

**2024 INDIANA UNIVERSITY SOUTH BEND
UNDERGRADUATE RESEARCH CONFERENCE
FRIDAY, APRIL 26, 2024**

Conference Program and Abstracts

SCHEDULE

8:00 – 9:00 a.m.	Registration	Education and Arts Building (EA) Atrium
9:00 – 10:15 a.m.	Session I	EA classrooms 1013-1025
10:30 – 11:45 a.m.	Session II	EA classrooms 1013-1025
12:00 – 1:00 p.m.	Lunch	The Grill
1:15 – 2:30 p.m.	Session II	EA classrooms 1013-1025



WELCOME MESSAGE

Welcome to the 2024 Indiana University South Bend Undergraduate Research Conference! Over the years, the URC has grown into a springtime institution on our campus. This year, the call for the URC in 2024 generated over 80 distinct proposals, including the participation of over one hundred students, faculty, staff, and observers. It is wonderful to witness and experience this sincere commitment to the research process on our campus. The URC is one of many outlets for IUSB students to showcase the academic work they complete in their classes or as part of research teams with faculty. The conference serves as a moment to officially recognize the high quality of students' work.

The conference program this year consists of a wide range of exciting research from several disciplines including Biochemistry, Biology, Chemistry, Communication, Criminal Justice, Dental Hygiene, English, Spanish, Film Studies, Physics, Health Sciences, History, and Sustainability. We encourage you all to attend presentations in many disciplines, and hope you will engage with student presenters, peers, and classmates—asking about their research, methods, and findings.

ACKNOWLEDGMENTS

As co-chairs of the conference planning committee, we have many individuals to thank for their time, energy, and hard work to make this event successful. To our fellow URC Planning Committee members: Jenny Deranek, Carlos Lisoni, Stacie Merken and Sydney Beauchap—thank you for your tireless efforts in planning, preparing, and promoting the conference! To Terri Langel and Eileen Villanueva—thank you for all the help and support regarding use of space—we are so grateful. To all the faculty mentors (names in parentheses in this program)—without your mentorship guiding our students, we would not have such a successful conference! We appreciate all your encouragement and hard work! To all the judges and moderators---we greatly appreciate your time and dedication to our students. To Erika Zynda—thank you for your help with budget preparation and assisting in hospitality! To Ryan Weber and WERC—thank you for your quick work printing out posters for our students! We also would like to congratulate and thank all the students participating this year.

We deeply appreciate the enthusiastic support provided by Executive Vice Chancellor for Academic Affairs Dr. Jill Pearson and Chancellor Dr. Susan Elrod, and the efforts of committed IU South Bend instructors and staff. Thank you to Executive Vice Chancellor for Academic Affairs Dr. Jill Pearson for speaking with our students about the importance of research.

Again, this year the conference poster and program cover were designed by an IU South Bend student—Jackson Utterback, a graphic design major, developed the design scheme for 2024. Thank you, Jackson!

No conference is possible without the behind-the-scenes work that often goes unacknowledged in the areas of purchasing, facilities scheduling and setup, food preparation and catering, maintenance, information technology, and many more. Thank you to all those who helped make this conference possible!

We hope you all enjoy the experience!

Sincerely,

Drs. Brett Labbe and AJ Schmitz URC 2024 Co-Chairs

PROFESSIONAL COURTESY

Please be considerate by silencing your cell phone and refraining from entering and leaving session rooms during presentations.

**CONCURRENT PANELS AND POSTER PRESENTATIONS:
SESSION I (9:00 – 10:15 A.M.)
Location: EA classrooms 1013-1021, 1011**

Panel: English, Film Studies and the Liberal Arts (EA 1013)

Moderator: Elaine Roth

Stricken with White Ink: A Native Son Anthology
SHANNON VAIL (Balthaser)

Reflection of Emotion in The Cabinet of Dr. Caligari
MADISON FRAME (Roth)

Within Our Gates Divided
SAHARA MACKEY (Roth)

Panel: Physics (EA 1015)

Moderator: Henry Scott

Water Conductivity: A Physicist's Approach to Studying Water Quality
PHILLIP DERRICKSON (Levine)

Producing an Inexpensive Exhaust Emissions Testing Device
NICHOLAS GOOD (Levine)

Saving Sharks by Blending Physics and Biology
TORI HARTL (Levine)

Panel: An Ensemble of Criminal Justice (EA 1017)

Moderator: Stacie Merken

Tweeting Away Malware: Cybershield
EDWIN GONZALEZ (Merken)

Hate crimes in Hollywood: How Hate Crimes are Portrayed in Fictional Crime TV shows
ARRAM ALMANASEER (Merken)

Misleading and Misunderstood: The portrayal of domestic terrorism in YouTube videos
AIDYN YETTAW (Merken)

Unveiling the Media's Influence on Mental Health Stigma of Mentally Ill Offenders in Prisons: Modified Inductive Qualitative Analysis Using Documentaries
Analysis Using Documentaries
MACKENZE KISER (Merken)

Panel: An Ensemble of Humanities (EA 1023)

Moderator: Tami Martinez

GDPR: Emerging Problems in Data Protection Regulation
TYLER FORREST (Labbe)

The War on Cultures and Its Impact on the United States
DAVID SALEH (Wison)

Race-Based Trauma Induced Social Dominance Orientation: An Exploratory Study
BROOKE RAYBORN (Sullivan)

POSTER PRESENTATIONS
Location: EA Classrooms 1025 and 1021

View the following posters and speak with presenters. Be sure to move through the two rooms in which posters are located!

Dental Education Posters (EA 1025)

The Impact of Social Media within Romantic Relationships
MEGAN BRETSCHNEIDER (Lemanski)

College Students' Mental Health Correlating to their academic performance
ANGIE GIRON (Lemanski)

Why Parents Are Choosing to Be Ant-Vaccine Advocates
KAIRA SIMPSON (Lemanski)

The Impact of Provider Deserts on Health Outcomes and Quality of Care
MEGAN YOUNGMAN (Lemanski)

Mental Health Patterns of Collegiate Student Athletes
NICHOLE VAN ZANT (Lemanski)

The Problematic Vape Product Market and its Effects on Youth
CASSIE MILLER-BYAM (Lemanski)

College Students' Mental Health Correlating to their Academic Performance
ANGIE GIRON (Lemanski)

Fad Diets
IRENE BIESBROUCK (Lemanski)

Mouth Breathing vs. Nose Breathing
ANH TRAN (Lemanski)

The Effect of Social Media on Adolescents' Mental Health
SIDNEY SHEI (Lemanski)

The Factors that Contribute to the Success of First-Generation Low-Income College
ALEJANDRA MONTOYA-RUBALCAVA (Lemanski)

Absent Parents and its Effects on Child Development
OLIVIA ALI (Lemanski)

Dental Education and Social Science Posters (EA 1021)

Connecting the Dots: Exploring the Public's Perception on the Potential Link between
Alzheimer's and Periodontal Disease
HARSIMRAN KAUR (Lemanski)

The Impact of working on College Students Academic Success
ALEXANDRIA SHEBELL (Lemanski)

The Neurobehavioral Impact of Sleep Disturbances in Children with ADHD
CHLOE HARTSOUGH (Lemanski)

Analyzing the Impacts of Different Parenting Styles
KAITLYN RUNYAN (Lemanski)

Mind Matters
NATALIA BOZO (Lemanski)

Little Steps To Big Health
KATALINA GUTIERREZ (Lemanski)

Doll therapy as a Nonpharmacological Intervention for Behavioral and Psychological
Symptoms in Residents with Moderate-Severe Dementia in Skilled Nursing Facilities
CARLY LANDON (Doyle)

Nourishing Minds: Elevating College Students' Perspectives on Healthy, Budget-
Friendly Eating
STEPHANIE HANO, JULIE FELKER, KYLIE RHODES (Lemanski)

Cult Podcast Misconceptions
SAVANNAH DIEZEL (Merken)

**CONCURRENT PANELS AND POSTER PRESENTATIONS:
SESSION II (10:30 – 11:45 A.M.)
Location: EA classrooms 1013-1017, 1010**

Panel: An Ensemble of Criminal Justice & Health Sciences (EA 1015)

Moderator: Stacie Merken

Media Deception of Intimate Partner Violence: Youth Preventative Curriculum
SERENA EDWARDS (Merken)

The Invisible Struggle: Examining the Lives of Incarcerated Mothers
JAELA PATTON (Merken)

Liberty and Justice for All: LGBTQIA2S+ Victimization in the United States
ZOE RAJSKI (Merken)

Speech Sound Disorders within the Special Population of Intellection Disability
MARJORIE HERRMAN (Hatfield)

Speech Sound Disorders in Individuals with Cerebral Palsy
CARLY LANDON (Hatfield)

Posters: An Ensemble of Natural Science (EA 1025)

Moth Diversity 1: Differences in Moth Diversity within Urban Restored vs. Unrestored Habitats
CARLEE MUNSON (Clark)

Moth Diversity 2: Phylogeny and Characteristics of Moth Families
SALEM SLATER (Clark)

Moth Diversity 3: Critical Factors Affecting Lepidopteran Distribution
BRANDON BENTLEY (Clark)

Local Moth Diversity
CARLEE MUSON (Clark)

Effects of CBD and Chemo Therapeutic Drugs on Blood
AUDREY WYRICK, MACEY FISHER (Bobbs)

The Saliva Proteome of Dogs: Variations Within And Between Breeds And Between Species
ANGEL BROWN, GRAYSON BARENDTS (Bobbs)

Acid Tolerance and Resistance to Oxidative Stress in Oral Bifidobacterium and Streptococcus Species
ASHLEY ROJAS ROMERO (Qian)

A Correlation Study of Lead Levels in Contaminated Soil Samples with Source, Home Location, and Age
NIKKI SWEET, MEGAN CONN (Muna)

Engineering a Fluorescent Biosensor for Real-time Monitoring of Ornithine in Bacterial Cultures
ZAHRA ALJUBOORI, MORGAN UNDERDUE (Rizk)

Fusing PhuZ with GFP and mCherry Fluorescence Proteins Using AI Modeling
ZAHRA ALJUBOORI (Rizk)

Comparing Soil Properties and Biodiversity in Pinhook and Howard Park in South Bend, Indiana
EMILY BARRERA (Marr)

Production Sustainability Amongst the Big 3 Hoosier Multinational Automobile Organizations: A Consideration of Whole Life Carbon Emissions
JOON KANG, JOEL JARETT (Tanoos)

LUNCH (12:00 – 1:00 p.m.)

