



Scholarship
& Arts
Symposium
2025



THIEL
COLLEGE

SYMPOSIUM SCHEDULE OVERVIEW

8:30 a.m. – 8:45 a.m.

Welcome and Opening Remarks
Susan Traverso, Ph.D., President
Stamm Hall

8:45 a.m. – 9:00 a.m.

Thiel Choir Students
Brianna Samson, Choir Director
Stamm Hall

9:00 a.m. – 12:00 p.m.

Morning Session
Dietrich Honors Institute Thesis Presentations, *Stamm Hall*
Oral Presentations, *Pedas 125*
Digital Posters, *Pedas 120*
PA Graduate Students' Research Papers, *Common Area*

12:00 p.m. – 1:00 p.m.

Lunch

12:30 p.m. – 1:00 p.m.

Thiel College Brass Quintet
Scott DiTullio, Ed.D. Band Director
HMSC: Thiel Cafe

1:15 p.m. – 1:30 p.m.

Keynote Address

Jay Donis, Ph.D., Assistant Professor of History
“Why Research When AI Does It For Me?”

Stamm Hall

1:30 p.m. – 2:00 p.m.

Student Performances

Stamm Hall

2:00 p.m. – 3:00 p.m.

Afternoon Session

Dietrich Honors Institute Thesis Presentations, *Stamm Hall*

Oral Presentations, *Pedas 120 & Pedas 125*

Poster Presentation, *Common Area*

3:00 p.m. – 4:00 p.m.

Library Research & Writing Awards

Closing Reception

Stamm Hall

MORNING SESSIONS

ROOM: STAMM HALL

Dietrich Honors Institute Thesis Presentations

Moderator: Sheila Gross '10, Ph.D.
DHI Director, Assistant Professor of English

9:00 a.m. – 9:20 a.m.

Faith Zagotti

Pretty Isn't Pretty: The Association Between Social Media, Photo Editing, and Facial Beauty Standards

K. Gallagher, Ph.D., Associate Professor of Psychology

9:20 a.m. – 9:40 a.m.

Jacara Green

Beyond the Comb: How Hair Becomes a Silent Language of the Self

S. Deets, Ph.D., Associate Professor of Psychology

9:40 a.m. – 10:00 a.m.

Madalyn Russell

The Road Ahead: How Artificial Intelligence is Revolutionizing Safety in the Trucking Industry

A. Reinsel, Ph.D., DHI Associate Director, Professor of Environmental Science

10:00 a.m. – 10:20 a.m.

Jordan Castona

Uncontrolled Power of AI: Why Business Ethics Can't Keep Up

A. Giannini, MBA, Professor of Business Administration & Accounting

10:20 a.m. – 10:40 a.m.

BREAK

Moderator: Sean Oros '15, M.A.

Lecturer of English

10:40 a.m. – 11:00 a.m.

Amya Oliver

Oink Oink to Man: Analyzing the Religious, Ethical, and Social Dimensions of Pig Xenotransplantation

M. Morgan, Ph.D., Professor of Philosophy

11:00 a.m. – 11:20 a.m.

Evan Kosenina

The Invisible Few: Shrinking the Funding Gap for Rare Diseases to Improve Patient Outcomes

C. Morgan, Ph.D., Assistant Professor of Chemistry

11:20 a.m. – 11:40 a.m.

Joshua Ickes

Healthcare and Burnout: An Epidemic

C. Sutton, Ph.D., Professor of Sociology and Criminal Justice

11:40 a.m. – 12:00 p.m.

Alaina Harpst

Overcoming Uncertainty in Nursing Education

A. Franley, M.Div., Lecturer of Religion

ROOM: PEDAS 125

Oral Presentations

Moderator: Allan Hunchuk, Ph.D.

Professor of Sociology & Criminal Justice

9:00 a.m. – 9:20 a.m.

David Gonzalez

Understanding Transnational Crime: Challenges and Responses

A. Hunchuk, Ph.D., Professor of Sociology and Criminal Justice

9:20 a.m. – 9:40 a.m.

Sydney Linhart

Unmasking Evil: The Role of Nature and Nurture in Serial Killers

A. Hunchuk, Ph.D., Professor of Sociology and Criminal Justice

9:40 a.m. – 10:00 a.m.

Jacob Walsh

The SVU Effect: How the Portrayal of Sexually Based Offenses Can Cause Misperceptions of the Criminal Justice System

A. Hunchuk, Ph.D., Professor of Sociology and Criminal Justice

10:00 a.m. – 10:20 a.m.

Tyler Roddy

Breaking the Bias: How Sexism Affects Female Police Officers and What Can Be Done

A. Hunchuk, Ph.D., Professor of Sociology and Criminal Justice

10:20 a.m. – 10:40 a.m.

Jason Walsh II

How the Dice Roll: Gambling in Society

A. Hunchuk, Ph.D., Professor of Sociology and Criminal Justice

ROOM: PEDAS 120

Digital Posters

Moderator: Eric Matthews, Ph.D.

Associate Professor of Political Science

9:00 a.m. – 9:07 a.m.

Kylie Heid

Protestant Evangelicalism and Religiosity: How Religious Beliefs and Practices Influence Public Policy Initiatives and Support

E. Matthews, Ph.D., Associate Professor of Political Science

9:07 a.m. – 9:14 a.m.

Zachary Johns

Dimensions of Religiosity Among Protestants and Support for Immigration

E. Matthews, Ph.D., Associate Professor of Political Science

9:14 a.m. – 9:21 a.m.

Kaylie Peacock

The Role of Echo-Chambers in the Radicalization of Individuals to Join Terrorist Cells

E. Matthews, Ph.D., Associate Professor of Political Science

9:21 a.m. – 9:28 a.m.

Ethan J. Narby

The effect of drug use on the deviant behavior of teenagers and young adults
J.M. Hanneman, Ph.D., Professor of Sociology and Criminal Justice

9:28 a.m. – 9:35 a.m.

Tristan Kloss

Exploring the relationship between family and drug use: how family structure impacts drug habits

J. M. Hanneman, Ph.D., Professor of Sociology and Criminal Justice

9:35 a.m. – 9:42 a.m.

Madison N. Varano

Does having a stay-at-home parent vs. working parent affect a child's academic performance

J. M. Hanneman, Ph.D., Professor of Sociology and Criminal Justice

9:42 a.m. – 9:49 a.m.

BREAK

Moderator: Mary O'Donnell, Ph.D.

Assistant Professor of Biology

9:49 a.m. – 9:56 a.m.

Nathanial Lucas

How does caffeine affect collegiate athletes?

G. Kingston, Ed.D., Assistant Professor of Exercise Science

9:56 a.m. – 10:03 a.m.

David Fourman

Timing for the Best Fuel Economy for Men's College Lacrosse Athletes

G. Kingston, Ed.D., Assistant Professor of Exercise Science

10:03 a.m. – 10:10 a.m.

Adrianna Rossi & Briney Stilinovich

Collection and Amplification of Bacteriophages

M. O'Donnell, Ph.D., Assistant Professor of Biology &

J. Broderick, Ph.D., Assistant Professor of Biology

10:10 a.m. – 10:17 a.m.

Meghan Columbus and Amya Oliver

Phages: Phailure and Success

*M. O'Donnell, Ph.D., Assistant Professor of Biology &
J. Broderick, Ph.D., Assistant Professor of Biology*

10:17 a.m. – 10:24 a.m.

Triston W. Barr, Dorian J. Briggs, Meghan M. Columbus, Karigan T. Hager, Daisy E. Jenness, Amya D. Oliver, Adrianna M. Rossi, Briney A. Stilinovich

An Annotation Journey in the EAI Cluster: Mapping the Genes of JeriBeth

*M. O'Donnell, Ph.D., Assistant Professor of Biology &
J. Broderick, Ph.D., Assistant Professor of Biology*

10:24 a.m. – 10:31 a.m.

Triston Barr and Dorian Briggs

Genome Annotation of the Bacteriophage JeriBeth

*M. O'Donnell, Ph.D., Assistant Professor of Biology &
J. Broderick, Ph.D., Assistant Professor of Biology*

10:31 a.m. – 10:38 a.m.

Karigan Hager and Daisy Jenness

SonicCup's Second Chance: Re-Amplification of a Novel Bacteriophage

*M. O'Donnell, Ph.D., Assistant Professor of Biology &
J. Broderick, Ph.D., Assistant Professor of Biology*

10:38 a.m. – 10:45 a.m.

BREAK

Moderator: Neil Lax, Ph.D.

Associate Professor of Neuroscience

10:45 a.m. – 10:52 a.m.

Maven Allen, Riley Smith, and Jordan Wilhoit

Immunohistochemistry Staining and Visualization of Metabotropic Glutamate Receptor 4 in a Mouse Brain

N. Lax, Ph.D., Associate Professor of Neuroscience

10:52 a.m. – 10:59 a.m.

Preston Bello, Emily Eutsey, Sydney Hare, and Laura Wallace
The Immunohistochemistry of Slicing Mouse Brains, the 5-HT_{1A} Serotonin Receptor Saga!
N. Lax, Ph.D., Associate Professor of Neuroscience

10:59 a.m. – 11:06 a.m.

Imogen deBlois, Giovanni Elinsky, Kierra Smalling, and Logan Smith
Using Immunohistochemistry to Visualize the Dopamine Receptors in Mouse Brains
N. Lax, Ph.D., Associate Professor of Neuroscience

11:06 a.m. – 11:13 a.m.

Emily Gilmore, Kiley Matters, Mia McConnell, and Abigail Yavorsky
Exploring Serotonin Receptor Expression in Mouse Brains Using Immunohistochemistry
N. Lax, Ph.D., Associate Professor of Neuroscience

11:13 a.m. – 11:20 a.m.

Aidrianna Green, Ronald LaCamera Jr., Denis LHeureux, and Fiona Shaffer
Immunohistochemical Analysis to Investigate the Expression of Dopamine Receptor 2 in Mice Brain Tissue Slices
N. Lax, Ph.D., Associate Professor of Neuroscience

11:20 a.m. – 11:27 a.m.

Jade Mazzoni, Caitlin Stephens, Emma Yurick, and Emmalea Zummo
Investigating the Expression of Glutamate Receptors Using Immunohistochemistry
N. Lax, Ph.D., Associate Professor of Neuroscience

11:27 a.m. – 11:34 a.m.

Kaya VanTassel
Box-Breathing Meditation and Its Impact on Stress and Eating Behavior in College
N. Lax, Ph.D., Associate Professor of Neuroscience

ROOM: PEDAS COMMON AREA

Poster Gallery Exhibit & Presentations

PA Graduate Students' Research Papers

Research Mentor: Kristel Gallagher, Ph.D.

