of the TRPN backbone showed selectivity for Th(IV), including its extraction from a mixture of all REEs, while the TREN cap led to enhanced Gd(III) extraction. Extraction protocol conditions including ligand concentration, acid strength, and phase mixing times were varied to examine the effect of these parameters on extraction performance. Additionally, metal extractions were performed using xylenes as the organic solvent within the liquid-liquid protocol as an alternative to dichloromethane in an attempt to transition to hydrocarbon solvents. Furthermore, metal extractions using ligands with the TREN capping scaffold and different alkyl substituents on the CMPO units were conducted to study how metal-ligand complex solubility influences its ability to transition back into and persist within the organic phase. Insights into structure-property relationships and metal extraction efficiency of this ligand system will be discussed.

Thomas Rosenblum, Bridget Klaus

Dr. Willie Leung

70. From Steps to Synapse: A Population level study on How Physical Activity Impacts Cognitive Function in Stroke Survivors

Consistent participation in physical activity (PA) has often been associated with improvement in cognitive function (CF) attributes, such as learning, memory, and thinking. Victims of stroke often report a negative impact on their CF. Research on how PA may affect CF difficulties in stroke victims using large scale population level data is lacking.

The analysis included adults over the age of 18 who self-reported having previously had a stroke from the 2022-2024 National Health Interview Survey. Participants self-rated their difficulty performing CF, such as remembering and concentrating, on a scale of no difficulty, some difficulty, a lot of difficulty, or unable to do at all. Weekly moderate-to-vigorous PA (MVPA) was calculated based on self-reported PA data on the type, intensity, duration, and frequency of PA. Participants were also classified as meeting the recommended aerobic PA guideline of ≥ 150 minutes of MVPA per week. Ordinal logistic regressions were performed to examine the association of each PA variable.

A total of 2254 stroke patients (mean age: 68.65 ± 13.06 ; 53.59% of female) were included in the analysis. Half of the participants (50.40%) reported having no difficulties in CF, 38.84% reported having some difficulty, 10.31% reported having a lot of difficulty, and 0.44% reported unable to do at all. The average MVPA was 146.39 ± 321.25 mins/week with only 25.95% of participants meeting the guideline. For every 30 mins increase in weekly MVPA, participants had significantly lower odds of greater cognitive difficulty (OR = 0.74, 95% CI [0.72, 0.76]). Also, participants meeting the guideline had significantly lower odds of greater cognitive difficulty (OR = 0.57, 95% CI [0.47, 0.68]). Among stroke patients, higher levels of PA are strongly associated with reduced cognitive difficulty. Promoting and incorporating MVPA into rehabilitation plans should be a priority to slow cognitive decline.

Victoria Burghardt

Dr. Rose Hilmo

71. Exploring energetic metrics of NEP Blue Whale reproductive song

Northeastern Pacific (NEP) blue whales are migratory, deep diving and live off the western coast of North America. Their lifestyle makes studying their reproductive behavior in the field prohibitively expensive and time consuming. Passive acoustic monitoring (PAM) is an accessible way to gain behavioral information by listening to their songs. Male NEP blue whales sing as a reproductive display to attract females. Songs with phrases that take more energy to produce indicate a higher quality mate. We hypothesized longer song phrases with lower frequencies will require more energy to produce. To test this, we built a template to detect possible reproductive songs from approximately 70 acoustic instruments off the U.S. west coast. We manually picked out high quality songs and annotated over 450 phrases for note frequencies, count, and rest period durations. Using simple linear regression (SLR) and Welch's ANOVA, we found phrases with lower note frequencies and more notes required longer rest periods. This supports that songs with higher energetic costs have more notes and overall lower frequencies. Using these findings, we will annotate more phrases along the whale's migratory track to find where and when high energy songs are being produced and therefore where reproduction is occurring.