Location: The Grill

Speaker:

*Executive Vice Chancellor for Academic Affairs Dr.
Jill Pearson*

**CONCURRENT PANELS AND POSTER PRESENTATIONS:
SESSION III (1:15 – 2:30 P.M.)
Location: EA Rooms 1013 – 1015, 1010**

Panel: Themes of Educational Solutions for the Hispanic Community (EA 1013)

Moderator: Molly Monroe

DIANA ZEBROSKI, JUSTIN NEILSON, MARITSA ARROYO MORENO (Monroe)

Panel: An Ensemble of History (EA 1015)

Moderator: Neovi Karakatsanis

Darwin, Wallace, Britain, and Evolution
KEVIN PRICE (Spencer)

Combat Carly: A Woman's Fight to Get in the Fight
PHILLIP DERRICKSON (Tetzlaff)

Thomas Jefferson, William Henry Harrison, and Annuities on the American Frontier
ZACHARY DENSMORE (Spencer)

Elkhart one of the most famous cities? Miles Laboratories and C.G.Conn and their
influence over the city with a heart
SARAH HIEBER (Spencer)

Are You With the Government Heart and Soul and All in this War?": The Militarization
of Purdue University during World War I
ADAM BOWLBY (Nashel)

Social Science and Natural Science Posters (EA 1025)

Mass Murders Are Most Often Not Random Acts
KIERSTAN SAUER (Merken)

Media Myths Unveiled: Exploring Indiana's YouTube Landscape on Police Portrayals
ROMAN ROBIC (Merken)

The More you Know: Media Depictions of Sex Offenders on Fictional Crime TV Shows
CARLY HERSICK (Merken)

The Juvenile Superpredator: Juvenile Portrayals in the Media
ASHLEY WAGERS (Merken)

Women with Mental Health and Offending
AMERICA ESPARZA (Merken)

Whispers from the Shadows: Unveiling the Dynamics of Traditional Stalking
SAMUEL SNODGRASS (Merken)

From Words to Actions: Analyzing Mass Shootings Through a Modified Inductive
Qualitative Content Analysis in Documentaries
HANNAH OGLE (Merken)

Cults in the Media: Going Beyond the Religious Veil
ALEAHA ZIOLA (Merken)

Breaking Barriers: Investigating Rape Myths in Fictional Crime TV
JOSELYN CHANON (Merken)

TikTok Tales: Unveiling Hate Crimes in the Digital Age and the Policy of Education on
Prominent Cultures and Religions
HILLARY FLORES (Merken)

Nucleosynthesis in a Seven Solar Mass Star
ZACH GROSHANS (Hinnefeld)

Charge State Efficiency of the ST. GEORGE Recoil Separator
PHILLIP DERRICKSON (Hinnefeld)

Thermal Equilibrium of a Reflecting Telescope
COSMO MASON (Levine)

Dental Education Posters (EA 1021)

Role of Musculoskeletal Health in Dental Hygiene
TYLISSA BECKNER (Roberts)

Kickin' Cavities
ANDRETTE SCOTT (Roberts)

What Oral Hygiene Practice Do First Graders Implement at Home?
ANDRETTE SCOTT (Jones)

The Use of Behavioral Psychology in Food and Drink Advertisements
LIV RAMEY (Roberts)

The Long-Term Effects of Parent Divorce on Adult Offspring's Well-Being
LACIE JONES (Roberts)

Tooth Tutors: An Oral Health Program for 2nd-Graders at Liberty Elementary
CHLOE HARTSOUGH, LACIE JONES, KAITLYN RUNYAN (Roberts)

Bright Beginnings

SIDNEY SHEI, ALLY SHEBELL, KAIRA SIMPSON, IRENE BIESBROUCK,
TYLISSA BECKNER, CASSIE MILLER-BYAM, ANH TRAN (Roberts)

Sweet Smiles

ANGIE GIRON, ALEJANDRA MONTOYA-RUBALCAVA

Better Health Better Smiles

NICHOLE VAN ZANT, JOZIE RAMER, BREEANN BELAKOVICH, KRISTIN
HEISE

Healthy Mothers, Healthy Babies

HARSIMRAN KAUR, OLIVIA ALI, EKACHI EMENIUM, MEG YOUNGMAN,
KAYLEE EBY

Golden Grins: Senior Oral Health Initiative

MEGAN BRETSCHNEIDER, LIV RAMEY

PRESENTATION AND POSTER ABSTRACTS (IN ALPHABETICAL ORDER BY TITLE)

A Correlation Study of Lead Levels in Contaminated Soil Samples with Source, Home Location, and Age.

Nikki Sweet, Megan Con

Lead is a toxic heavy metal that is present in the environment due to human activities, such as an additive in gasoline, lead-based paint, and lead in ammunition and sinkers. The major source of lead contamination is from the use of leaded gasoline and lead-based paint for many decades before it was banned. Although lead is no longer used in paints and gasoline once it has been deposited it moves very little through the soil and can persist for a long time. The legacy of its use is evident in soils along roadways and in the cities. The goal of the present work was to correlate lead levels in soils in several homes with the location, source of the soil whether from the front yard or back yard, and the year the homes were built. Lead from the soil samples was extracted using a modified EPA method 3050B and analyzed using microwave plasma atomic emission spectroscopy at 405.78 nm. The data shows a correlation between the amount of the lead in the soil with home location and age. Homes located in the city show higher amount of lead compared to homes located in the farms or in newly developed areas. In addition, there is also a good correlation between the levels of lead in soil samples collected from the front yard and those obtained from the back yard in homes located in the city, front yard showing slightly higher levels. Results from this work will be presented.

Absent Parents and its Effects on Child Development

Olivia Ali

Many children across the world have unfortunately been raised without the presence of a biological father or mother. This proposal demonstrates a need for understanding and exploring the possible effects that absent parents have on child development. The target population used for this research ranged from the ages of young children to older adults. All participants who partook in the research lived within Elkhart and St. Joseph County, and had either had or currently have an absent mother and/or father figure. Electronic and paper surveys were utilized to collect data in regards to the research topic and 17 total surveys have been collected thus far. The results of the survey have further proven the topic's hypothesis and suggests that absent mother and/or father figures have a negative affect on child development. Many of the surveyees stated that they struggled with self-esteem issues, a sense of self/identity, anxiety, and depression as a result of having an absent parent. This research raises awareness of the personal struggles those face due to having an absent mother and/or father figure, and highlights the negative effects that absent parents have on child development. Also, many of those who had an absent parent during childhood and adolescence still struggle with self-esteem, anxiety, and depression currently – which provides insight to the long-lasting effects of absent parents on individuals as they enter and journey through adulthood.

Acid Tolerance and Resistance to Oxidative Stress in Oral Bifidobacterium and Streptococcus Species

Ashley Rojas Romero

Bifidobacterium is a genus of beneficial bacteria that primarily reside in the human gastrointestinal tract, but some species have also been found in the oral cavity. One such species, Bifidobacterium dentium, has been found not only in the intestines but in dental caries as well. Compared to other narrow-range intestinal bifidobacterial species, B. dentium produced a high level of polyphosphate granule (PolyP) in sucrose, even under reducing conditions. We hypothesize that its PolyP-producing ability could contribute to its resistance to oxidative stress and acidic pH in the oral cavity. This hypothesis was tested in three species: B. dentium, Bifidobacterium longum (intestine-only), and Streptococcus mutans (a common cariogenic pathogen). Culture media were designed to mimic oral cariogenic conditions, such as the use of sucrose (“table sugar”), and calcium phosphate (the major component of tooth enamel). Acid-tolerance and oxidative stress experiments were carried out in these three organisms. Results indicated B. dentium had a higher acid tolerance than B. longum and S. mutans under both PolyP-producing and non-producing conditions. The granule-producing cells of B. dentium and B. longum were also more acid-resistant than the non-granule-producing cells. The two bifidobacterial species also demonstrated a greater resistance to hydrogen peroxide under granule-producing conditions. S. mutans, an aerotolerant species, was the most resistant to hydrogen peroxide. We concluded that the high-level granule production in B. dentium might contribute to its survival in unfavorable environments outside the intestines.

Analyzing the Impacts of Different Parenting Styles

Kaitlyn Runyan

Over the course of the last two semesters, I have conducted research on how parenting styles can influence child development leading into adolescence. As I researched this topic, I found that parenting styles can have several detrimental consequences for children including but not limited to self-esteem issues, influencing aggressive behaviors, mental disorder risks, and internalizing and externalizing behaviors. I obtained this study's information from scholarly peer-reviewed journal articles. In order to try and locate journal articles with long-term data on parenting styles and their impacts on children's outcomes, I contacted Professor Ritchie who has a Ph.D. in developmental psychology and is a psychology professor here on campus at Indiana University South Bend. After contacting Professor Ritchie, I was able to obtain a couple of articles that emphasize some of the long-term associations between parenting styles, specifically corporal punishment and spanking, with the outcomes on children. The purpose of this research was to demonstrate that there is a correlation between parenting styles and their outcomes on children as well as to become more educated and be able to inform others of the long-term consequences of using negative parenting styles.

Are You With the Government Heart and Soul and All in this War?": The Militarization of Purdue University during World War I

Adam Bowlby

In the final months of World War I, the United States government established a program to train college students for specialized roles in the military. As members of the Student Army Training Corps (SATC), all male students in roughly 600 colleges were to participate in military training alongside their regular studies. By examining primary source material left on Purdue's SATC

detachment, a greater insight can be gained into the motivations of trainees in deciding to participate in the program.

Better Health Better Smiles

Nichole Van Zant, Jozie Ramer, BreeAnn Belakovich, Kristin Heise

This project included eight preschool age children at A loving Home Away From Homedaycare. The intent of this project was to educate the preschoolers on proper brushing, flossing, and nutrition. A pre and post test was conducted with questions on nutrition and oral health. Two lesson plans were included to teach the kids the content. The first lesson plan consisted of nutritional information with a coloring activity that consisted of identifying health foods on a coloring sheet. The objective of this lesson plan was by the end of the program, 50% of the preschoolers will be able to identify one fruit and one vegetable from the post test. The second lesson plan consisted of the preschoolers being informed of brushing and flossing techniques followed by them being able to practice and demonstrate. This was done by the flossing activity with involved the use of mega blocks, yarn, and playdoh to mimic plaque between teeth. The brushing portion consisted of the preschoolers being able to demonstrate on a typodont with a toothbrush. The objective of this lesson plan was that by the end of the program, 50% of the preschoolers would be able to demonstrate the Fones brushing technique and proper flossing techniques. The results from both activities showed that 75% of the preschoolers were able to meet the objectives. After the conclusion of the activities and the post-test, it was evident that the activities were successful in educating the preschoolers on oral hygiene and nutrition.

Breaking Barriers: Investigating Rape Myths in Fictional Crime TV

Joselyn Chanon

In fictional crime TV shows, there is a recurring portrayal of young women being raped due to their attire, which reinforces damaging victim-blaming narratives (Brown & White, 2017). It underscores the urgent need to confront the harmful stereotypes perpetuated by socially constructed myths in fictional crime TV, which contribute to misperceptions of rape. By promoting accurate and sensitive portrayals, we can challenge these harmful stereotypes and facilitate societal change. This research aims to address the portrayal of rape myths against young women in the media and its implications on societal perceptions. This study contributes to understanding the social construction of rape crimes in the media. Through a Modified Inductive Qualitative Content Analysis methodology, this study examines four prominent fictional crime TV shows: "Law & Order: Special Victims Unit," "Criminal Minds," "Veronica Mars," and "CSI: Crime Scene Investigation." The research questions explore prevalent themes, patterns, and myths surrounding rape crimes against young women in fictional crime TV shows. This includes examining the role of attire in victim blaming and how these shows depict women as being in the wrong place at the wrong time, perpetuating the myth that women lie about being raped. The main findings highlight the perpetuation of rape myths, victim-blaming narratives, and the normalization of sexual violence in fictional crime TV shows. Limitations regarding rape myths in fictional crime TV shows will be discussed, along with suggestions for future research exploration.