Associate Professor of Psychology

11:00 a.m. – 12:00 p.m.

The Association Between Exercise Facility Use, Troubled Sleep, and Mental Health Diagnoses Among Young Adults in the United States

Caitlin Augustine, PA-S, Peyton Eckenrode, PA-S, and Julianna Sloan, PA-S

The Association Between IUD Use and Feelings of Depression in Women in the United States

Abby Bernhardt, PA-S, Grace Jones, PA-S, and Ryan Harcourt, PA-S

The Association Between Incarceration and STI Rates and Drug Use in Adults in the United States

Chloe Herrmann, PA-S, Alex Steele, PA-S, and Gabbi Geinzer, PA-S

The Association Between Uninterrupted Sleep and Life Enjoyment in Adults Aged 24 to 34 in the United States

Mustafa Hosseini, PA-S, Alex Kampo, PA-S, and Benjamin Byers, PA-S

The Association Between Income, Gender, and Alcohol Abuse in Adults in the United States

Leah Jensen, PA-S, Hanna Mueller, PA-S, and Steven Smith, PA-S

The Association Between the Number of Sexual Partners and Overall General Health of Adults in the United States

Hannah Jones, PA-S and Ashley Chambers, PA-S

The Association Between Timing of Sugar Intake and Expected Highest Education Level in Males and Females in the United States

Jasmine Le, PA-S and Lauren McCleary, PA-S

The Association Between Trouble Staying Asleep and Amount of Vigorous Physical Activity in Adults in the United States

Charlotte Lister, PA-S and Carli Orcutt, PA-S

The Association Between Marijuana Use and Mental Health in Adults Ages 18-49 in the United States

Alycia Lynch, PA-S, Anna Paul, PA-S, and Victoria Young, PA-S

The Association Between Hobbies, Blood Pressure, and Alcohol Consumption in Adults in the United States

Connor McInnis, PA-S and Randall Miller, PA-S

The Association Between Fast Food Consumption and Sleep in Young Adults in the United States

Renee Meuschke, PA-S and Alyssa Rocha, PA-S

The Association Between Education and Alcohol Use in Men and Women in the United States

Ruben Perez, PA-S and Mitchel Williams, PA-S

The Association Between Cardiovascular Disease Diagnosis and Age of Felony Conviction

Safa Piracha, PA-S, Patima Blagmon, PA-S, and Sarah Ghazi, PA-S

The Association Between Depression and Perception of Health in Oral Contraception Use in the United States

Ashlynn Randolph, PA-S, Karina Rogers, PA-S, and Lydia Webb, PA-S

The Association Between Higher Levels of Education, Depression, and Anxiety Among Adults in the United States

Devin Thomas, PA-S and Jacob Smith, PA-S

The Association Between Marijuana Use and Trouble Sleeping in Males and Females in the United States

Gabrielle Younes, PA-S and Nazifa Yar, PA-S

AFTERNOON SESSIONS

ROOM: STAMM HALL

Dietrich Honors Institute Thesis Presentations

Moderator: Anna Reinsel, Ph.D.

DHI Associate Director, Professor of Environmental Science

2:00 p.m. – 2:20 p.m.

Hannah Stoughton

The Human Touch: Examining the Human Ability to Differentiate Between Human-Generated Poetry and Artificial-Intelligence-Generated Poetry

S. Oros, M.A., Lecturer of English

2:20 p.m. – 2:40 p.m.

Kaitlynn Wolffe

A Chance to Relax: The Role of Libraries as Third Places and its Application Toward the Langenheim Memorial Library

K. Carlson, Ph.D., Associate Professor of Languages

2:40 p.m. – 3:00 p.m.

Cynthia Grace Honeycutt

Magic Beyond the Screen: A Collection of Original Fairy Tales

S. Gross, Ph.D., DHI Director, Assistant Professor of English

ROOM: PEDAS 125

Oral Presentations

Moderator: Greg Kingston, Ed.D.

Assistant Professor of Exercise Science

2:00 p.m. – 2:20 p.m.

Bethany Brodock

Play that song again: A pilot study on the efficacy of MIT in video format

S. Lewis, Ph.D., CCC-SLP, Adjunct Professor of Speech-Language Pathology

2:20 p.m. – 2:40 p.m.

Ryan Campbell

Pre-workout Supplements - Effective or a Waste of Money?

K. Brzoza-Lewis, Ph.D., Assistant Professor of Biology

2:40 p.m. – 3:00 p.m.

Amya Oliver

Tailoring Pig Organs: Alpha-Gal Elimination, PERV Knockout, and Growth Hormone Inhibition for Human Transplantation

K. Brzoza-Lewis, Ph.D., Assistant Professor of Biology

ROOM: PEDAS 120

Oral Presentations

Moderator: Jennifer Broderick, Ph.D.

Assistant Professor of Biology

2:00 p.m. – 2:20 p.m.

Alexa Kantner

Exploring the Link Between Perceived Stress and Pain Tolerance in College Students

J. Broderick, Ph.D., Assistant Professor of Biology

2:20 p.m. – 2:40 p.m.

Emily Reed

The Science of Working Dogs: Genetics of the Behavior in Specialized Roles

J. Broderick, Ph.D., Assistant Professor of Biology

2:40 p.m. – 3:00 p.m.

Joseph King

The Therapeutic Effect of Bacteriophage on *Mycobacterium smegmatis*

M. O'Donnell, Ph.D., Assistant Professor of Biology

ROOM: PEDAS COMMON AREA

Poster Gallery Exhibit & Presentations

Research Mentor: Emily Erb, Ph.D.

Assistant Professor of Exercise Science

Kylee Jordan

Exercise and Cognition

Marissa Gulnac

Exercise Habits, Supplementation, and Body Dysmorphic Disorder

Mackenzie Burke

Exercise Habits, Gym Settings, and Supplement Use

DIETRICH HONORS INSTITUTE

THESIS PRESENTATIONS

Pretty Isn't Pretty: The Association Between Social Media, Photo Editing, and Facial Beauty Standards

Faith Zagotti

K. Gallagher, Ph.D., Associate Professor of Psychology

What do we find “pretty” in relation to social media and photo editing use? Multiple studies in the field of psychology have shown that social media and photo editing can affect peoples’ perceptions of themselves. In a 2023 study by Ozimek et al., it was shown that higher levels of social media and photo editing use correlated to higher physical appearance comparisons along with body dissatisfaction. Another study by Othman et al. (2021) anonymously surveyed plastic surgery patients on their use of photo editing apps in correlation to their pursuit of plastic surgery, finding an increased usage. While there have been numerous studies investigating the effect of social media and photo editing on body image, there is little research done regarding facial beauty. Therefore, this thesis sought to answer the question: “How are social media use and photo editing correlated to facial beauty standards?”. Previous research in this topical area was used to develop a survey to answer this thesis question. The survey included a social media activity questionnaire, a photo editing scale, and a physical appearance scale. Additionally, the survey included twelve facial images that were edited to various extents using artificial intelligence, a social media-based editing tool, and a photo editing program. Participants were asked to rate the facial beauty of each photo. In total, 174 participants fully completed the survey. The results showed a significant correlation between social media use and physical appearance comparisons. Additionally, there was a significant correlation between photo editing use and physical appearance comparisons. Finally, the perception of facial beauty differed across editing techniques and interacted with the gender and age of the person in the photo.

Beyond the Comb: How Hair Becomes a Silent Language of the Self

Jacara Green

S. Deets, Ph.D., Associate Professor of Psychology

After conducting research, it became clear that hair plays a significant role in shaping individual identity. A survey was conducted to examine how individuals perceive their hair and how societal expectations impact their self-esteem, with a focus on whether race and gender influence how individuals view their worth. Results showed no significant correlation between race or gender and self-esteem but instead revealed that many individuals feel self-conscious when their hair does not align with societal norms. This research provides a deeper understanding of the relationship between race, cultural standards, and self-image. It highlights the need for increased awareness of these cultural standards and promotes kindness and self-acceptance.

The Road Ahead: How Artificial Intelligence is Revolutionizing Safety in the Trucking Industry

Madalyn Russell

A. Reinsel, Ph.D., DHI Associate Director, Professor of Environmental Science

Artificial Intelligence (AI) is becoming a tool used in the Occupational Safety and Health (OSH) field. The goal of this field is to prevent injuries by providing and maintaining a safe and healthy environment for all employees. There have been advancements in AI technologies being implemented in the OSH field as a whole by monitoring workers' health, monitoring workplace hazards, monitoring workers' behaviors, training, and AI technology to help prevent injury. The trucking industry has also begun implementing AI into their industry. These include ways to help with vehicle maintenance, highway driving, and loading and unloading trucks. In this thesis I give recommendations of new ways to potentially implement artificial intelligence to provide OSH support in the trucking industry based on ideas being utilized in other industries

Uncontrolled Power of AI: Why Business Ethics Can't Keep Up

Jordan Castona

A. Giannini, MBA, Professor of Business Administration & Accounting

AI is being used more and more in the business world and is having a huge impact. But there have been some concerns which led to my research question that I want to answer being, Is AI in Business Ethical in Today's Business World Yet? In my intro I break down the different problems that are coming up such as not understanding AI in general or the algorithms incorporated into it, AI needs set rules and regulations, AI bias needs figured out, and how ethics connects to AI. In the body of my paper I am looking into how businesses can navigate these problems and sets of rules and regulations that will help AI be used in business ethically. From my findings I have found that AI in business is not yet ethical. But it can be if some changes are implemented as well as if businesses get a better understanding of the use of AI. It is going to be a powerful tool for businesses to use in the future, it just needs to be investigated a little bit more before it can be ethically used in business.

Oink Oink to Man: Analyzing the Religious, Ethical, and Social Dimensions of Pig Xenotransplantation

Amya Oliver

M. Morgan, Ph.D., Professor of Philosophy

Recently, in the medical field, there has been a focus on implanting genetically modified pig organs into humans. This development is in response to the organ shortage for human-to-human transplants. In March of 2024, surgeons successfully implanted a pig kidney into a man diagnosed with end-stage kidney disease (ESKD). Although this was a breakthrough in science and medicine, it raised many questions. The main concern is whether this procedure is medically ethical. Additionally, the genetic modification of pigs and the harvesting of their organs raise concerns about animal cruelty. Three categories of concern lend themselves to analysis: social questions, religious objections, and the question of animal rights. These issues are examined with a blend of Kantian and utilitarian ethical theories.