Victoria Vizcaino

Dr. Yvonne Franco

72. Where Student Interest and Comprehension Development Meet

This study examines how a preservice teacher supported comprehension development for a third-grade student through targeted reading instruction. The purpose of this project was to collect and analyze assessment data to guide instruction that would strengthen the learner's ability to understand and build meaning from unfamiliar texts. Research on reading comprehension highlights how effective instruction includes explicit modeling, background knowledge building, and strategy-based learning that helps students make sense of unfamiliar texts (Duke, 2021). Over the course of a 14-week semester, three comprehension strategies were implemented, explicit vocabulary instruction, think-aloud modeling, and guided questioning during text discussions. Findings indicated that the learner became more confident when given opportunities to connect unfamiliar words to her prior knowledge and apply new vocabulary in context. This study is significant to me as a future educator because it demonstrates how research-based comprehension strategies can help young readers strengthen their understanding, engage with higher-level texts, and develop lasting confidence as independent readers.

Alicia Ochoa, Madison Ferrante, Ryann Majka, Vivian Boucher

Dr. Willie Leung

73. Does the Frequency of Vigorous Exercise Change Based on How Much Adults Drink?

Alcohol consumption and vigorous physical activity are two lifestyle behaviors that significantly influence an individual's health outcomes. While overly consuming alcohol can be linked to many chronic diseases, regular vigorous physical activity is known to help lower risks of these diseases and promote a better quality of life. Understanding how these behaviors interact is crucial for understanding behavioral intentions and public health recommendations.

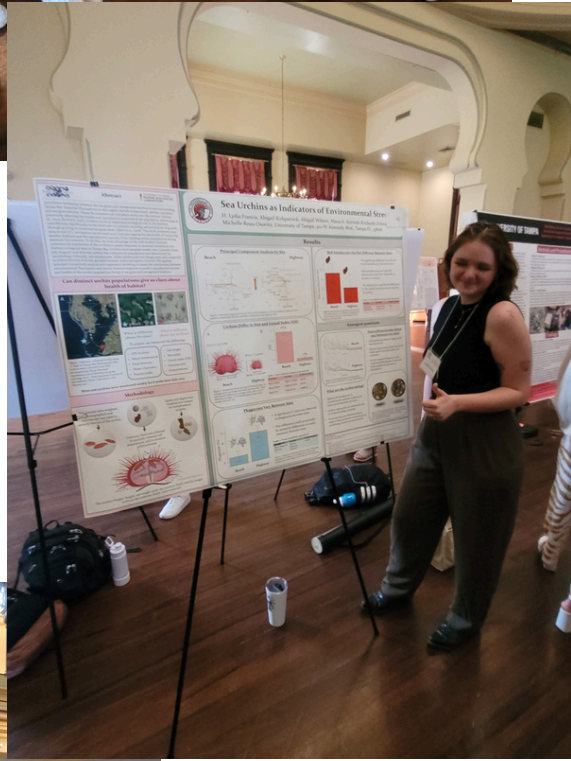
The purpose of this study was to determine among US adults age 18+ if the number of alcoholic drinks per week was associated with the frequency of vigorous physical activity per week.

William Lewis

Dr. Yvonne Franco

74. Building Phonological Awareness: Supporting an English Language Learner Through Intentional Literacy Strategies

This study examined the ways a preservice teacher applied intentional phonological awareness strategies to support an English Language Learner in second grade. Research on phonological awareness shows that when instruction includes visual supports and teacher modeling, learners are better able to internalize sound–symbol relationships (Gillon, 2018). Over the course of a 14-week semester, three key strategies were implemented: word matching, ending sound activities, and syllable segmentation tasks, to target the students’ decoding needs. Findings suggest that the student began including ending sounds when reading, blended words while clapping syllables, and self-corrected letter sounds. As a future teacher, investigating my literacy instruction is meaningful because it helps me better understand how to support emerging readers, particularly English Language Learners, in developing literacy skills in a second language.



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