Bright Beginnings

Sidney Shei, Ally Shebell, Kaira Simpson, Irene Biesbrouck, Tylyssa Beckner, Cassie Miller-Byam, Anh Tran

Bright Beginnings was a dental program to help promote oral health awareness in 3rd graders at Darden Elementary. The preventive activities of the program included oral hygiene instruction on the Fones toothbrushing technique and 'c-shape' flossing, along with nutritional education on detergent foods. During the three activities, students were provided with tell-show-do demonstrations on the proper brushing and flossing techniques, and the difference between detergent foods versus non-detergent foods, along with additional information on all topics. At the end of the program, each child received a goody bag containing different oral hygiene aids among some other useful tools, including informational pamphlets that reviewed the activities that took place during the program. This was to guide their learning and remind them to take care of their oral health. The three program objectives were, by the end of the program; 75% or more of the students will be able to demonstrate the correct flossing technique on a typodont with 75% accuracy ($\frac{3}{4}$ steps performed correctly); 75% or more of the students will be able to demonstrate the Fones brushing method on a typodont with 60% accuracy ($\frac{3}{5}$ steps performed correctly); and 75% or more of the students will be able to separate detergent from non-detergent foods on the magnet boards with 80% accuracy ($\frac{4}{5}$ foods placed in the correct category) all while being observed by the program planners. After evaluating each student at all of the stations, it was determined that all of the program objectives had been met.

Charge State Efficiency of the ST. GEORGE Recoil Separator

Phillip Derrickson

The St. George recoil mass separator at the University of Notre Dame uses inverse kinematics to study alpha capture reactions induced by ions passing through a helium gas jet target. It uses a series of dipole and quadrupole magnets and a Wien filter to allow ions with a selected charge state and a specific momentum to pass through to the detector. The charge state of the ion changes as it passes through the target because of electron exchanges with the target gas, and it is important to know what fraction of the ions emerging from the target are in the selected charge state. The distribution of charge states can be calculated if the cross sections for electron loss and electron capture from and by the ion are known. A number of methods for calculating these cross sections, as well as some measured electron-loss and electron-capture cross sections, are available in the literature, and we are evaluating the ability of these calculational methods to accurately predict the measured charge state distributions.

College Students' Mental Health Correlating to their Academic Performance

Angie Giron

This study evaluates college students' mental health as it correlates to their academic performance. College students have many responsibilities as students, and the pressure of these responsibilities can impact their mental health. Mental health symptoms are common among college students, affecting their academic performance. Some common psychosocial factors related to academic performance are stress, personal satisfaction, anxiety, depression, social support, motivation, study efforts, family, and emotions. Work-life balance is another major contributing factor to a student's mental health. On-campus resources are available to help support students and promote positive mental health. The methodology that is used will be quantitative data. Recruitment of the population will be gathered through the student body of

IUSB. Purposive sampling will be used for a specific purpose and a targeted population. Participants in this study include adults (between 18-50 years of age) attending Indiana University South Bend who are in the Health Sciences Program. Data will be gathered through the use of survey questionnaires with 26 responses. The conclusion will reveal there is a risk of college students being negatively impacted by their academic performance due to their mental health. Psychosocial factors influence a student's mental health immensely. Findings from the survey will be revealed to the target population so they can better understand the data and resources on campus to help promote mental health.

Combat Carly: A Woman's Fight to Get in the Fight

Phillip Derrickson

Women face a continued struggle in integrating combat roles for the United States Military. This integration has been a point of contention since the mid 1990's and the fight for integration has been in defiance of traditional patriarchal views of war and combat. Since 1942 women's roles in military service have grown beyond restrictions in class, rank, pay, and assignment; despite setbacks and continued challenges women continue to answer Uncle Sam's call to arms. My project attempts to highlight this continued struggle, and possible steps to end the fight to get in the fight.

Comparing Soil Properties and Biodiversity in Pinhook and Howard Park in South Bend, Indiana

Emily Barrera

High soil biodiversity in urban areas has been shown to benefit human health by reducing soil-borne pathogens and enhancing immune function. In addition, soils with low bacterial diversity tend to be dominated by methanogen bacteria that increase greenhouse gas emissions, and soils with low biodiversity (fewer species present) tend to have reduced ability to retain water and altered nutrient cycles. The purpose of this study was to collect baseline data on soil characteristics and soil invertebrate diversity in two South Bend city parks (Howard Park swales and Pinhook Park). In Fall 2023, for each park, we measured physical and nutrient properties of the soil including field capacity (ability of soil to hold water), percent soil organic matter, and nutrient levels including nitrogen, calcium, magnesium, and sulfate. We used a Berlese funnel to extract invertebrates from soil samples and calculated the diversity of invertebrates present at each site. Soil organic matter was more than two times higher at the Howard Park swales compared to the riparian zone along the shore of Pinhook lake. There were large differences in soil invertebrate diversity with Howard park having at least 17 invertebrates species compared to 4 invertebrate species documented in soil samples at Pinhook park. We also noted that plant species diversity was higher at Howard Park compared to Pinhook park. These data provided baseline information on soil health in city parks and can be used to inform landscape practices that improve soil ecological function and biodiversity.

Connecting the Dots: Exploring the Public's Perception on the Potential Link between Alzheimer's and Periodontal Disease

Harsimran Kaur

Alzheimer's disease and periodontal disease are two prevalent conditions affecting millions worldwide. Research has suggested a potential link between these seemingly unrelated diseases, focusing on a responsible culprit: inflammation. Periodontal disease, characterized by persistent

inflammation of the gums and tissues, may contribute to systemic inflammation, thereby increasing the risk of developing neurodegenerative disorders such as Alzheimer's. Studies have indicated that periodontal pathogens (*P. gingivalis*) and inflammatory mediators can infiltrate the bloodstream, potentially reaching the brain and triggering neuroinflammation. My research revolves around individuals from 30 years of age and older, when there is a higher incidence rate for both diseases. I aim to showcase public awareness of this emerging connection and its implications through the use of online surveys and dentist interviews. Having the perspective of dentists can also contribute to the awareness from their scope of practice. Public knowledge of this potential link is paramount. Initial responses to the surveys have shown that the public is not informed on the link between both, but in fact, want to learn more information regarding these two systemic diseases. By recognizing the interplay between oral health and cognitive function, individuals can adopt proactive measures to maintain oral hygiene, seek timely dental care, and prioritize overall health and well-being.

Cult Podcast Misconceptions

Savannah Diezel

The idea of cult podcasts seems like a fun way to receive information. There is no lack of them on the platform. When a person listens to these they given a portrayal of the sinister intentions of what is usually a male leader. A person might even come across some of their favorite corporate industries and be face to face with information that would suggest that they themselves are a member of a cult based on being regular consumers. This does not allow for the solid truth that there is misrepresentation of genders among cults. There is also a problem with inconsistent definitions of a cult leaving confusion as to what actually qualifies as a cult. This research uses a Modified Inductive Qualitative Analysis to address gaps in underrepresentation of gender differences in cult leadership and victimization along with bridging the gap of genuinely defining a cult. This research was conducted to answer two questions: Are genders appropriately represented in cult leadership and victimization through the platform of podcasts? And, What is a cult? Limitations and further recommended research will be addressed.

Cults in the Media: Going Beyond the Religious Veil

Aleaha Ziola

Looking at cults they are often portrayed in the media as having only a religious focus. However, religion and doomsday cults are not the only types in existence. Cults such as Heaven's Gate and Family International have been frequently publicized which has led to a misperception about the types of cults that exist. In 1998, Keith Reinere and Nancy Saltzman created NXIVM, a cult disguised as a company offering Executive Success Programs(ESPs). The hidden meaning of this group allowed for the group to hide and go unnoticed; however, the acts committed included recruiting women to become sexual slaves. Sex trafficking cults were able to fly under the radar because of the media's focus on religious cults. A Modified Inductive Qualitative Content Analysis was used to examine "The Vow," a docuseries covering the group NXIVM. The research questions analyzed for the study involved How media depicts cults in the media and also why victims of sex cults are recruited to the cults. The results from the study were mind manipulation, positive reinforcement, scare tactics, blackmail tactics, a sense of community, and a woman ringleader. The limitations found and future research will be addressed later in this article.

CustoFlow Software Application

Thomas Garcia

Efficient appointment scheduling is vital for service industry businesses to enhance customer satisfaction and operational productivity. This paper introduces CustoFlow, an innovative appointment scheduling software application. By integrating advanced features like centralized scheduling, custom profiles, text/email reminders, loyalty programs, and AI-enhanced virtual try-on, CustoFlow aims to streamline operations and improve customer engagement. Using object-oriented modeling techniques, CustoFlow ensures scalability and real-world applicability. The paper discusses the benefits of digital scheduling systems and highlights CustoFlow's potential to transform service industry operations and customer experiences.

Darwin, Wallace, Britain, and Evolution

Kevin Price

Charles Darwin and Alfred Russel Wallace both discovered evolution at approximately the same time in history. Analyzing this era of history and looking at the geopolitical and historical features this paper asks the question of why evolution was discovered simultaneously at the same time in history and from the same nation no less. Pax Britannica and the peace that it brought allowed ideas to flow with trade as well. Britain's long history of stability, a strong navy, and more freedoms compared to the often tumultuous mainland also played a role.

Doll therapy as a nonpharmacological intervention for behavioral and psychological symptoms in residents with moderate-severe dementia in skilled nursing facilities

Carly Landon

The prevalence of behavioral and psychological symptoms of dementia (BPSD) highlights the importance of safe and effective nonpharmacological interventions, with doll therapy emerging as an innovative treatment. Despite evidence supporting nonpharmacological interventions as the first line of treatment, psychotropic medications are overprescribed and exposing residents to severe cognitive and health risks. Two randomized control trials and one cohort study were evaluated to identify the impact of doll therapy on BPSD in residents with moderate-severe dementia residing in skilled nursing facilities. The studies demonstrate significant improvements in BPSD, supporting the clinical significance of utilizing doll therapy over the standard treatment of psychotropic medications. The social ecological model is utilized to analyze the impact of doll therapy at the individual, relationship, community, and societal levels. The Theory of Planned Behavior is also applied to understand the factors influencing staff attitudes and behaviors regarding nonpharmacological interventions. This theoretical framework supports the translation of the evidence shown into the actual daily practice of professionals. This research contributes to the ongoing enhancement of dementia care through innovative, person-centered approaches that promote the well-being of both residents and caregivers in skilled nursing facilities.

Educational Solutions for the Hispanic Community

Maritsa Arroyo Moreno, Diana Zebroski, Justin Neilson

Three-part panel to speak about educational solutions/improvements for the Hispanic community. This panel will be presented in Spanish. Diana Zebroski will present a solution/improvement concerning nature education for the Hispanic community. Maritsa Arroyo Moreno will present a solution/improvement concerning English as a new language in U.S.

schools, and Justin Neilson will present a solution concerning cognitive improvement through the arts.