The Invisible Few: Shrinking the Funding Gap for Rare Diseases to Improve Patient Outcomes

Evan Kosenina

C. Morgan, Ph.D., Assistant Professor of Chemistry

Rare diseases, though individually uncommon, collectively affect millions of people worldwide placing a significant emotional, physical, and financial burden on patients and their families. Many patients as well as the families feel stressed, overwhelmed, and isolated due to the lack of public awareness, limited treatment options, and insufficient support systems. Despite these challenges, stark disparities even within rare diseases exist causing the unfortunate families and patients to have even less hope. Conditions like Amyotrophic Lateral Sclerosis (ALS) receive far more funding compared to others such as Myasthenia Gravis (MG), where the drastic gap in funding is driven by public awareness, advocacy strength, and research prioritization. This study offers a multi-step approach to try to combat the problem and support underfunded diseases, which collectively impact a substantial portion of the global population. By increasing public awareness through targeted campaigns, strengthening advocacy organizations, and promoting collaborative research efforts, we can improve the visibility of rare conditions and ensure a fairer distribution of resources. The goal is to create a system where all rare disease patients, regardless of their condition, have access to the same quality of treatment, research advancements, and hope for the future.

Healthcare and Burnout: An Epidemic

Joshua Ickes

C. Sutton, Ph.D., Professor of Sociology and Criminal Justice

Healthcare workers are subjected to increased demand, poor staffing, poor patient outcomes, and increased levels of stress. The combination of these issues can lead to mental and physical exhaustion, better known as burnout. Patients can see negative effects on their health if burnout is present in healthcare workers. The purpose of this thesis is to provide knowledge on the issue of burnout, while simultaneously providing a plan to prevent these occurrences in hospital settings. To understand this issue further, healthcare workers' testimonies and secondary sources were consulted to determine the causes of burnout in hospitals. Using the information provided from these sources, a plan was derived to provide cost-effective employee therapy and safer environments for both patients and healthcare workers. The goal of this plan is to lessen the occurrences and impacts of burnout for employees in the hospital setting.

Overcoming Uncertainty in Nursing Education

Alaina Harpst

A. Franley, M.Div., Lecturer of Religion

A Bachelor of Science in Nursing (BSN) degree is often viewed as a demanding and all-encompassing major, where balancing academics with extracurriculars is unmanageable...or so I was told. My experience at Thiel College defied these expectations. I immersed myself in athletics, Greek Life, and leadership positions while maintaining a strong academic performance. As a student in the Dietrich Honors Institute, I read *The Last Lecture*, by Randy Pausch and Jeffrey Zaslow. In his lecture,

Pausch, who was faced with terminal cancer, shared his reflections on life, the lessons he learned, and the importance of pursuing one's passions. The book inspired me to reflect on why I chose my career path and how I wanted to remember my college years. This reflection became the catalyst for creating my own "last lecture," which ultimately took form through memoir. My way of saying thank you, and goodbye, to my time at Thiel College.

In my memoir, I cover personal growth, lessons, and challenges I experienced as a nursing student actively involved across campus. Writing allowed me to highlight not only the struggles nursing students endure but also the importance of finding balance amid overwhelming academic and clinical expectations. Much like Pausch, I wanted to leave a meaningful message; one that emphasized the importance of balance while living (college) life to the fullest. At Thiel College, nursing students do not have to choose between community and academic excellence.

The Human Touch: Examining the Human Ability to Differentiate Between Human-Generated Poetry and Artificial-Intelligence-Generated Poetry

Hannah Stoughton

S. Oros, M.A., Lecturer of English

In recent years, digital creation has become a growing field within the humanities. With this advancement, as well as Artificial Intelligence (A.I.) becoming easily accessible and a common tool used in digital media, there has been increasing pressure to understand the relationship between literature and A.I., particularly how authorship and creativity have been affected. With the growth of this relationship, scholars have been asking numerous questions to understand the extent to which A.I. impacts these disciplines. As an emerging scholar in my field, I asked the question, "How does the implementation of AI affect the recognition of human creation within art and literature?" In a survey composed of eight sets of poems, respondents were asked to differentiate between the human-generated and artificial-intelligence-generated poem for each set. Through the analysis of the results of this survey, as well as synthesizing literature regarding the disciplines, it has become increasingly evident that the average internet browser is unable to differentiate between the different kinds of poetry. This has necessitated a redefinition of authorship to include Content Replicative Authorship as a new form of being an author as well as implementing a definition of creativity that situates A.I. as a non-creative author of literature to give A.I. a space and purpose within the field in an effort to preserve the value of the human touch.

A Chance to Relax: The Role of Libraries as Third Places and its Application Toward the Langenheim Memorial Library

Kaitlynn Wolffe

K. Carlson, Ph.D., Associate Professor of Languages

The concept of third places, as introduced by sociologist Ray Oldenburg, refers to social environments distinct from home (first place) and work/school (second place) that foster community interaction, engagement, and belonging. Libraries, particularly academic libraries, have increasingly been recognized as essential third places that support students' academic, social, and emotional well-being. This study explores the role of Thiel College's Langenheim Memorial Library as a third place within the campus

community. Through a combination of survey responses and interviews with students, faculty, and librarians, this research examines how the library functions as a social and intellectual hub, the factors contributing to its effectiveness as a third place, and areas for potential enhancement. Preliminary findings suggest that students value the library as a quiet retreat for research but desire renovations, more resources, and extended hours. The results of this study aim to contribute to discussions on academic library design and policy, emphasizing the importance of libraries in fostering community and student engagement.

Magic Beyond the Screen: A Collection of Original Fairy Tales

Cynthia Grace Honeycutt

S. Gross, Ph.D., DHI Director, Assistant Professor of English

Fairy tales are one of the oldest mediums of storytelling, convey universal messages that resonate with generation after generation of readers. These stories have inspired, given hope to its readers, and created wonder even in the bleakest of situations. While the old fairy tales have enchanted us for generations, new fairy tales informed by contemporary issues such as technological dependency, loss, and disenchantment, as well as traditional fairy tale elements, can help to re-enchant our perspectives. This anthology focuses on the question of whether new fairy tales informed by enchantment theory and using contemporary elements can be used to re-enchant modern audiences. In the preface, it explores why fairy tales are needed in our technology-dependent world and how new fairy tales can help re-position our perspective and inspire change through a modified version of Enchantment Theory. I argue that re-enchantment can be done in a more direct manner through new tales that intertwine classic fairy tale tradition with modern issues and elements. In response to my claim, I wrote four original fairy tales that are directly informed by contemporary issues, such as media bombardment, technological dependence, loss, and disenchantment with everyday life. “Mr. Gloustcher,” “Doomscroll,” “Evergreen,” and “The Ground World” each follow the fairy tale tradition and have elements of the classics but are focused on contemporary issues and settings. In reading these tales, my hope is that the readers are left with a sense of wonder that inspires them, making them more aware of their own situation, and taking steps towards positive change.

ORAL PRESENTATIONS

Understanding Transnational Crime: Challenges and Responses

David Gonzalez

A. Hunchuk, Ph.D., Professor of Sociology & Criminal Justice

Transnational crime has become an increasingly complex and pervasive phenomenon in the 21st century, posing significant challenges to global security and governance. This abstract provides an overview of transnational crime, examines its various manifestations, and analyzes the factors contributing to its growth. The study delves into the impact of transnational crime on societies, economies, and international relations, highlighting the need for coordinated responses at the national and international levels. Furthermore, it explores the role of law enforcement agencies, international organizations, and legal frameworks in combating transnational crime. By shedding light on this critical issue, this capstone

project aims to contribute to a deeper understanding of transnational crime and the development of effective strategies to address it.

Unmasking Evil: The Role of Nature and Nurture in Serial Killers

Sydney Linhart

A. Hunchuk, Ph.D., Professor of Sociology & Criminal Justice

The question of whether criminal behavior is a result of nature or nurture is one that has been asked for many years, specifically when looking into the working mind of a serial killer. This paper will dive into the complex interplay between nature and nurture in the psychology of serial killers, examining whether their criminal behavior is predominantly influenced by genetic predispositions or environmental factors. Through a review of current psychological theories, case studies, and research, this paper will explore the contributions of biological factors such as neurologic anomalies and genetic predispositions alongside environmental influences including childhood trauma, socioeconomic conditions, and familial relationships. It will highlight the importance of understanding how these elements interact to shape criminal behavior, proposing that serial killing is likely the result of both inherited traits and life experiences. By analyzing real-life cases and research data, this paper will aim to provide a perspective on the nature versus nurture debate that suggests that while there may be inherent psychological traits that predispose individuals to violent behavior, the environment in which they inhabit also plays a crucial role in the development and manifestation of these traits.

The SVU Effect: How the Portrayal of Sexually Based Offenses Can Cause Misperceptions of the Criminal Justice System

Jacob Walsh

A. Hunchuk, Ph.D., Professor of Sociology & Criminal Justice

This research paper will discuss and explain how crime television conveys the functions of the criminal justice system. Specifically, this paper will focus on the television show Law and Order: Special Victims Unit (SVU) and how sex crimes, policing, and the courts are conveyed. Along with television dissection, the way SVU impacts the public perception of sex crimes, and the criminal justice system will be discussed. The topic of the program's portrayal of the justice system is essential because it can affect public opinion/and or perception of the subject positively or negatively. The portrayal can lead to people not trusting the police or withholding investigatory information, or it can cause people to feel more comfortable speaking out against abuse. The subject provides the opportunity to take a closer look at how media can shift perspectives. To do so, a critical reaction, synthesized by prior research, my knowledge of the criminal justice system, and many hours spent watching SVU, was done to personally react to how SVU portrays the criminal justice system and how it can affect viewers' perceptions. Overall, I aim to delve into how Law and Order: Special Victims Unit affects the public's perception/awareness of the criminal justice system and sex crimes.

Breaking the Bias: How Sexism Affects Female Police Officers and What Can Be Done

Tyler Roddy

A. Hunchuk, Ph.D., Professor of Sociology & Criminal Justice

This paper explores sexism in the police force, focusing on the unfair treatment of female officers based on gender. This can show up in various ways, like discrimination in hiring, unequal chances for promotion, and a workplace culture that tends to favor men. Because policing is a male-dominated profession, women often find it harder to succeed and advance in their careers. Many also face challenges like harassment, being left out of important opportunities, and not having mentors to guide them. Reducing sexism is essential for improving the well-being and job satisfaction of female officers, which can lead to better retention and a more diverse workforce. Sexism also weakens the police force by diminishing female representation and damaging public trust, especially in cases involving gender. This paper will look at how sexism affects female officers personally and professionally, and explore ways to create a fairer, more inclusive workplace.

How the Dice Roll: Gambling in Society

Jason Walsh II

A. Hunchuk, Ph.D., Professor of Sociology & Criminal Justice

This paper will examine gambling in society today. Over the past 20-25 years gambling has been on the rise in society. The reason for this is the availability of gambling, such as casinos, sports books, and electronic forms. For example, sports betting just became legal in Pennsylvania in 2017 and has become a phenomenon in the state. Aspects that will be examined within the topic are social and cultural influences, gambling as a form of consumption, gambling and technology, gambling and social control, gambling and work, and gambling and gender. This paper will examine these aspects and draw conclusions about the phenomenon of gambling in society today.