Effects of CBD and Chemo Therapeutic Drugs on Blood

Audrey Wyrick, Macey Fisher

Ovarian cancer patients often go through chemotherapy as a means to cure or reduce the malignancy, but a common side effect is anemia. In the 1600's Purmann and Mercklin discovered the use of xenotransfusion, but it was halted in the 1800's after the death of a patient. Due to the pandemic and lack of human donors, the conversation of xenotransfusion has resurfaced, using porcine blood as the source. In our experiment, we used canine red blood cells due to the potential low cost and the accessibility for patients when blood is in high demand. We conducted cell counts using a hemocytometer to record the effects of high, medium, and low doses of Taxol and Cisplatin as well as using both together. Our results showed that the number of red blood cells had a minor difference between high and low doses. This has implications for xenotransfusions, how certain chemo drugs affect animal blood samples with different types of cancer, and use of domestic animals as a model research system. After extensive research, we noticed the canine blood was contaminated but there is cause to question the effect of cbd oil as an antiseptic.

Elkhart one of the most famous cities? Miles Laboratories and C.G.Conn and their influence over the city with a heart

Sarah Hieber

Elkhart City's founding and history of the two biggest names within the city and their rise to power and fall from grace. C.G. Conn and his instruments and Dr. Miles and his medicine making business.

Engineering a Fluorescent Biosensor for Real-time Monitoring of Ornithine in Bacterial Cultures

Zahra Aljuboori, Morgan Underdue

Ornithine is an amino acid with critical roles in various biological processes and pathways. Currently, ornithine is being studied for its role in bacterial interactions, specifically in the context of *Enterococcus faecalis*, which is known to secrete ornithine as a metabolic byproduct. In the presence of *Pseudomonas aeruginosa*, the secretion of ornithine exerts a profound stimulatory effect on *P. aeruginosa*. This interaction enhances the growth of *P. aeruginosa* [1]. Using a biosensor, researchers could benefit by monitoring the presence of ornithine in real time. Ornithine binding protein (OBP), a periplasmic binding protein found in *Salmonella*, was used to engineer biosensors for ornithine. Four cysteine OBP mutants were constructed at strategic positions for attachment of thiol-reactive fluorescent tags, namely A22C, A54C, S120C, and A141C. OBP experiences a conformational change upon binding to ornithine, which is characterized by a large opening and closing domain movement due to a hinge-bending motion at the peptide segments connecting the two lobes of the proteins [2]. The conformational change associated with ligand binding could change the environment around the fluorophore and thus induce a change in fluorescence. Our results show that the A22C mutant stands as the most strategically positioned mutant, as it's the only mutant that demonstrated a discernible change in fluorescence in the presence of ornithine. Titrations of the various A22C mutant conjugates with ornithine resulted in dissociation constants ranging between 19 μ M and 2.9 mM. Furthermore,

binding pocket mutations will be explored to increase selectivity for ornithine over arginine and lysine. The biosensors constructed here will be used to measure real-time ornithine concentrations in bacterial cultures.

Fad Diets

Irene Biesbrouck

The purpose of this project was to further examine the impact of possible oral health outcomes of individuals who adapted fad diets as their lifestyle. Fad diets are designed to be quick and effective for losing weight in a short period of time. Due to the popularity, there are many versions of fad diets currently. These types of dietary patterns are known to be trendy and offer short term solutions to individual's health concerns. When an individual is lacking in nutrition, it may lead to several dental complications because of the strong link of oral and systemic health. Some dental complications may include higher risk for periodontal disease, caries, xerostomia and halitosis. The methodology of data collection consisted of quantitative research with the use of surveys. In the data collection phase, electronic surveys were provided through the Qualtrics platform. The survey questions consisted of both quantitative and qualitative formatted questions. The target population was adults (18 years old and above) who had tried at least one fad diet. It was hypothesized that fad diets will have an impact of oral health when an individual adapts fad diets as a long-term lifestyle. After the online survey was published, there were 31 individual responses. A majority of the individuals reported quick weight loss was the purpose of a fad diet, the keto diet was the most popular option selected, and dry mouth was the most common oral health sign noticed while adapting a fad diet.

From Words to Actions: Analyzing Mass Shootings Through a Modified Inductive Qualitative Content Analysis in Documentaries

Hannah Ogle

When large-capacity magazines are used in mass shootings there is a 62% increase in deaths. When we look at the media and how mass shootings are shown, the stories of Sandy Hook, Columbine High School, and Virginia Tech are what we tend to see the most. School shootings have always had more media coverage than public mass shootings. Due to school shootings receiving more attention, there is a gap in the literature that pertains to public place mass shootings. The method used is a Modified Inductive Qualitative Analysis. Employing a Modified Inductive Qualitative Content Analysis, five documentaries were examined to assess themes about public mass shootings. The research questions analyzed in the current study focused on the types of guns used, police and paramedic response times, and why the offender might have committed the crime. The main findings resulted in four themes that emerged from the data: High Powered Guns, Male Perpetrators, High Casualties, and Perpetrator Shot Dead. The limitations of this study and possible future research will be discussed.

Fusing PhuZ with GFP and mCherry Fluorescence Proteins Using AI Modeling

Zahra Aljuboori

Microtubules have been pivotal in scientific research due to their significance in cell division and comprise a major drug target for many cancers. However, studying microtubule dynamics is challenging as they are hard to cultivate in bacteria like E.coli. PhuZ is a tubulin-like protein found in bacteriophages and is a model system for mammalian microtubules because it's easy to isolate and because it has a comparable function in phage replication as to microtubules in cell

division. By making mutations in PhuZ, we can study which amino acid positions affect the protein's ability to polymerize and apply that knowledge to understanding microtubule dynamics. In order to test the effect of mutations in PhuZ, a fluorescent tag must be attached to the protein allowing a fluorescence microscope used to track polymerization. However, chemical fluorescent tags can be unreliable because they might alter the binding properties of PhuZ. Here, we fused either GFP or mCherry, to the N-terminus of PhuZ. We used AlphaFold2 to design linker sequences which allow for attaching the fluorescent protein without hindering PhuZ polymerization. The expressed and purified GFP-PhuZ fusion polymerized with a similar critical concentration as the wildtype, making it usable for future testing. MCherry-PhuZ fusion polymerized differently than observed previously, warranting further study. Additionally, this research shows that it's possible to make fusions with PhuZ without inhibiting polymerization. In the future, this method can be used to fuse PhuZ with periplasmic binding proteins to engineer modular biosensors where binding is linked to polymerization.

GDPR: Emerging Problems in Data Protection Regulation

Tyler Forrest

In this paper, I explore the consequences of GDPR implementation and its impact on small business, scientific research, and freedom of expression. Compliance with GDPR comes at a significant cost, particularly for smaller firms, which struggle to keep up with the demands of regulatory requirements. Moreover, GDPR's provisions on data usage in scientific research have introduced complexities and barriers, hindering the advancement of knowledge and innovation. Additionally, GDPR's intersection with freedom of expression poses challenges for journalists and U.S.-based companies operating in the EU, leading to self-censorship and market exits. Addressing these challenges requires a balanced approach that safeguards consumer data while fostering innovation and free expression. Consistent GDPR implementation among member states and clear exceptions for beneficial data usage are crucial to achieving this balance. By reevaluating its policies and addressing unintended consequences, the EU can ensure that GDPR serves its intended purpose of protecting human rights without stifling economic growth and innovation. As society continues to harness the power of big data, it is imperative to enact policies that promote both data protection and progress.

Golden Grins: Senior Oral Health Initiative

Megan Bretschneider, Liv Ramey

Golden Grins is a Senior Oral Health Initiative aimed to improve the oral health literacy of the residents whom live at long-term care facilities and the Certified Nursing Assistants (CNAs) that care for them. Implemented at Southfield Village in South Bend, Indiana, on March 23, 2024, the initiative utilized the Health Belief Model as its theoretical framework through the use of an interactive activity: a game of oral health-themed bingo with the residents and a specialized training program for the CNAs. The pre-test assessments gauged CNAs baseline knowledge, and following the implementation of the program, post-tests were used to measure the intervention's effectiveness. The shift in the understanding of oral health concepts in regard to the importance of denture care and specific ways to perform the care indicated the initiative's success in improving oral health literacy among caregivers, thereby potentially improving the oral health outcomes of residents in long-term care facilities. The results of Golden Grins program will be presented through a poster.

Hate Crimes in Hollywood: How Hate Crimes are Portrayed in Fictional Crime TV Shows

Arram Almanaseer

Less than half of hate crimes get reported every year and even fewer hate crimes get covered by the media. Media coverage that is inaccurate can allow stereotypes and prejudices to form within public opinion. The media only portrays hate crimes when it is in its most extreme form. When hate crimes do get covered, this tends to increase the public's fear of hate crimes, and the fear of falling victim to a heinous crime increases. The current study uses a Modified Inductive Qualitative Content Analysis to examine portrayals of hate crimes and themes in fictional crime TV shows. The research questions for this study include what was the motivation for the hate crime, what was the race of the offender, what was the race of the victim, and what actions made it a hate crime. Some themes that emerged were sexual orientation-based hate crimes were the motivation in more than half of the episodes watched. Also emerging was the main gender of victims were females and the perpetrators were males. The limitations and future research implications for the present research study will further be addressed.

Healthy Mothers, Healthy Babies

Harsimran Kaur, Olivia Ali, Ekachi Emenim, Meg Youngman, Kaylee Eby

Healthy Mothers, Healthy Babies was a social media campaign designed to address a few health risks associated with pregnancy – such as gestational diabetes, gestational hypertension, pregnancy gingivitis, and postpartum depression. The program's goal was to empower our target population of expectant and new mothers with knowledge and resources to promote maternal health and the well-being of their babies. Through leveraging the dynamic platform of Facebook and utilizing Facebook reels, this page aimed to engage the public by delivering informative content in an easy, digestible format. Our content included a breathing exercise video from Youtube that offered valuable relaxation and stress management tactics for expectant and new mothers. Daily Facebook reels featuring information on different pregnancy health risks were also posted in order to inform our program's target population. The first upload was posted on March 21st and the final upload – which was a poll – was posted on March 30th. We continued to monitor the engagement of the social media posts until April 8th to evaluate if we reached our objectives and overall goal for the health promotion program. The Healthy Mothers, Healthy Babies Facebook page was successful in exceeding the number of views on all content, passing a minimum of 300 views. At the end of the program, at least 20% of the respondents from the targeted population agreed that they found the campaign content helpful in informing them of the possible health risks associated with pregnancy.

Kickin' Cavities

Andrietta Scott

Early childhood caries reigns as the most common and chronic disease effecting children in the United States. The prevention of oral disease in children is strongly relied on the healthy literacy, attitudes, and behaviors of their caregivers. Cavities and other oral disease negativity impact children's overall health, social wellbeing, and overall quality of life. The introduction of oral hygiene preventative care to children at earlier stages of life reduces the risk of oral disease. Early development of oral hygiene routines encourages positive oral hygiene behaviors that can be inherited at home to household members. The purpose of the oral health promotion program is to expose and expand younger children to preventative methods at an early age. The oral health program was implemented at Carey Ridge, an elementary school located in Westfield, Indiana.

The first-grade children were given pre-tests and post-tests to measure knowledge of oral hygiene methods and information gained after program implementation. Each child received a toothbrush, toothpaste, dental floss, mouthwash, tongue scraper, and instructions on proper usage of aids. By the end of the program, 100% of the first grade Carey Ridge Elementary School participants were able to identify 4 out of 8 listed detergent (healthy) foods from detergent food activity board. At the end of the program, 100% of the first grade Carey Ridge Elementary School participants were also able to answer 3 out of 6 posttest oral hygiene questions from information given during the lecture and learning activities.

Liberty and Justice for All: LGBTQIA2S+ Victimization in the United States

Zoe Rajski

LGBTQIA2S+ victimization comes in a variety of forms; however more recently with new Anti-Transgender laws in the United States, constitutional freedoms are being violated. Freedoms of violation include but are not limited to healthcare restrictions or denials, ID documentation laws, conversion therapy bans, workplace discrimination, housing discrimination, and adoption/foster care restrictions. Anti-Transgender laws are heavily advocated in the media based on public misinterpretations through inaccurate media portrayals. While some research sheds light on Anti-Transgender laws and impacts, the nuanced intersections of identity, policy, and societal attitudes need to be explored. Anti-Transgender law advocacy has gained a following on popular social media platforms, such as TikTok, where research on trends of the LGBTQIA2S+ community was collected. Employing A modified qualitative content analysis, multiple (15+) TikTok profiles were examined to assess LGBTQIA2S+ victimization. Research questions examine the types of individuals engaging in anti-transgender legislation posts as well as transgender people are viewed as sexually deviant and mentally ill in media. The results showed two themes: political affiliation and impact. The limitations of the current research and future implications will be addressed.

Little Steps to Big Health

Katalina Gutierrez

Little Steps to Big Health was a program made to educate parents and their children on the importance of physical activity and nutrition in order to prevent obesity. This program was conducted at a local Herbalife site but was mainly done via TikTok. This program included 15 participants. To successfully report change in health literacy of obesity amongst the participants a pre-test and post test was conducted. There were separate pre and post tests, for the parents and for their children. After taking the pre-test participants watched the four educational TikTok videos on obesity, physical activity, nutrition and how the Information Motivation Behavior Skills Model plays a vital role in understanding how to make healthier life choices. Access to resources such as MyPlate were provided in a link attached in the bio of Little Steps to Big Health's TikTok profile. Throughout these videos participants liked, followed, and commented on the posts, the comments made by the participants were positive and showcased what knowledge they had gained. When they were done watching these videos the participants took a Kahoot quiz to test their knowledge on obesity and nutrition. Upon gathering results from the post-tests, it was evident that there was a 50% increase of knowledge on the importance of preventing obesity. After documenting scores from the Kahoot quiz and reviewing likes and comments from the TikTok videos, 50% of the participants were able to identify healthy lifestyle choices. Therefore, the efficacy of Little Steps to Big Health was successful.

Local Moth Diversity

Carlee Munson

Moths are a very diverse group, forming most of the Order Lepidoptera (butterflies and moths). Diversity in local moth populations is very important for plant pollination and for the food web. In the United States, there are about 11,000 species of moth, and around 570 species in Indiana alone. Moths play a very important role in nighttime pollination which can be often overlooked. Moths also play an important role in the food chain, especially for birds. Caterpillars are important food sources for baby birds, and in winter, when food availability is sparse, moth larvae are a staple of bird diets because they reside in plant stems where the birds can pick them out for food. Moths also add beauty to the world. Since there are so many species, moths bring a wide variety of colors and shapes to our backyards and parks. In urban degraded areas, there is less native plant diversity and abundance to support moths, and light pollution also impacts moth diversity. Because moths have positive phototaxis, they are attracted to and remain at these light sources, interfering with pollination and other behaviors, and moths remaining at the lights in the morning are at high risk of being eaten by birds. In order to maintain the local moth population, it is crucial that we provide host plants for these species and reduce light pollution. In this presentation, I will explore moth diversity in our region and discuss unique interactions, characteristics, and challenges faced by our moths.

Mass Murders Are Most Often Not Random Acts

Kierstan Sauer

Mass murders are most often not random acts. However, due to the ways mass murders are displayed in the media, the presumption is that mass murderers are strangers to the victims. Research shows that 80% of mass shooters experience a personal crisis before the attack (Youtube: Neuro-Transmission). Also mass murders are most commonly committed by men. Data showing the number of mass murders committed by gender from 1982 to 2023 shows that 143 were committed by a male and only four by a female, while two were committed by both (Statista, 2024). To gather data, a Modified Inductive Qualitative Content Analysis was used to analyze YouTube videos on mass murderers. The research questions examined the type of motivation both present and past. Research results found four major themes such as mental illness, domestic violence, childhood trauma, crises. Limitations and future research will be addressed.

Media Deception of Intimate Partner Violence: Youth Preventative Curriculum

Serena Edwards

Interracial couples experience significantly higher rates of intimate partner violence (IPV) (Fusco, 2009), however there is a common misconception that IPV happens primarily in Caucasian couples. The media contributes to this misconception by publishing docuseries on popular streaming networks (e.g., Netflix) that limit their focus to a socially constructed family structure. Violence and ultimately homicide of an intimate partner is commonly displayed through the media as simple and not able to be prevented. Using a Modified Inductive Qualitative Analysis, ten episodes of the Netflix docuseries, My Lover My Killer were analyzed to understand common themes relating to IPV. Through the research, four major themes (race/ethnicity, sexual orientation, family help, and the honeymoon phase) were found to be present. Limitations and further recommendations will be addressed.

Media Myths Unveiled: Exploring Indiana's YouTube Landscape on Police Portrayals

Roman Robic

This study delves into how police are portrayed in Indiana's media landscape, particularly through YouTube content, and its implications for perpetuating myths and stereotypes. Through qualitative content analysis, it uncovers biases and misinformation within these portrayals. Focused on a specific theme, it assesses its impact on public perceptions and attitudes toward law enforcement regulations. By integrating criminological theory and conceptual analysis, the study sheds light on how these depictions influence media coverage and implementation. The findings stress the pivotal role of media representation in shaping public discourse and policymaking strategies. Additionally, it underscores the significance of qualitative content evaluation in guiding policy decisions, drawing from existing literature to underscore its importance in understanding the dynamics between media, public opinion, and policy outcomes. Through a meticulous examination of police portrayals in local YouTube content in Indiana, this research contributes to evidence-based law enforcement policymaking.

Mental Health Patterns of Collegiate Student Athletes

Nichole Van Zant

For this research topic, I looked at the impact of being a collegiate student athlete and the mental health struggles that these athletes face while in college and balancing playing their sport while working towards their degrees. Depression, anxiety, and poor mental health statuses are shown to be increased in these collegiate student athletes. There is a major pressure on these collegiate athletes to perform to the highest level and to win every game and do an outstanding job with no room for error when it comes to competition. The participants in this study included current and former student athletes who are still enrolled in classes. The focus was on the students from the colleges in St. Joseph County. This includes students from Indiana University South Bend (IUSB), Bethel University, Holy Cross College, Saint Mary's College, and the University of Notre Dame. An electronic survey was created and sent out to athletes of different sports at these universities. The goal was to get responses from athletes of all sports and all universities, but I ended up with responses from athletes at IUSB, the University of Notre Dame, and Saint Mary's College. The results showed a wide variety of these athletes mentioning that they feel there is a stigma surrounding mental health and participating in a sport during their college years. The results also showed that a lot of these athletes do struggle with mental health issues that come with the pressure of playing a sport.

Mind Matters

Natalia Bozo

In addition to teaching young adults and adolescents at IUSB the value of mental health, this program aims to inform of the various resources at their disposal including online credible resources, support from Student Counseling at Indiana University-South Bend, and accessible Mental Health clinics. This program is designed to help people find the mental health resources they need by increasing their mental health awareness through education and information. To achieve this, an survey evaluation of where young adults/adolescents stand in their knowledge of mental health was taken and it rated low-moderate knowledge of overall mental health, but great interest in learning more and educating themselves even further. Presenting better and digestible knowledge to these individuals will expand not only their knowledge but understanding of

mental health which is the goal of this program. Everyone should be aware of where and how to raise their level of mental health awareness, regardless of their level of education or experience, because your Mind Matters.

Misleading and Misunderstood: The Portrayal of Domestic Terrorism in YouTube Videos Aidyn Yettaw

The majority of terrorist attacks in the United States (U.S.) are domestic; however, scarce research is dedicated to domestic terrorism (Chermak et al., 2024). This gap in the literature may be due to the lack of a uniform domestic terrorism definition and the media portrayal of terrorists being international. Domestic terrorism is socially constructed through the media's extreme coverage of events used to attract the public's attention. Following the September 11, 2001 attacks, anti-terrorism efforts were largely focused on international terrorism and an anti-Muslim bias was formed. Despite attempts to reduce terrorism, the focus of these efforts was directed towards the wrong groups. After the January 6 U.S. Capital attack, attention is now devoted toward domestic terrorism, specifically what the media considers right-wing terrorism. Employing a Modified Inductive Qualitative Content Analysis, YouTube videos on domestic terrorism were analyzed. Research questions utilized for the study included the types of myths supported by the media and resources toward anti-terrorism tactics. Results from the research found four themes: resource distribution, lack of definition, types of terrorism, and political climate. Future research and limitations will be addressed.

Moth Diversity 1: Differences in Moth Diversity within Urban Restored vs. Unrestored Habitats

Cordelia Bennett

Moth diversity is an important measure of habitat quality, as moths provide essential ecological services including pollination and conversion of plant biomass to animal biomass. Moth diversity is continuously and increasingly threatened due to human influences. Lack of native plant species for caterpillars to eat, and light pollution, have major impacts on lepidopteran species diversity, resulting in substantial decreases in moth diversity in urban environments. This study focused specifically on the differences in species and family richness and diversity between urban and native habitats, by observing the moths present in multiple different urban and native locations, including urban habitats undergoing restoration through the planting of native plants. Our research displayed the harsh decline in species diversity within urban habitats compared with native ones, as has been observed in other studies. We found that urban habitats that have had intentional restoration of native plants did not show a significant difference in species richness to non-restored urban habitats suggesting that additional measures must be implemented to restore moth diversity in urban areas. We also observed for the first time a shift towards microlepidopterans and away from macrolepidopterans within urban areas suggesting that some taxa are better suited for urban habitats than others. This presentation will explore the differences in biodiversity in urban, urban restored, and rural, natural habitats. This data will provide insights into practices to reverse the loss of urban moth diversity.

Moth Diversity 2: Phylogeny and Characteristics of Moth Families

Salem Slater

The phylogenetic relationships of Lepidopterans were compared between urban and rural habitats to assess if their presence/absence could be explained by biological features.