Play that song again: A pilot study on the efficacy of MIT in video format

Bethany Brodock

S. Lewis, Ph.D., CCC-SLP, Adjunct Professor of Speech-Language Pathology

The purpose of this study is to develop and investigate the efficacy of an online format for a well-researched treatment method for aphasia, melodic intonation therapy (MIT; Alberts et al., 1973). The population of people with aphasia (PWA) may not be able to readily access MIT for treatment of their aphasia, so it is essential to keep accessibility in mind for PWA. Participants in this study are graduate SLP students at Thiel College who have minimal experience with MIT, although they are familiar with aphasia treatments in general. The primary investigator in this study filmed MIT videos which can be independently rated by the participants. A video recording of participants interacting with the videos was scored by the primary investigator, and a post-trial survey for both feedback and ease of use was provided as well. Results show that the graduate SLP students were able to navigate between each relevant video as intended, as well as following MIT procedure. The survey also revealed similar results, with the students reporting that the videos were easy to follow, with the experience being reported as generally positive. It appears that this format of MIT has promise in being used as a treatment for PWA and should be

further investigated in the relevant population in more depth in the future. Although the program is in a preliminary stage, it shows promise to be easy to interact with for patients and may provide PWA a much-needed resource for improving their communication.

Pre-workout Supplements - Effective or a Waste of Money?

Ryan Campbell

K. Brzoza-Lewis, Ph.D., Assistant Professor of Biology

A systematic review was conducted on recent studies on the acute effects of pre-workout supplements in trained males and females. Physiological markers including differences in strength output in weight bearing exercises and testimonial feelings of energy and alertness were assessed to establish baseline levels. Pre-workout supplements were then administered to individuals and their performance was subsequently examined. The experiments found no significant improvements in strength output through eccentric and concentric forces after taking the supplement. However, testimonial reports suggested a slight increase in energy and focus with the supplementation, suggesting that caffeine alone is sufficient for improving exercise performance.

Tailoring Pig Organs: Alpha-Gal Elimination, PERV Knockout, and Growth Hormone Inhibition for Human Transplantation

Amya Oliver

K. Brzoza-Lewis, Ph.D., Assistant Professor of Biology

Xenotransplantation is the act of transferring tissue from one species to another. In March 2024, the first pig kidney was transplanted into a human patient who was suffering from end stage kidney disease (ESKD). To utilize this xenotransplant approach, donor pigs were genetically modified to more closely mimic a human kidney. The current study investigates three genetic modifications made to the donor pigs in order to increase the likelihood of a successful porcine kidney transplant into a human recipient and reduce the chance for organ rejection. Specifically addressed are how genetic modifications of the alpha-gal gene, growth factor inhibition, and porcine endogenous retroviruses (PERVs) were achieved.

Exploring the Link Between Perceived Stress and Pain Tolerance in College Students

Alexa Kantner

J. Broderick, Ph.D., Assistant Professor of Biology

For many years, there has been a debate on whether men or women have a higher pain tolerance. Experiments have been done with the usage of nicotine, social impact, and other varying factors, but a clear answer of pain tolerance has yet to be discovered. Stress is also variable between college students and oftentimes fluctuates throughout the semester due to changing circumstances. This study will examine the backgrounds of stress and pain tolerance, exploring scientific literature on its influencing factors. The aim of this study is to see if men or women, in general, have a higher pain tolerance and if stress can influence pain tolerance. Pain is an experience of discomfort or distress due to illness or

an injury, with pain tolerance being different for every person. For this study, data was obtained from undergraduate students participating in Anatomy and Physiology I and Anatomy and Physiology II labs. Participants took a modified version of the Perceived Stress Scale (PSS) to gauge stress levels at the time of each experiment. To measure pain tolerance, students completed the Cold Pressor Test (CPT). I hypothesize that women will have a higher pain tolerance than men, and that stress will cause a lower pain tolerance.

The Science of Working Dogs: Genetics of the Behavior in Specialized Roles

Emily Reed

J. Broderick, Ph.D., Assistant Professor of Biology

This project explores the genetic and neurological foundations of working dog behavior, focusing on key traits such as predatory drive, owner-directed aggression and trainability. Working dog breeds have been selectively bred for centuries to perform specialized tasks that assist humans, including herding, guarding, hunting, and search-and-rescue (scent). Selective breeding has resulted in distinct genetic adaptations that differentiate working dogs from companion breeds, influencing their stamina, cognitive abilities, and bonding instincts. Livestock guardian dogs exhibit strong protective behaviors with minimal predatory drive, while herding dogs utilize modified predatory sequences for controlled livestock movement. Hunting dogs display varied genetic traits tailored to retrieving, pointing, or scent tracking, with scent hounds possessing enhanced olfactory capabilities linked to specialized brain structures. Key genetic markers that are discussed in this research show how behaviors such as guarding, herding, and scent detection are driven by genetics across working breeds. Understanding these genetic and neurological influences is essential for effective training and management of working dog breeds, ensuring their continued success in critical roles across their given environments.

The Therapeutic Effect of Bacteriophage on Mycobacterium smegmatis

Joseph King

M. O'Donnell, Ph.D., Assistant Professor of Biology

Bacteria belonging to Mycobacterium family have significant implications for human health and demonstrate increasing resistance to antibiotics. Bacteriophages are viruses commonly found in soil that can kill bacteria cells. As such, bacteriophages may serve as a useful therapeutic for resistant Mycobacterium species. This study investigates the therapeutic effect of 5 bacteriophages on the species Mycobacterium smegmatis. A bacterial lawn was prepared using M. smegmatis which was then used to perform a spot test with 5 different species of bacteriophages previously isolated in Spring of 2023. Phage buffer was also included as a negative control. After three days of observations, all five bacteriophage species were incapable of lysing the Mycobacterium species. These results suggest that the species of phages that were used were ineffective against Mycobacterium species. Further research is needed to determine the range of bacterial species these bacteriophages can infect, and to further identify bacteriophages that can target Mycobacterium species. This work will help further our understanding of bacterial infections which have a vast impact on human health.

DIGITAL POSTERS

Protestant Evangelicalism and Religiosity: How Religious Beliefs and Practices Influence Public Policy Initiatives and Support

Kylie Heid

E. Matthews, Ph.D., Associate Professor of Political Science

This research explores the relationship between an individual's religious beliefs and practices and their support for the morning after pill as a form of contraception. Using a Binary Regression Analysis form found on the Politics and Religion Survey, Pew Center for the People and the Press, this research measures the effects of religious practices and theological beliefs on public policy issues. Preliminary data indicates that Protestant evangelicals should be treated not as a monolith but as a mosaic in matters related to politics.

Dimensions of Religiosity Among Protestants and Support for Immigration

Zachary Johns

E. Matthews, Ph.D., Associate Professor of Political Science

What factors shape how Protestant evangelicals approach the question of immigration? On the one hand, the Bible, and Christian tradition, have a lot to say about loving the stranger and caring for the foreigner. There is a universality within the Christian faith that ostensibly cuts across tribe and nation. Indeed, a strong Christian case can be made for extending a radical hospitality for permeable borders, and for a compassionate approach to immigration. And yet, some Protestant evangelicals those who claim to hold the Bible in highest regards are more opposed to immigration reform, and have more negative views about immigrants, than any other religious demographic. This research explores the role religious practices and ideology among Protestant evangelicals influences their support for immigration policies in the United States.

The Role of Echo-Chambers in the Radicalization of Individuals to Join Terrorist Cells

Kaylie Peacock

E. Matthews, Ph.D., Associate Professor of Political Science

In an age when information can be easily accessed online, it is vital that society prepares to create countermeasures against misinformation. A lack of understanding and preparation allows echo chambers to fester and metastasize across social media websites for malicious vested interests, including terrorist activities. This paper aims to investigate Internet echo chamber culture and its effect on information disorder, hate speech and violent radicalization, especially among right-wing terrorist organizations. Using a qualitative approach, this research focus on content analysis to identify cues that may lead to radicalization.

The effect of drug use on the deviant behavior of teenagers and young adults

Ethan J. Narby

J.M. Hanneman, Ph.D., Professor of Sociology & Criminal Justice

Drug usage among young adults and teenagers has increased, which is a serious worry in today's culture. Teenagers and young adults use drugs for a variety of reasons as they deal with the difficulties of growing up, including curiosity, peer pressure, and stress management. In order to better understand how drug use affects young people's behavior, this study will look at how various substances affect emotions, social interactions, and academic achievement. The purpose of this study is to raise awareness of the negative effects of drug and alcohol use on individuals by investigating the causes of drug use and its repercussions. Additionally, more effective counseling and therapy can be used to address the problem of drug use among teenagers and young adults if the reason for deviant behavior is better recognized. The 2019 National Survey on Drug Use and Health (NSDUH) was used to analyze how the use of drugs and alcohol affects certain types of deviant behavior in teenagers and young adults. The NSDUH uses cluster sampling to gather the data within the survey. It was hypothesized that there will be a positive correlation between drug use and deviant behavior in young adults, meaning that higher levels of drug use are associated with an increased likelihood of behaving in a way that deviates from societal norms and expectations.

Exploring the relationship between family and drug use: how family structure impacts drug habits

Tristan Kloss

J. M. Hanneman, Ph.D., Professor of Sociology & Criminal Justice

This project is an exploratory dive into the relationship between drug use and family structure. The study aims to understand whether variations in family structure affect drug use patterns within different demographic groups. On the other hand, the study also examines how drug use influences family composition, focusing on whether individuals who report drug usage also report differences in their family structure. The study will use data from the 2018 General Social Survey, which has a wide range of variables that relate to variables such as personal drug use, socio-economic factors, and family composition. The study will use data analysis to explore the relationships between each variable to determine the relationships between each factor and addresses questions about how family structures might mitigate or contribute to drug use and whether drug use has an impact on family composition. The project contributes to a broad understanding of how social factors influence substance use and family life.

Does having a stay-at-home parent vs. working parent affect a child's academic performance

Madison N. Varano

J. M. Hanneman, Ph.D., Professor of Sociology & Criminal Justice

This research explores the potential impact of stay-at-home versus working parents on a child's academic performance and the overall experience for educational success. The academic outcomes of children are influenced by parental structure, with stay-at-home parents' children being provided with a more direct structure, while working parents may provide greater financial resources, but these effects vary based on different factors. The issue in this research is the assumption that the parents' work status

is the only thing that affects a child's academic career. Research in this area can help support families, ensuring that all children have the opportunities and resources that they need to succeed academically, regardless of their parents' work choices.

How does caffeine affect collegiate athletes?

Nathanial Lucas

G. Kingston, Ed.D., Assistant Professor of Exercise Science

Caffeine is a legal performance enhancer that stimulates the brain and skeletal system. It is a natural stimulant that is found in different products such as coffee, tea, and energy drinks. Caffeine affects people in different ways, such as increased alertness throughout the day, improved cognitive functions, and can be used as a weight management tool. 73% of people drink coffee every day, and 36% of people drink three to five cups per day. Just like anything, though, caffeine has negative side effects. Caffeine can be addicting once your brain and your body become dependent on it.

The recommended dosage of caffeine is 3-6 milligrams per kilogram of bodyweight per day. In one study, 74% of elite athletes used caffeine before their aerobic event. The purpose of this study was to explore the effects of caffeine on Division III collegiate athletes, including positive and negative effects.

The testing sample used was the Thiel College Baseball team. In baseball, as in all sports, reaction time is crucial for the success of an athlete. The athletes recorded how much caffeine they intake and what specific method to intake the caffeine. Then, players tested their reaction time before and after they drank the recommended amount of caffeine. The results of this test will show how drinking caffeine affects athletes in specific aspects of their sport.

Timing for the Best Fuel Economy for Men's College Lacrosse Athletes

David Fourman

G. Kingston, Ed.D., Assistant Professor of Exercise Science

This study examined the timing and composition of meals consumed by 12 Division III men's college lacrosse players over the course of a week to compare their dietary habits to recommended guidelines. The paper discusses key topics including the background of lacrosse, the energy systems utilized during play, and the importance of nutrition timing in relation to athletic performance. Additionally, the role of macronutrients and amino acids in fueling and recovering from lacrosse-specific activities is explored. The goal of this research is to highlight the significance of proper nutrition for college lacrosse athletes and provide insights for optimizing dietary habits. A key finding from this study is that while athletes are aware of nutritional principles, challenges arise in consistently applying this knowledge. Difficulties in adhering to a structured nutrition plan, as well as gaps in understanding specific nutrient needs, hinder athletes' ability to maintain optimal dietary intake.

Collection and Amplification of Bacteriophages

Adrianna Rossi & Briney Stilinovich

M. O'Donnell, Ph.D., Assistant Professor of Biology & J. Broderick, Ph.D., Assistant Professor of Biology

Bacteriophages are viruses that infect bacteria and are found abundantly in nature. In this study, phages were collected from soil samples taken throughout Thiel College's campus using the SEA-PHAGES (Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science) protocol. Four phages were isolated from the spring 2023 semester and were purified and amplified for potential genome sequencing at the University of Pittsburgh. These phages may exhibit either lytic or lysogenic traits. Lytic phages rapidly destroy bacterial hosts, while lysogenic phages integrate into the bacterial genome, remaining dormant until induced. Phages have been widely used in scientific research for their potential in treating bacterial infections and studying bacterial behavior. The successful collection and amplification of these phages demonstrate their availability and usefulness in various applications. This poster will go over the initial stages of collecting a phage and will walk through the steps until DNA extraction.

Phages: Phailure and Success

Meghan Columbus and Amya Oliver

M. O'Donnell, Ph.D., Assistant Professor of Biology & J. Broderick, Ph.D., Assistant Professor of Biology

Bacteriophages are viruses that infect specific bacterial hosts, which have been used in medicine for treatment or therapy against antimicrobial resistance. In this study, phages were isolated from environmental samples around Thiel College campus and the Pittsburgh area. There were two sample collections, however, due to temperatures between -2.7 to 1.1 degrees Celsius, minimal phages were found. The original possible phage may not have been found because it was not specific to the bacterial host we were using (*M. Foliorum*). Since the phages collected did not exceed the isolation step, a phage from a previous year was used. The phage NCZ was used for the amplification and DNA extraction process. Results suggest that phage isolation requires specific conditions for extraction and isolation. This presentation covers the trials and tribulations of isolation and amplification of DNA, and the steps taken to overcome them.

An Annotation Journey in the EAI Cluster: Mapping the Genes of JeriBeth

Triston W. Barr, Dorian J. Briggs, Meghan M. Columbus, Karigan T. Hager, Daisy E. Jenness, Amya D. Oliver, Adrianna M. Rossi, Briney A. Stilinovich

M. O'Donnell, Ph.D., Assistant Professor of Biology & J. Broderick, Ph.D., Assistant Professor of Biology

Bacteriophages (Phages) are a crucial part of scientific exploration and discovery. Despite therapeutic properties, much of phage biology remains unknown. Genetic sequencing and annotation of these phages can further benefit medical and scientific research. Following isolation from an enriched soil sample, phage JeriBeth was sequenced and annotated using bioinformatic tools such as PECAAN, Phamerator, Starterator, BLAST, HHPRED, and TMHMM. JeriBeth was determined to be part of the EAI cluster, a large family of phage. During annotation, JeriBeth was found to have 63 genes with 27 forward genes

and 36 reverse genes. Additional work to characterize the function of these genes, and the genomes of similar phages, will contribute to our understanding of other phages in the EA1 cluster.

Genome Annotation of the Bacteriophage JeriBeth

Triston Barr and Dorian Briggs

M. O'Donnell, Ph.D., Assistant Professor of Biology & J. Broderick, Ph.D., Assistant Professor of Biology

Bacteriophages (phages) are the most numerous organisms on the earth and are important due to possessing the ability to infect and kill bacterial hosts. Topsoil samples were taken to isolate and amplify phage samples for genomic sequencing. JeriBeth is an individual phage isolated in 2023 which was discovered using an enriched sample. It consists of 63 genes and was sequenced at the University of Pittsburgh Bacteriophage Institute. This phage was annotated using different bioinformatic programs. For this project, a subset of genes (genes 20-36) was annotated to better understand genome structure and gene function. Proficient knowledge of the genomic content of this particular bacteriophage can help develop novel clinical treatments to combat antibiotic resistance in bacterial infections.

SonicCup's Second Chance: Re-Amplification of a Novel Bacteriophage

Karigan Hager and Daisy Jenness

M. O'Donnell, Ph.D., Assistant Professor of Biology & J. Broderick, Ph.D., Assistant Professor of Biology

Bacteriophages (phages) are viruses that infect and replicate inside bacterial cells and are crucial to the future of medical and environmental research. The scope of this study was to isolate and annotate a novel bacteriophage. This research started in the spring of 2023 and continued throughout this semester. In order to extract DNA, phages must first be collected, isolated, purified, and amplified. Despite DNA extraction, SonicCup was not isolated at the highest concentration of DNA in Spring of 2023 and therefore was not sequenced at the University of Pittsburgh. This semester, SonicCup was re-amplified to extract and isolate DNA in higher concentrations. Re-amplification resulted in high titer lysates with adequate DNA concentration for analysis. Further study of Sonic Cup will allow us to expand the number of phages in the phage database and potentially serve scientists in future medical and environmental research and advancements.

Immunohistochemistry Staining and Visualization of Metabotropic Glutamate Receptor 4 in a Mouse Brain

Maven Allen, Riley Smith and Jordan Wilhoit

N. Lax, Ph.D., Associate Professor of Neuroscience

Using immunohistochemistry (IHC), regions with metabotropic glutamate receptor 4 (mGluR₄) in a mouse brain were stained and visualized with light microscopy. mGluR₄ responds to the amino acid neurotransmitter glutamate; these receptors play an essential role in regulation of neurotransmitter release. To determine brain sections for analysis, research was conducted to find structures that include mGluR₄; the amygdala, hippocampus, posterior commissure, and thalamus were hypothesized to contain mGluR₄ within the sections provided. Staining involved the use of highly specific antibodies that bind

to these glutamate receptors. Furthermore, a later added chromogen underwent an enzymatic reaction to change color, allowing visualization of the receptors. The results of staining were acceptable, showing regions of brain tissue with high concentrations of mGluR₄; concentration was based upon the darkness of stain. The selected brain slices showed evidence of the presence of mGluR₄.

The Immunohistochemistry of Slicing Mouse Brains, the 5-HT_{1A} Serotonin Receptor Saga!

Preston Bello, Emily Eutsey, Sydney Hare and Laura Wallace

N. Lax, Ph.D., Associate Professor of Neuroscience

Immunohistochemistry (IHC) uses antibodies to visualize proteins in cells. We stained the 5-HT_{1A} Serotonin Receptor in brain regions, and this receptor regulates mood, anxiety, cognition, learning, memory, and stress response. After extensive research, we predicted that the 5-HT_{1A} serotonin receptor will be found in four brain regions including the inferior colliculus, auditory cortex, hippocampus, and tegmentum, specifically, the substantia nigra. We utilized the chromogenic method of IHC staining for the brain slices and used secondary antibodies that were attached to an enzyme to produce a visible product when substrate was added. Using light microscopy, a positive stain appeared in only three regions: inferior colliculus, auditory cortex, and the substantia nigra. This experiment focused on using immunohistochemistry to cut, stain, and visualize proteins in nervous system tissues, offering insight into brain function.

Using Immunohistochemistry to Visualize the Dopamine Receptors in Mouse Brains

Imogen deBlois, Giovanni Elinsky, Kierra Smalling, and Logan Smith

N. Lax, Ph.D., Associate Professor of Neuroscience

In the field of neuroscience, the imaging technique, immunohistochemistry is used to visualize the location of specific proteins within cells and anatomical regions. This staining technique can be used to view proteins in the brain such as the D₂R dopamine receptor, which is responsible for motor control and motor pathways. Based on a literature search, it was predicted that the brain regions that would contain the D₂R receptors would be the hypothalamus, hippocampus (CA-1), amygdala (CeA), and the stratum dorsal region (STRd). Using the chromogenic method of IHC and an antibody specific to D₂R, mouse brain slices were obtained for staining. Using light microscopy, it was found that the four brain regions were positive for the D₂R receptor. It was able to be concluded that the results matched the hypothesis of the four brain regions in which D₂R was present in.

Exploring Serotonin Receptor Expression in Mouse Brains Using Immunohistochemistry

Emily Gilmore, Kiley Matters, Mia McConnell, and Abbigail Yavorsky

N. Lax, Ph.D., Associate Professor of Neuroscience

Serotonin is an essential neurotransmitter for mood control, body temperature, and sleep. The focus of this work was to use immunohistochemistry (IHC) to visualize the distribution of the serotonin receptor subtype 1A in mouse brain tissue. The mouse brain atlas was utilized to research in what brain regions these serotonin receptors are commonly found. We stained the slices of the mouse brain targeting the hypothalamus, thalamus, hippocampus, and cerebellum. Antibodies and chromogenic

staining were used to bind to the receptors in these brain regions in order to visualize where the serotonin receptors are located. Using the chromogenic method of immunohistochemistry (IHC) staining and light microscopy, we found that the cerebellum had the most serotonin staining visible, but staining was visible in all regions. From what we saw in the results, our hypothesis has been shown to be true. Through the staining of the brain, it showed that the serotonin receptors were the most active especially in the brain regions of the hypothalamus, thalamus, hippocampus, and cerebellum.