Lepidopteran families are found in unequal distribution based on the habitat type observed, and this may imply that habitat characteristics of rural, urban, and urban restored areas determine the availability of these areas as a resource to certain familial groups. Moth groups are classified based on shared traits and characteristics, and these traits compared to resource availability in specific habitats may reveal information on why groups of moths are present or absent at certain sites. Species documented through the observation of rural, urban, and urban restored areas have been sorted based on their family grouping, and the phylogeny of moth families observed will be highlighted against the area they appear and what resources are available to them. The purpose of scrutinizing the relationships between moths against their areas of appearance is to determine the impact that resource lacking habitats may have on the presence of desired species. In this presentation, the presence of moth families in the observation sites for rural, urban, and urban restored will be described for further analysis. These comparisons may offer insight into critical biological factors or resources that influence a group's success in urban versus rural habitats.

Moth Diversity 3: Critical Factors Affecting Lepidopteran Distribution

Brandon Bentley

Identification of major factors contributing to diversity decline in moths can be accomplished through cladistic analysis. Establishing effective conservation practices in urban environments is key to cohabitation with native creatures. In the case of moth diversity there is a strong disparity between urban and native habitats. Cladistics can be used to create broad groups of animals based on shared needs and behaviors, but it can also be used to pinpoint distinct advantages and disadvantages that specific family, genus, and species (clades) will face in a certain habitat. There are many factors within a habitat that affect species diversity, but some factors have stronger influence. Critical factors have strong effects on several clades and can be completely limiting to specific clades.

Mouth Breathing vs. Nose Breathing

Anh Tran

The human body's natural instinct is to breathe from the nose in order to optimize normal physical processes including toxin filtration, humidification of nasal passages, and air circulation to the lungs. Mouth breathing, however, is another form of breathing that is often caused by the obstruction of nasal passages but does not prove to be an equivocal alternative as it may contribute to varying side effects. The aim of the study is to compare the perceptions mouth breathers have on their quality of life—in terms of alterations to mental and bodily functions—compared to nose breathers. A questionnaire through Qualtrics was distributed to IUSB students in the South Bend area who mouth breath either awake and/or asleep and excluded individuals who use aids to promote nasal breathing or are currently undergoing treatment to correct their breathing tendencies. Individuals who have experienced physical trauma to the face or to the body were also excluded. Participants were recruited through snowball sampling. The results were inconclusive of whether mouth breathers experience more side effects compared to nose breathers. Participants of the study indicated varying experiences on factors such as quality of sleep, attention span, cognition, posture, and gum disease despite their method of breathing. This research may be used to further the understanding of the effects of mouth breathing on individuals, along with, aiding in the early detection and diagnosis of mouth breathing among health professionals.

Nourishing Minds: Elevating College Students' Perspectives on Healthy, Budget-Friendly Eating

Stephanie Hano, Julie Felker, Kylie Rhodes

College students frequently face challenges in preparing healthy meals due to limited resources, a lack of cooking knowledge, and financial constraints. Recognizing this, we launched the 'Nourish Your Body' social media campaign tailored to the students at Indiana University South Bend. The initiative's objective was to demonstrate that healthy eating can be affordable and manageable through meal prepping. Our social media strategy included engaging video tutorials showcasing the preparation of cost-effective yet nutritious meals, downloadable recipe cards tailored for tight budgets, and educational flyers highlighting the advantages of meal planning. To assess the campaign's effectiveness, we conducted an initial survey to gauge the baseline attitudes and behaviors of a representative sample of the student population at IUSB. Following this, we exposed these students to the campaign's content over a three-week period. To measure the campaign's impact, a follow-up survey was administered with the same IUSB students, and we closely monitored the engagement metrics across our social media channels. (Detailed results will be added upon the program's conclusion.) We anticipate that the campaign's approach to simplifying the concept of healthy eating within a student's budget will result in a positive shift in their dietary habits and attitudes. The forthcoming results from the post-campaign analysis will confirm the extent of this shift at Indiana University South Bend.

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Nucleosynthesis in a Seven Solar Mass Star

Zach Groshans

In the realm of astrophysics, the investigation into stellar evolution and the accompanying production of the elements is of paramount importance. Of particular significance are the elements like oxygen and carbon, originating from the remnants of stars with adequate mass to undergo helium fusion while resisting gravitational collapse. Such stars, despite having a lifespan shorter than our Sun, are pivotal in deciphering the intricacies of cosmic evolution. This inquiry focuses on stars ranging from seven to twelve solar masses, aiming to explore the effects of key nuclear reaction rates on the abundances of important isotopes such as ^{20}Ne , ^{14}N , and ^{12}C . Utilizing the computational tool MESA (Modules for Experimentation in Stellar Astrophysics) we conducted simulations of the evolutions of a seven solar mass star, with different values for

key reaction rates, to discern the effect on isotopic abundances. Our ultimate aim is to unravel the mechanisms of nucleosynthesis to determine what nuclear reactions must be refined in order to explain observed isotopic abundances. MESA, an open-source stellar evolution code that serves as a cornerstone in our research, provides powerful capabilities in calculating stellar properties and simulating the dynamic evolution of stars throughout their lifecycle, and in facilitating the generation of data plots that capture the evolution of values of interest throughout the simulation.

Odd One Out

Robert Simons

One One Out is a one act play written and directed by Bobby Simons that was performed on IUSB's campus on February 8th and 9th, 2024. The story follows Roger, a man that claims to have no emotions who becomes a target of Macy and Pierre, a wannabe Bonnie and Clyde couple whose dreams of big money are hindered by their ineptitude at pulling off even the simplest heists. They find an opportunity with Roger's most valuable possession: a pair of antique derringer pistols passed down to him by his late father. This object is the very thing that tore Roger's family apart, but now it brings these three characters together. The presentation will include a recording of a 10 minute scene from the show, in which Macy and Pierre attempt to break into Roger's apartment in the hopes of making off with the pistols quickly and quietly. Things do not go to plan. Following the clip, Bobby Simons will give a brief overview of the making of this scene where he will explain his choices as a writer/director, the actors' contributions, in addition to some of the unseen yet essential elements of mounting a play.

Producing an Inexpensive Exhaust Emissions Testing Device

Nicholas Good

Every motor vehicle which has an internal combustion engine emits some measure of pollutants into the atmosphere. The effects of these pollutants have been measured in air quality studies through the decades. In the 1970's, the US government passed regulations that would curtail the allowable levels of the most harmful of these exhaust pollutants. As time has gone on, these regulations have gotten more stringent to preserve our air. The enforcement of these regulations, however, has a selection shadow in most parts of the US. Once the car is sold, it remains up to the operator to ensure the emissions controls remain in place. For the vast majority of people, the ability to quantify these emissions is firmly out of reach due to the high prices of the testing equipment. This study aims to determine if it is possible to, with inexpensive off-the-shelf components, produce a device which can provide viable emissions information in a mobile package. Using an Arduino-based data logger system, a thermal probe, and a low-power reduction and oxidation sensor, this goal has been achieved. This device is capable of positively identifying emissions non-compliant vehicles when compared to compliant ones, and was able to be produced for less than \$70.

Production Sustainability Amongst the Big 3 Hoosier Multinational Automobile Organizations: A Consideration of Whole Life Carbon Emissions

Joon Kang, Joel Jarett

This project aims to quantify carbon emissions from multinational automobile organizations in Indiana, focusing on Honda, Subaru, and Toyota from 2010 to 2021. By analyzing Environmental Protection Agency (EPA) data on on-site and off-site releases, trends in

emissions levels and their health hazards will be explored. Inspired by the Ricardo Report on automobile life-cycle impacts, the research addresses the need to measure whole-life carbon emissions comprehensively. The report will discuss prominent chemicals released, changes in emissions percentages annually, and the total change from 2010 to 2021. Emphasis is placed on understanding the environmental impact beyond tailpipe emissions. This research is crucial given the automotive industry's significant contribution to Indiana's carbon emissions and employment landscape.

Race-Based Trauma Induced Social Dominance Orientation: An Exploratory Study

Brooke Rayborn

According to the United States Department of Justice, 63% of African Americans have experienced some form of “racially charged” trauma in their lifetime (2014). Race-based trauma is often a by-product of one's exposure to discrimination. While there's been a great deal of work on the effects of race-based trauma on cognitive and somatic outcomes, not much research has explored the ways race-based trauma affects social attitudes— such as, social dominance orientation (SDO). Consequently, in this exploratory study, we ask the following question: What is the effect of race-based trauma on SDO? Our expectation is that exposure to race-based trauma will increase SDO. The data for this study comes from a Qualtrics survey consisting of 149 college-aged students. The results show there was a significant association between the various symptoms of race-based trauma on SDO. For example, those experiencing greater levels of depression; hypervigilance; anger; physical symptoms; avoidance; and intrusion, due to experiences with racism, are more likely to hold SDO. These findings show that experiences with race-based trauma structures social attitudes.

Reflection of Emotion in The Cabinet of Dr. Caligari

Madison Frame

One of the first horror films is considered to be *The Cabinet of Dr. Caligari* (1920) directed by Robert Wiene. This film captures us into a fear-fueled town of people trying to figure out who is responsible for the mysterious deaths. Themes of fear and paranoia are portrayed through the film's mise-en-scene. The environment around the characters is an expression of their internal state. The set design in *The Cabinet of Dr. Caligari* is a source of fear and a reflection of the characters emotions.

Role of Musculoskeletal Health in Dental Hygiene

Tylissa Beckner

Dental hygienists are at an increased risk for soft tissue injuries caused by repetitive or sudden awkward positions defined as musculoskeletal disorders. Dental hygienists sit in what could be considered awkward positions for eight hours throughout their work day. During this, they use small movements in their hands to hold instruments and clean teeth. To evaluate the relationship between musculoskeletal health and prevention methods in hygiene a survey was provided to the students of the IUSB dental hygiene program and three dental offices in the South Bend area. Hygienists of all backgrounds, all ages, and of all levels of experience were asked to respond to this survey. The survey results conveyed areas of concern regarding increased pain throughout the body after entering the dental hygiene field. For example, zero of the participants reported elbow/wrist pain before practicing dental hygiene but after beginning their career the reports jumped to thirty-three percent. Having sharp instruments allows for the dental hygienist to use

less digital pressure when trying to remove teeth. Being able to move the professional chair and the patient's chair allows the clinician to adjust the patient to the clinician's height. These examples are a few of the ways a clinician can prevent musculoskeletal disorders and these examples are the only few that the survey showed high reports of. Stretching before or after work, participating in yoga, and other preventative measures were shown to have very little participation in the survey responses.

Saving Sharks by Blending Physics and Biology

Tori Hartl

Shark populations have been rapidly declining since the 1970s due in some measure to sharks being a common bycatch species in longline fisheries targeting tunas and swordfish. Sharks have electroreceptors (ampullae of Lorenzini) that are used to detect prey, navigate, and choose mates. There have been numerous attempts to mitigate shark bycatch, including the use of steady or pulsed electric fields produced by electropositive metals and electronic devices. The concept is to deter sharks from baited hooks by overstimulating their electrosensory system, but field trials have shown mixed results. Through collaboration between physicists and biologists, our group has designed and produced a microprocessor-based shark deterrent device. The device creates electrical signals, sent into the water through graphite electrodes, at frequencies matching those produced by the sharks' prey, but with much higher amplitudes. Our devices were recently tested on research and commercial longline fishing vessels and have produced an approximately 60% reduction of shark catch rates.