Immunohistochemical Analysis to Investigate the Expression of Dopamine Receptor 2 in Mice Brain Tissue Slices

Aidrianna Green, Ronald LaCamera Jr., Denis LHeureux, and Fiona Shaffer

N. Lax, Ph.D., Associate Professor of Neuroscience

Immunohistochemistry, also known as IHC, combines three different techniques to visualize proteins in tissues, this will use antibodies to bind to specific tissues in mouse brain slices. The protein receptor used in this study was Dopamine Receptor 2 (D2R) which is a metabotropic receptor that activates G-proteins and other signaling molecules when neurotransmitters bind to the receptor. These signaling molecules indirectly change membrane potential, causing slow, long-lasting changes in neurons. This influenced our hypothesis that was based on a literature search, which we predicted that our neurotransmitter antibody (D2R) would be found in the hypothalamus, basil ganglia, hippocampus, and tegmentum. In this study we used chromogenic staining and the D2R antibody specifically for slices from mice brain. Based on our earlier hypothesis, we found that using light microscopy, there were proteins for dopamine present in three of the four brain regions. The positive brain regions include the hypothalamus, hippocampus, and basil ganglia, however, there was no protein found in the tegmentum. In conclusion, we found that by utilizing primary and secondary antibody labeling techniques, we successfully visualized the location of D2R, providing insight into its distribution within brain structures.

Investigating the Expression of Glutamate Receptors Using Immunohistochemistry

Jade Mazzoni, Caitlin Stephens, Emma Yurick, and Emmalea Zummo

N. Lax, Ph.D., Associate Professor of Neuroscience

Immunohistochemistry (IHC) is the science of studying the expression of certain receptors in varying different brain regions using a combination of scientific techniques including staining to visualize and image proteins and tissues in the brain. Based on a literature search, it was predicted that the glutamate receptor mGluR4 would be found in the amygdala, hippocampus, basal ganglia, and the cerebral cortex. Using the chromogenic method of IHC staining, which utilized an antibody specific for mGluR4, slices from the mouse brain that were obtained, and tissues were targeted and stained. Then, using light microscopy, it was found that the glutamate receptor was present in all four predicted brain regions. This experiment was done to successfully determine if glutamate would be found in specific regions of the brain that control different functions of the mouse.

Box-Breathing Meditation and Its Impact on Stress and Eating Behavior in College

Kaya VanTassel

N. Lax, Ph.D., Associate Professor of Neuroscience

Eating behavior is a complex aspect of human health influenced by stress, which is particularly prevalent among college students. Research suggests that stress alters decision-making and increases the consumption of high-sugar and high-caffeine foods. While previous studies have linked stress to poor dietary choices, less is known about the impact of stress management techniques, such as box-breathing meditation, on eating habits. Box-breathing is found to cause less perceived anxiety and stress. This study investigates whether practicing box-breathing meditation influences stress levels and dietary choices in college students. Participants will be divided into two groups: one practicing meditation three times per week and a control group with no intervention. Stress levels will be assessed using a perceived stress scale, and participants will track their sugar and caffeine intake over three weeks. It was hypothesized that the meditation group will report lower stress levels and reduced consumption of high-sugar and high-caffeine foods compared to the non-meditation group. This could propose an easy and accessible stress relieving technique for students to control both stress and aspects of eating. It was shown that stress levels did not have a significant correlation, but that consumption of high-sugar foods decreased over the three-week period in the meditation group.

POSTER GALLERY EXHIBIT

& PRESENTATIONS

The Association Between Exercise Facility Use, Troubled Sleep, and Mental Health Diagnoses Among Young Adults in the United States

Caitlin Augustine, PA-S, Peyton Eckenrode, PA-S, and Julianna Sloan, PA-S

K. Gallagher, Ph.D., Associate Professor of Psychology

Sleep, mental health, and exercise are essential components of overall wellness, each contributing significantly to both physical and mental well-being. Exercise has been shown to reduce the risk of numerous health issues, particularly cardiovascular diseases. However, the impact of exercise habits on mental health, especially in young adults, is still not fully understood. Similarly, sleep plays a crucial role in improving brain neuroplasticity and supporting stress-regulation pathways, which are vital for mental health. This study aims to explore how sleep, exercise facility usage, and mental health diagnoses are interrelated in young adults, offering new insights into their combined effects on wellness. We examined our research question using secondary data analysis of Wave IV of the National Longitudinal Study of Adolescent to Adult Health dataset. Data was obtained from a nationally representative sample of 5,114 individuals living in all 50 US states in 2008. A self-administered survey was utilized to collect the data. The survey measures we used in our study included a question about exercise facility use, troubled sleep, and mental health diagnoses. The results of our analysis showed that there was a significant association between decreased exercise facility use and more mental health diagnoses. Participants who also reported having troubled sleep and no exercise facility use were more likely to have mental health diagnoses. A moderation analysis showed that troubled sleep did affect this association. Our

findings support the idea that there is a higher occurrence of mental health diagnoses among those who do not use exercise facilities and have trouble falling asleep. This can help clinicians understand that recommending exercise facilities to patients with depression or anxiety may have a greater effect on those who have symptoms of trouble sleeping as opposed to those who do not have trouble sleeping.

The Association Between IUD Use and Feelings of Depression in Women in the United States

Abby Bernhardt, PA-S, Grace Jones, PA-S, and Ryan Harcourt, PA-S

K. Gallagher, Ph.D., Associate Professor of Psychology

Women of all ages use various forms of birth control to manage menstrual and hormonal issues. Over time, new contraceptive methods have emerged including pills, patches, intrauterine devices (IUDs), vaginal rings, injections, and implants. However, all methods come with potential side effects that impact daily life. Research on these contraceptives often lacks comprehensive data on side effects and whether certain methods offer better outcomes with fewer adverse effects. Our study focused on the research question – “Is Intrauterine Device (IUD) usage, as a form of hormonal birth control, associated with depression and anxiety in women of all ages?” We examined our research question using a secondary data analysis of Wave IV of the National Longitudinal Study of Adolescent to Adult Health dataset. Data was obtained from a nationally representative sample of 5,114 individuals living in all 50 U.S. states in 2008. A self-administered survey was utilized to collect the data. Our analysis focused on respondents aged 25-34, 54% of whom were female. The survey measures we used in our study included questions about types of birth control used in the past 12 months, personal emotions, and mental health. Our findings showed no significant association between IUD use and depression. However, as hypothesized, individuals who reported IUD use were more likely to feel depressed than those who did not. A moderation analysis showed that an anxiety diagnosis did not significantly moderate this association. Clinically, this suggests that patients concerned about depression can consider IUDs a reliable contraceptive choice.

The Association Between Incarceration and STI Rates and Drug Use in Adults in the United States

Chloe Herrmann, PA-S, Alex Steele, PA-S, and Gabbi Geinzer, PA-S

K. Gallagher, Ph.D., Associate Professor of Psychology

Individuals who are currently or have been incarcerated tend to have higher rates of contracting a sexually transmitted infection compared to those who have not been incarcerated. Our research has highlighted a connection between drug use, incarceration, and the increased likelihood of being diagnosed with an STI. Our study specifically aimed to explore our research question: Is incarceration associated with a higher prevalence of STIs in adults? We examined our research question using The National Longitudinal Study from Adolescent to Adult Health dataset. 5,114 individuals from all 50 states participated in this data analysis in 2008. Data was collected by self-administered surveys completed by each participant. Measures included incarceration, drug use, and sexually transmitted infection diagnoses. Drug use measures included marijuana, cocaine, crystal meth, LSD, PCP, ecstasy, heroin, mushrooms, and inhalants. Sexually transmitted infections measured included chlamydia, gonorrhea, trichomoniasis, syphilis, and herpes simplex virus. Our analyses demonstrated a significant

association between being incarcerated and STI rates. Participants who were incarcerated were more likely to be diagnosed with a sexually transmitted infection compared to those who had never been incarcerated. Drug use proved to be a moderator in the association between being incarcerated and being diagnosed with a sexually transmitted infection. This moderation showed that participants who used drugs and were incarcerated were more likely to be diagnosed with a sexually transmitted infection when compared to those who did not use drugs and were incarcerated. The research we conducted was important in assessing the need for increased sexual education and safe sex practices within incarceration facilities in the United States. It is evident that PAs and other healthcare professionals need to pay more attention to informing incarcerated individuals about the prevalence of STIs and how they can take protective measures against them.

The Association Between Uninterrupted Sleep and Life Enjoyment in Adults Aged 24 to 34 in the United States

Mustafa Hosseini, PA-S, Alex Kampo, PA-S, and Benjamin Byers, PA-S

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This study examines the relationship between uninterrupted sleep and life enjoyment in U.S. adults aged 24 to 34, utilizing data from the National Longitudinal Study of Adolescent to Adult Health (Add Health). Analyzing responses from over 5,000 participants, the research found that individuals who reported fewer sleep disturbances were significantly more likely to experience greater life enjoyment. A chi-square test confirmed a strong association between staying asleep throughout the night and life satisfaction ($p = 0.0001$), with no significant differences based on biological sex. These findings emphasize the importance of sleep quality in overall well-being and mental health, reinforcing the need for healthcare professionals to address sleep disturbances as part of holistic patient care.

The Association Between Income, Gender, and Alcohol Abuse in Adults in the United States

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Alcohol consumption is a risk factor for many harmful physiological conditions, including damage to neurological, cardiovascular, and gastrointestinal systems. Though nearly 63% of Americans reported alcohol use in the past twelve months in 2023, many are unaware of how drinking alcohol in excess can result in alcohol use disorder (AUD). Certain risk factors have been shown to increase one's risk of developing AUD over time. For this study, salary was examined in comparison to rates of alcohol use disorder in the United States; it was hypothesized that Americans with a household income of less than \$50,000 annually would display higher incidence of alcohol use of up to 12 drinks/monthly than those who make more than \$50,000. Data from the 2019 National Survey of Drug Use and Health was analyzed, comparing findings between not only income but also gender. Univariate analysis showed that there was no statistically significant difference in findings between annual income and abusing 12 or more alcoholic drinks in the last 30 days, proving that income was not a significant determining factor in alcohol abuse rates in the US alone. When examining further and incorporating gender, it showed that men in the "poverty" group making less than \$50,000 yearly were more likely to develop AUD than men

who made higher salaries. Conversely, women who made more than \$50,000 salaries showed a higher risk of developing. The conclusion of this research showed that salary alone does not have a statistically significant link to alcohol use disorder and that there are differences in patterns of alcohol abuse between genders. Thus, the hypothesis was not completely supported. Further research would be necessary to state why there are currently differences between gender, salary, and rates of alcohol use disorder in the United States. Potential explanations for differences in alcohol abuse rates between women and men could include psychosocial factors including pregnancy/motherhood, family/personal history, or underlying mental health histories.