Signs of Struggle: Analyzing the Intersection of Fate and Womanhood in Athenian Tragedy

Cecil Barlow

In the tapestry of Athenian tragedy, women unravel the threads of fate, weaving an intricate connection with the divinatory signposts that frequently elude the grasp of their male counterparts. In this paper I argue that within Athenian tragedy, signs are accessed and understood by women in ways implying they have an intrinsic natural connection to fate that is not accessible to those surrounding them, specifically men. This connection will be illuminated through analyses of scenes involving fate, signs, and divination, with Clytemnestra in *The Agamemnon*, and Deianeira in *The Women of Trachis* being the subjects of comparison. Through the lens of Clytemnestra's seemingly prescient knowledge and Deianeira's encounters with cryptic signs, I explore the binaries within fate that set women apart, offering them a distinctive perspective on destiny.

Speech Sound Disorders in Individuals with Cerebral Palsy

Carly Landon

In special populations, speech sound disorders, comprising articulation and phonological disorders, take extra consideration in the appraisal, evaluation, and treatment process. Understanding patterns of presentation, diagnostic processes that allow professionals to gain holistic information, and treatment methods that are tailored to their specific needs based on the latest research, are essential for effective intervention. Individuals with Cerebral Palsy, a nonprogressive disorder resulting in gross motor impairment, experience difficulties with coordination and motor control that greatly impact speech. Evaluation by Speech Language Pathologists (SLPs) involves dynamic assessment of various speech systems and subsystems

alongside considerations for broader functional impacts. After diagnosing, goals are written specific to the client and in a functional matter. The goal of speech and language therapy is not to “fix” disorder; however, it is to provide tools to the client to achieve functional communication. By using a holistic approach to the appraisal, evaluation, and treatment process, individuals with cerebral palsy can have a greater functional impact.

Speech Sound Disorders within the Special Population of Intellectual Disability

Marjorie Herrman

This paper explores speech sound disorders within the special population of intellectual disability. There is a focus on signs, symptoms, and etiologies of intellectual disability alone and again with a secondary speech sound disorder. The process of assessment and treatment for the special population with comorbidity of a speech sound disorder is examined. The defining characteristics of Intellectual Disability are deficits in cognitive and adaptive functioning (Bauman-Waengler, 2020). Speech sound disorders relate to the perception, motor skills, and function of articulators (Bauman-Waengler, 2020). A higher prevalence of speech problems is seen in those with intellectual disabilities than in a typically developing population (Bauman-Waengler, 2020). This research paper aimed to identify the characteristics of each impairment and the best practice for the comprehensive assessment and treatment of these individuals. Examining this is critical to promote the proper care of those with a primary intellectual disability and a secondary speech sound disorder, as assessment and treatment are modified based on each individual’s unique needs (Bauman-Waengler, 2020). The research in this paper was conducted using scholarly and peer-reviewed articles and a research-based textbook. This methodology ensured the application of the best current research that has been thoroughly reviewed by experts in the field of speech-language pathology.

Stricken with White Ink: A Native Son Anthology

Shannon Vail

In reading Richard Wright's Native Son, many powerful images and characters were inspirations for poems I felt are able to interact with the original text in a fascinating way. From African mythology to a comparison between the murder victims of Bigger Thomas, I examined and reworked the images that Wright wrote of in a suite of poems. Making new the old and refreshing its importance in how these stories are still relevant today.

Sweet Smiles

Angie Giron, Alejandra Montoya-Rubalcava

Sweet Smiles strives to promote and establish a healthy oral hygiene habit that can last a lifetime. Kindergartners are typically not educated on the importance of oral care. They don't know how to properly brush, why they should brush, or what a cavity is. However, they should know this information. Prevention is key as cavities can be prevented with the correct knowledge. The goal of the program is to help motivate children to have great oral hygiene habits at a young age. The Sweet Smiles program was implemented on April 4th at El Campito for the preschool classes. The children were educated by providing fun hands-on activities, and a post test for each activity to determine their gained knowledge. The program focused on nutrition, brushing, and flossing. The nutrition activity consisted of a PowerPoint, an educational video, and an activity. This activity allowed the students to recognize healthy foods vs foods that can cause cavities. Next, a flossing presentation was demonstrated, a tutorial video on how to

floss was shown, and an activity with building blocks, yarn, and Play-Doh to act as flossing was conducted. Finally, a toothbrushing presentation was presented, a toothbrushing video was shown, and a tooth painting activity. The children will be able to use these new developed skills and knowledge throughout their lifetime to help in having good oral health and a sweeter smile.

The Effect of Different Music Genres on Running Performance and Mood During the Astrand Treadmill Test

Makenna Meisenbach

Music has been part of our culture for millennia, especially for athletes. Research has illustrated that music can increase heart rates, improve various performances, and cause anxiety in individuals. This research has investigated if music has an influence on student athletes' overall performance and health. Participants have been instructed to run two separate Astrand treadmill tests and each test is presented with a different genre of music while the investigator has analyzed different variables. Examining these results adds to the data on the topic of music-based performance and may glean insight into the athletes' own performance as related to different genres of music. A total of thirty student-athletes from Siena Heights University above the age of 18 have been involved in this study. In random order, each participant has been assigned one trial presenting fast-paced music, and the other trial with slow-paced music, and both trials have the same Astrand treadmill test protocol. Their heart rates, rate of perceived exhaustion, anxiety levels, and running time have been recorded and analyzed. The data has been compared between the two sets of an individual's data as well as compared to all the participant's data. This data has been analyzed to see if the different genres of music within the trials have affected the variables being recorded during the Astrand treadmill tests. Quantitative data has been analyzed by using a paired t-test to analyze and showcase the data.

The Effect of Social Media on Adolescents' Mental Health

Sidney Shei

The purpose of this research project was to determine whether or not social media use causes depression and/or anxiety disorders in adolescents and to determine other factors that may contribute to the development of mental health disorders in this population. There were many research questions asked to dig deep into the effect of social media on adolescents' mental health in many different areas of their lives. Historically, social media has been linked to the development of symptoms of depression and/or anxiety in adolescents depending on the users' duration of use, intention of use, gender, and the total amount of weeks, months, or years the user has been engaging in social media use through their accounts. After doing a literature review, a 10-question survey was distributed to junior high students at South Central Jr./Sr. High School to use as a comparison to the data collected during the literature review. It was discovered that the majority of the information collected from the literature review was aligned with the information collected from the surveys and that overall social media has a negative impact on the mental health of adolescent users.

The Factors that Contribute to the Success of First-Generation Low-Income College

Alejandra Montoya-Rubalcava

First-generation low-income college students typically struggle when transitioning from high school to college and throughout their college years. This is due to many first-generation low-income college students not having the resources they need to succeed or not being aware of

these resources. These resources include family support, pre-orientation programs, support programs, peer mentors, success coaches, and resources in high schools. The purpose of this research is to become aware of the factors that contribute to the success of first-generation low-income college students as well as the barriers that they face. The study was based on qualitative research, data was collected through an 11-question survey, and participants needed to be both currently enrolled and graduates of Indiana University South Bend, who are first-generation low-income college students. Snowball sampling was used, the participants were found by having peers who took the survey pass it on to people they know who fit the criteria. The survey results showed that 58% of the students who took the survey felt prepared to start their first year of college, 100% felt supported throughout their college experience, 83% had a support system at home, 83% did not know of the resources that colleges offer to first-generation low-income college students, and 67% were able to overcome the struggles they faced. These results showed that all of the factors listed have a big impact on the success of first-generation low-income college students. Having these resources available motivates students to complete the degree they want to pursue and graduate.

The Impact of Provider Deserts on Health Outcomes and Quality of Care

Megan Youngman

The objective of this research was to investigate the impact pharmacy deserts have on health outcomes and who is most vulnerable to the health disparities created by them. Despite legislation such as the Affordable Care Act, SPAPs, and other forms of government health insurance programs being implemented to help increase access to care, rural communities still struggle to get prescription medications due to drug and provider shortages in their area. This study utilized qualitative and quantitative data gathered from surveys distributed to citizens living in rural communities who are currently being treated by their doctor with a prescription medication. The survey was distributed using the snowballing method and social media to gather data regarding how citizens in rural settings are impacted by not having pharmaceutical and general practice providers in their area. It is hypothesized the research will show citizens who live in pharmacy deserts will experience difficulty getting to or in touch with a healthcare provider, increased prevalence of missing scheduled appointments, reduced prescription adherence, reduced access to medications, increased out-of-pocket prescription costs, lower vaccines rates, and lower access to important free preventative health services. After analyzing data from my survey. After analyzing data from over 100 responses, it can be summarized that while the majority of participants reported no difficulty getting to their doctor's office or pharmacy, their biggest barrier to optimal care lied in medication shortages in their area, delays getting prescriptions filled, and limited specialized doctors in their area.

The Impact of Social Media within Romantic Relationships

Megan Bretschneider

Recent research suggested that the widespread use of social media has the potential to disrupt romantic relationships, correlating with increased infidelity-related behaviors, particularly among individuals exhibiting signs of social media addiction. This research explored the intricate link between social media use among individuals in committed romantic relationships and the occurrence of infidelity behaviors. Through an examination of social media's impact on relationships, this study revealed communication preferences and the definition of infidelity within relationships. The methodology involved a quantitative approach that used surveys

distributed digitally on Facebook, a social media platform, and through physical flyers within the Indiana University South Bend campus and within Jeannie's House Diner that contained a scannable QR code. The survey targeted adults age 20-40 in South Bend, Indiana, involved in committed, monogamous relationships. The study revealed a positive correlation between social media usage in these relationships and infidelity behaviors. The research findings indicated that younger adults spent more time daily on social media, experiencing negative emotions such as anxiety, depression, or relationship strain due to their partners excessive social media use. Participants reported feelings of jealousy and insecurity, along with dissatisfaction regarding the level of trust and transparency concerning social media use within their romantic relationship.

The Impact of working on College Students Academic Success

Alexandria Shebell

More college students are working either part-time or full-time while enrolled in fulltime course work. Studies have looked to find the decline in study time of college students. Is it motivation or the lack of time causing the decline in study time? Financial stress has been associated with poor academic success, low graduation rates, dropout rates, and mental health issues. This study collected data from fulltime college students at Indiana University South Bend. For this study subjects must work between 20-40 hours to be included. Subjects must be enrolled full-time at the university of IUSB. Participants in this study include adults, any race, any gender, (between 18-30 years of age). The inclusion criteria for the non-working college students are that they must be adults, any race, any gender, (between 18-30 years of age), enrolled full-time at the University, do not have a job, who attend college at IUSB in South Bend, IN. This study examined quantitative data collected from student survey responses. The research aims to study the relationship of working on college students' academic performance. Out of 60 surveys 100% of students replied saying they must work because of bills and financial aid burdens. Out of 60 surveys 65% of students reported not feeling like they have enough time to complete assignments/projects while also having to work. 99% of students reported that working while having to attend school impacts their mental state and causes another layer of stress

The Invisible Struggle: Examining the Lives of Incarcerated Mothers

Jaela Patton

Incarcerated mothers face discrimination and are frequently perceived as having abandoned their children voluntarily in addition to being criminals (Walsh et al., 2023). However, research shows that mothers feel motivated to change for their children in prison (Sapkota et al., 2022). The social construction of these women in the media often lead to shaming incarcerated mothers. This exploratory research utilized a Modified Inductive Qualitative Content Analysis to examine media portrayals of incarcerated mothers. To investigate this special population, the docuseries "Born Behind Bars" was employed to see what themes might emerge. Research questions for the current study pertained to prison effects and the effects on mothers who have their children with them during incarceration. As a result, five main themes were found: loss of self-esteem, fear of future, lack of support, guilt, and shame. These themes further perpetuate the social construction of shaming mothers who are incarcerated. Limitations for the current study and future research will be examined.