The Association Between the Number of Sexual Partners and Overall General Health of Adults in the United States

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The number of sexual partners increases your risk of developing sexually transmitted infections. Sexually transmitted infections, if left untreated, can have adverse effects on an individual's health. Considering this information, we chose to focus our study on the overall health of individuals in comparison to the number of sexual partners (high vs low) an individual has. The research question "Is overall health (in general) associated with the number of sexual partners a person has?" was created for the comparison. In the study, we examined this research question using a secondary data analysis of Wave IV of the National Longitudinal Study of Adolescent to Adult Health data set. Data was obtained from a nationally representative sample of 15,701 individuals between the ages of 24-34 years old living in all 50 US states in 2008-2009. The survey measures we used in our classification study included a question about overall health in general (good or bad), the number of sexual or romantic partners an individual currently has (1-15 people), and gender as the third variable. The results of our analyses showed that there was no significant association between the number of sexual partners and overall health in adults. Surprisingly, the findings in this study did not support our belief that the more sexual/romantic partners an individual has, the worse their health is overall. A moderation analysis showed that gender did not significantly affect this association. As mentioned previously, our findings did not support a commonly held belief that the more sexual partners an individual has, the overall decline in health that an individual experiences. This is relevant to the clinical setting because patients who are stigmatized as being "dirty" due to the number of sexual partners they have do not have to be concerned about a significant decline in health, and can be focused on safe sex practices and following patient education on prevention of sexually transmitted infections.

The Association Between Timing of Sugar Intake and Expected Highest Education Level in Males and Females in the United States

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Many individuals consume sugar at different times of the day. While diet is known to influence overall health, few studies have examined whether the timing of sugar intake is associated with educational aspirations. Our study focused on the research question: "Is consuming sugar in the morning or afternoon

associated with the highest expected level of education in males and females?” We examined this question using secondary data analysis from Wave IV of the National Longitudinal Study of Adolescent to Adult Health (Add Health). Data was collected in 2008 from a national representative sample of 5,114 individuals aged 24 to 32 through in-home interviews. The measures used in our study included self-reported timing of last sugar intake (AM or PM) and the highest expected level of education. The results of our analyses showed no significant association between sugar intake timing and educational expectations ($\chi^2 = 0.0933$, $p = 0.7600$). This finding was consistent across both male and female respondents. Our findings suggest that while sugar consumption timing does not appear to influence educational aspirations, diet remains an important factor in overall health. This is relevant to the clinical setting because we can focus on individualized nutritional counseling to support and improve the well-being of patients.

The Association Between Trouble Staying Asleep and Amount of Vigorous Physical Activity in Adults in the United States

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K. Gallagher, Ph.D., Associate Professor of Psychology

The amount of sleep an individual gets per night plays a huge role in the overall well-being and health of that individual. Many randomized control trials have shown that low impact exercise throughout the day has a positive impact on sleep, and high impact exercise has not altered nighttime sleep, however, high impact exercise has reduced the amount of REM sleep. Considering this, our study focused on a research question: “Is having difficulty sleeping associated with the amount of vigorous exercise you get as an adult?” We examined our research question by using secondary data analysis of Wave IV of the National Longitudinal Study of Adolescent to Adult Health. Data was obtained from a nationally representative sample of 15,701 individuals living in the United States from 2008-2009. An at home follow-up school-based survey was used to collect this data. The survey measures we used in our study included a question about vigorous exercise in the past 24 hours and difficulty sleeping in the past 7 days. The results of our analysis showed that there was no significant association between vigorous exercising and the difficulty of sleeping classification. However, adults who had not been diagnosed with anxiety and who did not vigorously exercise were more likely to have trouble sleeping. A moderation analysis showed that a diagnosis of anxiety did affect this association. Our findings did not support the belief, from our hypothesis, that high intensity exercise throughout the day does not prevent adults from having difficulty sleeping. In contrast, individuals who were not diagnosed with anxiety and did not exercise have trouble sleeping. This is relevant to the clinical setting because patients who are concerned about trouble sleeping and do not have anxiety, or do not participate in vigorous exercise, can consider trying to exercise throughout the day to help with their sleeping concerns.

The Association Between Marijuana Use and Mental Health in Adults Ages 18-49 in the United States

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K. Gallagher, Ph.D., Associate Professor of Psychology

The mind is one of the most neglected aspects of overall health in the United States. Past data suggest that mental health crises increase the risk of experimenting with and continuing to use substances such

as alcohol, tobacco, and marijuana. Unfortunately, the risks and benefits of marijuana have minimal research. So, we decided to research the association between marijuana use and negative mental health in adults ages 18-49 in the US. The sample was taken from the National Survey on Drug Use and Health (NSDUH) in 2019. We subset the data to include adults ages 18-49 who have used marijuana in the past, creating a total of 24,796 participants. The parameter of negative mental health was measured by averaging symptoms from six individual variables describing symptoms with negative connotations during the last 30 days, then collapsing the mental health variable into two categories based on whether they did or did not experience negative mental health symptoms. The results of our analyses suggest there was not a statistically significant association between marijuana use and negative mental health in the last 30 days. Exploring further, biological sex was found to be an important moderating variable. We found that there is an association between marijuana use and negative mental health symptoms for biological males only. Biological females who used marijuana in the last 30 days were less likely to have symptoms of negative mental health than those who did not. These results spark a discussion about how females versus males may cope with mental health symptoms differently due to societal pressure on men to not express themselves emotionally. As future physician assistants, it is vital to consider our patients' mental health just as intently as physical ailments.

The Association Between Hobbies, Blood Pressure, and Alcohol Consumption in Adults in the United States

Connor McInnis, PA-S and Randall Miller, PA-S

K. Gallagher, Ph.D., Associate Professor of Psychology

Hypertension is one of the most common diagnoses among adults in the United States at 47.7% prevalence for ages 18 and over. In all cases, a major part of the treatment plan includes making lifestyle changes, which involves increasing exercise frequency, modifying diet, and lowering total body weight. Considering these statistics and treatment recommendations, our research focused on these questions – “Are hobbies associated with blood pressure in US adults? Are hobbies associated with blood pressure when moderated by alcohol use in US adults?” We examined these questions through secondary analysis of Wave IV of the National Longitudinal Study of Adolescent to Adult Health (Add Health) dataset. Data was obtained from a nationally representative sample of 5,114 individuals living in all 50 US states in 2008, and a self-administered survey was utilized to collect the data. The survey measures we used in our study included a question about adult blood pressure measurements, participation in common hobbies per week, and alcohol consumption per month. The results showed that there was no statistical significance between blood pressure levels and hobby participation. A moderation analysis showed that alcohol consumption did not affect this association. Our findings did not support the theory that weekly participation in common hobbies can help lower blood pressure levels. On the other hand, there was no evidence that moderate alcohol consumption during these activities significantly increases blood pressure over time. The clinical relevance of this study is to be able to more accurately advise patients on activities that can and cannot help them achieve their lifestyle change goals, while also assuring them that occasional hobbies that involve indulging in alcoholic beverages may not have to be stopped altogether.

The Association Between Fast Food Consumption and Sleep in Young Adults in the United States

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K. Gallagher, Ph.D., Associate Professor of Psychology

Most college-aged individuals are known to consume a lot of fast food during this time of their lives. This is due to a lack of time to cook homemade meals during their studies or the time to visit dining halls during their vigorous schedules. Since fast food is generally bad for you, we hypothesized that individuals who eat fast food on a regular basis are more likely to have sleep problems. Our study focused on reviewing randomized controlled trials to find a correlation with sleep problems associated with fast food intake. Considering what we know about fast food, we focused our research question on “Are individuals who consume more fast food more likely to have sleep complications?” We examined our research question using secondary data analysis from the National Longitudinal Study of Adolescent to Adult Health. Data was obtained from a sample of 5,114 individuals in 2008 ages 24 to 32. A self-administered survey was utilized to collect the data. The survey measures we used in our study included a question about fast food consumption in the past 7 days and reported sleep problems. The results of our analysis did not show a significant association between the consumption of fast food in correlation with sleep problems. We found that individuals who reported having never eaten fast food compared to individuals who reported eating fast food at least once over several days were not significant. The data analysis showed that there was no association between fast food consumption and sleep problems. Our findings did not support our claim that individuals who eat fast food are more likely to have sleep problems. This could be relevant in the PA profession with patient education in adolescents and young adults who are concerned about their sleep patterns and eating habits affecting their sleep quality and quantity.

The Association Between Education and Alcohol Use in Men and Women in the United States

Ruben Perez, PA-S and Mitchel Williams, PA-S
K. Gallagher, Ph.D., Associate Professor of Psychology

Education level has been widely used as a measure of socioeconomic status, with prior research suggesting that individuals from lower socioeconomic backgrounds are more likely to consume alcohol than those who are more educated. Our study investigates the relationship between completed educational levels and alcohol use in men and women in the United States. We hypothesized that individuals with lower educational backgrounds would be more prone to alcohol consumption. Using secondary data from the National Longitudinal Study of Adolescent to Adult Health (Wave IV, 2008-2009), we analyzed a sample of 5,114 adults aged 24 to 34. Education level was measured on participants' highest completed education, while alcohol use was assessed through self-reported drinking frequency over the past 30 days. Our findings revealed a significant association between education level and alcohol use, with individuals who did not complete high school being more likely to consume alcohol more than twice per week over a 30-day period. We stratified, by sex, the association role of education in influencing alcohol consumption patterns, particularly among women, which showed that they were more likely to consume more alcohol per week compared to their male counterparts. Clinically, this research is relevant as it highlights the need for targeted interventions to reduce alcohol-related health risks in populations with lower educational achievement, and that completing higher levels of education

can reduce the likelihood of abusing alcohol in the future.

The Association Between Cardiovascular Disease Diagnosis and Age of Felony Conviction

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K. Gallagher, Ph.D., Associate Professor of Psychology

While much of the existing research on incarcerated populations has centered on psychiatric conditions and substance use disorders, less attention has been given to chronic illnesses like cardiovascular disease (CVD). Socioeconomic factors, such as welfare status, is one of the core contributors to health disparities, yet the impact on CVD development in justice-involved individuals remains unclear. Thus, our study aimed to investigate two research questions: (1) “Is the age of first-time conviction or guilty plea associated with the age of heart disease diagnosis?” (2) “Is welfare status associated with the age of heart disease diagnosis?” We examined our research questions using data from Add Health. Data was obtained from the Add Health code book, Wave IV, which is a nationally representative sample of in-home surveys. The survey measures we used in our study included a question about age of cardiovascular diagnosis, age of admitting guilty to a crime or a felony conviction, and if any welfare was received. Our statistical analysis examined the relationships between these variables using univariate, bivariate, and multivariate models. The results of our analysis showed that there was no significant association between the age of cardiovascular disease diagnosis and age of felony conviction, which was surprising. A moderation analysis showed that receiving welfare also did not affect these factors and resulted in no association. Our findings did not support the belief that those who are imprisoned or low-income would be more susceptible to heart disease at a younger age. This is relevant to the clinical setting because they emphasize the importance of screening for cardiovascular risk factors in underserved and justice-involved populations. Understanding the interactions of incarceration history, socioeconomic status, and CVD can help PAs provide targeted preventive care, advocate for social support resources, and develop personalized health interventions.

The Association Between Depression and Perception of Health in Oral Contraception Use in the United States

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K. Gallagher, Ph.D., Associate Professor of Psychology

Many women around the world use hormonal oral contraception. Clinical studies have shown a link between estrogen levels and depression. However, women with underlying medical conditions may have limited education and information about hormonal oral contraception. Considering this, our study focused on “Is perception of health associated with birth control use in adults?” The data came from the AddHealth codebook. We examined our research question using secondary data analysis of Wave IV of the National Longitudinal Study of Adolescent to Adult Health dataset. Data was obtained from a nationally representative sample of 5,114 individuals living in all 50 US states in 2008. A self-administered survey was utilized to collect the data. The survey measures we used in our study included a question about hormonal oral contraceptive use in the past 12 months, perception of health, and depression diagnosis. The results of our analysis showed that there was a significant association between the use of hormonal oral contraception and the perception of health. Women who were using hormonal oral contraception were more likely to have a poor perception of health. A moderation analysis showed that

depression diagnosis did not affect this association. Our findings show that perception of health and using hormonal oral contraception did not contribute to depression diagnosis. This is relevant in the clinical setting because women who have a poor perception of health and use oral contraception should know that depression does not contribute to their poor perception of health.

The Association Between Higher Levels of Education, Depression, and Anxiety Among Adults in the United States

Devin Thomas, PA-S and Jacob Smith, PA-S

K. Gallagher, Ph.D., Associate Professor of Psychology

Rates of anxiety and depression are currently on the rise in the United States. According to the CDC, in 2019 6% of adults reported having symptoms of anxiety and 7% reported symptoms of depression in the last 2 weeks. According to the literature, individuals who are enrolled in graduate or doctoral programs, specifically health science, physician assistant, and medical students, were found to have higher incidence of anxiety and depression compared to their peers. Considering these findings when combined with our own healthcare employment, our study focused on the research question: “Is a higher level of completed education associated with the diagnosis of depression or anxiety in US adults?” We examined our research question using the National Longitudinal Study of Adolescent to Adult Health (Add Health), using secondary analysis from Wave IV. Data was collected on adults aged 24-32 via in-home follow-up and school-based surveys from 2008-2009, including 5,114 US citizens nationally across 50 states. The survey measures we used in our study included a question about diagnosis of depression, diagnosis of anxiety, and the highest level of education completed. The results of our analyses showed that there was a significant association between a higher level of education and depression, with individuals who have completed a higher level of education being less likely to develop depression than those who did not, differing from our hypothesis. Concerning anxiety, it was found that there was not a significant association between anxiety diagnosis and the level of education. Individuals who completed a bachelor’s degree or higher were equally likely to develop anxiety than those who did not. Gender proved to be a moderating variable in the association between education and anxiety, with a significant association being found when examining females. This remained non-significant for males. Our findings did not support our hypothesis, but they are significant as they can help guide clinicians in their diagnosis and treatment of patients, specifically those who have completed less education. Our findings further showed that education is a protective factor for women concerning anxiety and depression. This is relevant to the clinical setting and our future roles as PAs as we will be aware of the association between education level and the mental illnesses of depression and anxiety.

The Association Between Marijuana Use and Trouble Sleeping in Males and Females in the United States

Gabrielle Younes, PA-S and Nazifa Yar, PA-S

K. Gallagher, Ph.D., Associate Professor of Psychology

Sleep disturbances are becoming increasingly concerning among college students, resulting in them turning to marijuana as a sleep aid. It is a commonly held belief among college students that marijuana use may help with sleep initiation. Knowing this, we wanted to explore if marijuana use was related to

an increase in sleep efficiency and a decrease in difficulty sleeping. Our study focused on the research question – “Is marijuana use on a daily basis associated with difficulty sleeping in males and females?” We examined our research question using secondary data analysis from the Wave IV In-Home Interview codebook (Add Health) from 2008-2009. The data includes 5,114 participants ranging from age 24 to 32 years old from the original cohort in the U.S. in 1995. An in-home-90-minute interview was used to collect the data. The survey measures used in our study included a question about the number of days males and females used marijuana in the past 12 months and if they had difficulty sleeping on any days of the week. The results of our analysis showed an insignificant association between the use of marijuana and hours of sleep and gender. The association remained nonsignificant for males using marijuana and having trouble sleeping. Similar results were seen in females and those who used marijuana were equally as likely to have trouble sleeping than those who have not. Our findings do not support the assumption that marijuana use is associated with trouble sleeping according to a chi square test of independence. These results are relevant to the clinical setting because it has a direct impact on patient care. Many patients rely on self-medicating with marijuana to manage sleep-related issues, which may in turn negatively affect health outcomes. PA’s can effectively convey this information to their patients and in turn decrease their marijuana use.

Exercise and Cognition

Kylee Jordan

E. Erb, Ph.D., Assistant Professor of Exercise Science

Memory, both short-term memory (recalling of information for a short amount of time) and working memory (recalling information from stored memories while using attention and information manipulation), are both vital in responding appropriately and efficiently to the environment. Exercise may improve memory in older adults, but little is known regarding college-aged students. **PURPOSE:** Evaluate how engaging in exercise may change measures of memory in college-aged students.

METHODS: Three students volunteered to complete the present study. All participants completed two memory assessments: The Visual Patterns Test (VPT) and The Sternberg Scanning Test (SST) on two separate days. On one day, participants completed a non-cognitively taxing period (Control) and on the second, an exercise intervention (Exercise). The memory assessments were completed after (Post) Control and Exercise. Results were assessed via average reaction time and accuracy for both memory assessments. Data was analyzed with Excel. **RESULTS:** Reaction time and accuracy for the Visual Patterns Test and Sternberg Scanning Test were faster following Exercise compared to Control.

CONCLUSIONS: Exercise positively impacted memory recall and recognition. Exercise may be a useful tool in improving these measures of memory.

Exercise Habits, Supplementation, and Body Dysmorphic Disorder

Marissa Gulnac

E. Erb, Ph.D., Assistant Professor of Exercise Science

Body dysmorphic disorder has been shown to be affected by supplement use and exercise, as most people exercise to achieve a specific body physique. However, research examining these effects remains limited. **PURPOSE:** The purpose of this study is to examine the relationship between exercise habits,

supplement use, and body dysmorphic disorder. **METHODS:** We plan to recruit 500 participants, ages 18-30, to complete an online survey created on Qualtrics. This survey includes questions regarding the participants' supplement use, exercise habits, and potential symptoms of body dysmorphia (perceptions of health, body shape, and body size). The survey will be disseminated through social media platforms, as well as flyers put up in common areas on a college campus and in fitness related settings. Statistical analysis will include correlations between supplement use and exercise frequency with body dysmorphia symptoms. **RESULTS:** We anticipate that higher levels of supplement use and more frequent exercise will be associated with higher symptoms of body dysmorphia. Additionally, we also expect that women will show more symptoms of body dysmorphia than men. **CONCLUSIONS:** We hope to gain greater understanding of the relationship between supplement use, exercise frequency, and body dysmorphia. Many individuals utilize supplements as a means to reach their health and fitness goals. Additionally, many suffer from body dysmorphia. Potential correlations between the two could increase knowledge pertaining to body dysmorphia and aid in the treatment of associated symptoms.

Exercise Habits, Gym Settings, and Supplement Use

Mackenzie Burke

E. Erb, Ph.D., Assistant Professor of Exercise Science

Individuals choose to engage in exercise on a daily basis, in a variety of locations. Additionally, many choose to consume supplements as a means to assist in reaching their health and fitness goals. However, it is unknown if individuals who work in different gym settings utilize supplements differently. **PURPOSE:** To investigate whether engaging in exercise at different locations influences supplement use and perceived outcomes of supplement use amongst those who regularly engage in exercise, and those who do not. **METHODS:** An online survey was constructed and will be distributed via Qualtrics. Questions pertaining to exercise habits (type, intensity, duration, frequency), exercise location, supplement use (type, dosage, frequency of use), supplement perceptions (perceived benefits and consequences of use), and demographics will be asked. Results will be analyzed with SPSS to assess correlations between exercise habits, location of exercise, supplement use, and perceptions of supplements. By analyzing these variables, we aim to determine if different preferred exercise environments impact the perceived effectiveness of supplement usage while trying to reach personal fitness goals. **RESULTS:** The findings from this research will provide valuable insights for fitness enthusiasts, trainers, and supplement companies. Ultimately, we aim to contribute to a better understanding of how external factors shape the effectiveness of performance enhancing supplements. **CONCLUSIONS:** We hope to better understand how exercise habits and various gym settings may impact supplement use. Additionally, we want to learn more about differences between perceived supplement use outcomes differ amongst those who regularly exercise and those who do not.

Thiel College Brass Quintet

Jacob Hoffman '28 (*Political Science*)
Trumpet

Colton Scales '27 (*Accounting*)
French Horn

Kayden Moroney '28 (*Computer Information Systems*)
Trombone

Riley Smith '26 (*Biochemistry*)
Tuba

Scott DiTullio, Ed.D. (*Band Director*)
Trumpet

Thiel Choir Students

Marley Chapman '26 (*Early Childhood Education/Special Education*)

Nate Robinson

Theater Performances

Tacey Carr '28 (*Psychology*) & George Green '28 (*Criminal Justice Studies*)
Open/Contentless Scene

Charlee May '25 (*Psychology*) & Savanna Welch '25 (*English/Literature*)
Open/Contentless Scene

Christina Newman '25 (*Communications Media*)
Monologue

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