The Juvenile Superpredator: Juvenile Portrayals in the Media

Ashley Wagers

The United States is the only country that imposes life without the possibility of parole (LWOP) for juvenile offenders when individual circumstances and maturity level have been considered by the court (Finholt et al., 2020). Although the Supreme Court ruling of *Miller v. Alabama* (2011) found mandatory LWOP for juveniles unconstitutional, states are still permitted to do so under certain circumstances. Hundreds of juveniles are still serving life sentences without the possibility of parole. The thought of juveniles committing horrendous offenses is shocking to the public, which further socially constructs the idea of a juvenile offender. Due to the portrayal of the juvenile super predator in the media, rehabilitation is often dismissed. The current research attempts to bridge the gap in the literature about juvenile offenders and media portrayals. Using a Modified Inductive Qualitative Content Analysis, two seasons of the show *Kids Behind Bars: Life or Parole* were examined over a month's time. The research questions analyzed juvenile rehabilitation and the necessity of sentencing juveniles to LWOP. Findings from the research showed four themes emerge, African American sentencing, sentencing for males, juvenile chivalry, and juvenile super predator. Future research and any limitations regarding this study will be discussed.

The Long-Term Effects of Parent Divorce on Adult Offspring's Well-Being

Lacie Jones

Divorce is a common way to end a relationship today, as many couples marry, have children, and then go separate ways. This experience is a high-stress life event for all individuals involved, especially the dependent children who have no control over this situation. Previous studies have discovered that these children have poor overall well-being, including poor school performance, and relationship issues. It has been hypothesized that individuals who experience parental divorce during their childhood are more likely to suffer poor well-being throughout adulthood. However, this hypothesis's validity has only been tested in a limited number of studies. In this study, quantitative data collection techniques, including an online questionnaire are utilized to discover if the long-term effects of parental divorce on children's well-being remain evident in adulthood. Through purposive sampling, participants aged 18 to 45 were asked a series of questions regarding their experience with parental divorce and how this has impacted their adult well-being. The results of this research concluded that 19 of the respondents (70%) feel at least moderately impacted by the effects of parental divorce.

The More you Know: Media Depictions of Sex Offenders on Fictional Crime TV Shows

Carly Hersick

Although sex offenders have some of the lowest recidivism rates (Navarro & Higgins, 2022; Rosselli & Jeglic, 2017), nonetheless, they are considered to be the most despised criminals due to the assumption that they are likely to commit another sex offense in the future. The media often inaccurately portrays sex offenders, thus contributing to the social construction and misperceptions of them. An analysis of rape in women networks was performed (Merken & James, 2019) to establish the criteria for defining "real" cases of rape and sexual assault. Employing a Modified Inductive Qualitative Content Analysis, four different episodes of popular fictional crime television shows (*Law and Order*, *Law and Order: SVU*, *Blue Bloods*, *Criminal Minds*) were analyzed. Research questions assessed the type of sex offender portrayed as well as

common traits and tactics. The results found four major themes (race, age, recidivism, gender). Potential limitations and future research will be addressed.

The Neurobehavioral Impact of Sleep Disturbances in Children with ADHD

Chloe Hartsough

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder that is one of the most common disorders seen in childhood. Children with ADHD have difficulties with paying attention, being overly active, and cannot control impulsive behaviors. This research project intends to examine how sleep disturbances caused by secondary factors may worsen the symptoms of ADHD and can decrease a child's social and intellectual interactions. The target audience for this study is parents and teachers of children with ADHD and possible sleep disorders. The recruitment process for this population was found through Dr. Klauer's TMJ Sleep Center in Granger, Indiana focusing on getting responses from children ages 5-18 years old. To complete this research Dr. Sahar, who specializes in pediatric sleep and tongue and lip ties, distributed the survey questionnaire link to patients in the clinic for parents/guardians of the child with diagnosed ADHD or possible undiagnosed ADHD to fill out. The methodology consisted of utilizing quantitative data with a survey using Qualtrics. The link would be distributed to the parents/guardians of pediatric patients. It is hypothesized that the symptoms children present with may not have ADHD symptoms but may just have an undiagnosed sleeping disorder as both symptoms are similar. Once the research is concluded would like to share the knowledge and results learned with schools and the surrounding communities to examine the early assessment process of a child with sleeping disorders before being put on medication for ADHD since symptoms of sleeping disorder and ADHD are similar behaviors.

The Problematic Vape Product Market and its Effects on Youth

Cassie Miller-Byam

With a boom in sales and increase in use, vaping products are holding a large space in the tobacco product market through convenience stores, vape shops, and online shops. There have been multiple research journals and articles that delve into the harm this can cause to individuals and who is at risk of picking up the habit. Due to how recently these products have come about, regulations are loose, there is an ease of access for minors, and there are many influences that begin this habit. The study I conducted aims to shed light on how companies are crossing moral boundaries. I used Qualtrics and found people aged 18-28 through the use of social media platforms and received 15 responses. After looking through the results of the survey, a majority of users started before the legal age of 21, half were able to purchase them underage from a store, and curiosity was a factor in starting use for many respondents. The data supports that many users could be influenced due to wanting to know what it is like and that it can be alarmingly easy for minors to buy them illegally. My poster goes more into detail about these factors and my analysis of the results found.

The Saliva Proteome of Dogs: Variations Within And Between Breeds And Between Species

Angel Brown, Grayson Barends

Domestic dogs are mostly kept as pets, though many breeds can survive on their own. However, there are a lot of myths surrounding dog saliva, especially whether it's antibacterial or whether a dog's mouth is cleaner than people's mouths in general. Thus, we are interested in determining

the source of transfer for rich bacteria that can either colonize the human body or transport to the host and can be considered as a risk in the spread of antimicrobial resistance. Researchers discovered that dogs have a type of bacteria, which is known to cause periodontal disease. It is a serious issue in this society when a dog bites a human. The purpose of this experiment is to see which antibiotic is most effective in the instance of a dog bite. Oral bacteria were collected and identified primarily using gram staining. Our results confirmed that dogs may carry a wide variety of microbiota, spanning both gram-positive and gram-negative bacteria. Dogs typically carry *Staphylococcus intermedius*. There are an increasing number of case reports documenting serious invasive infections with *S. intermedius* in humans including infected dog bite wounds. Dog saliva has some antibacterial and antimicrobial properties.

The Use of Behavioral Psychology in Food and Drink Advertisements

Liv Ramey

Behavioral psychology is a field of psychology that studies how emotions, thoughts, and behaviors interact with one another. Behavioral psychology is used in a variety of methods in marketing and advertising of food products to influence the consumers' decision-making process and their purchase. I conducted a content analysis over the course of three months studying the occurrence and patterns of the use of behavioral psychology concepts in food and drink advertisements. The inclusion criteria for this content analysis were advertisements in supermarkets, on social media, and on television during prime-time hours. Advertisements were also limited to those produced by the company or brand themselves and could not be advertising a limited-time sale. Upon completion of the data collection, I have concluded that behavioral psychology is used to some degree in every advertisement and the most frequently used forms are color psychology, the selling of a lifestyle, celebrity promotion, emotional ploys, and brand mascots. My content analysis discusses the patterns found during data collection and the implications of advertisements that use behavioral psychology on the decision-making processes and purchasing patterns of consumers.

The War on Cultures and Its Impact on the United States

David Saleh

The central focus of this presentation is the impact of the events between Palestine and Israel prior to and after the events of October 7, 2023 on the United States. When conflicts occur in nations outside of the United States, not only are people's lives affected, but entire cultures are also impacted because of the political stances taken as a result of these conflicts. Through the use of personal experience and a variety of different sources, including the United Press, New York Times as well as AP News, this presentation will argue that, since October 7, the perception of the culture of Palestine in the United States shifted from being viewed as one of peace to one of terrorism. It will argue that cultural relativism was extremely important in this phenomenon since the United States had close ties with Israel but also faced immense pressure from other Arab countries to end Israeli attacks on Palestinians.

Themes of Educational Solutions for the Hispanic Community

Diana Zebroski, Justin Neilson, Maritsa Arroyo Moreno

Three-part panel to speak about educational solutions/improvements for the Hispanic community. This panel will be presented in Spanish. Diana Zebroski will present a solution/improvement concerning nature education for the Hispanic community. Maritsa Arroyo

Moreno will present a solution/improvement concerning English as a new language in U.S. schools, and Justin Neilson will present a solution concerning cognitive improvement through the arts.

Thermal Equilibrium of A Reflecting Telescope

Cosmo Mason

When using telescopes it is important to understand how environmental factors affect their ability to function properly. It is important to ensure that the telescope is in equilibrium with its environment, as the temperature difference between the inside of the barrel and the outside air can cause the image to blur. We collected data on this change over the course of a few months with varying temperatures, environments, and weather conditions. We concluded that for the type of telescope used by a typical hobbyist, it takes roughly an hour for the telescope temperature to be equal to the ambient temperature. As predicted, the closer the temperature the telescope was to the ambient air the clearer the image produced. Outside temperatures change over time, which demands that the operator modify the optics settings over time. We used temperature sensors and a smartphone camera to document temperature and image quality. The temperature sensors are connected to a datalogger built around an Arduino microcontroller. One sensor was attached to the barrel, another was attached to the mirror (the objective) and one was mounted hanging in the air to read ambient temperature. The details of the experiment and the result will be discussed in the talk.

Thomas Jefferson, William Henry Harrison, and Annuities on the American Frontier

Zachary Densmore

William Henry Harrison was the first governor of Indiana Territory from 1800 to 1812. President John Adams appointed Harrison to the office, and Thomas Jefferson retained him. Jefferson gave Harrison the power to negotiate land cession treaties with the Native American Tribes in Indiana Territory. Jefferson encouraged Harrison to act quickly in response to foreign pressures from France, who had established mutual relationships with the Native Americans through the fur trade. Jefferson also had a Republican vision of an agrarian society on the frontier, which required land. Harrison's treaty-making expanded on the 1795 Treaty of Greenville and emphasized creating Native American dependence on the American government, primarily through annuities. Harrison's efforts resulted in many land cessions involving numerous tribes and achieved many of Jefferson's goals. However, Harrison's methods were unfair and ultimately resulted in war with the Native Americans, led by Tecumseh.

TikTok Tales: Unveiling Hate Crimes in the Digital Age and the Policy of Education on Prominent Cultures and Religions

Hillary Flores

In recent years, political tensions and historical conflicts have become prominent in hate crimes portrayed in the media. Social media has emerged as a powerful tool for spreading both loving and hateful speech, as well as attracting massive attention to hateful acts committed against minorities. Using a Modified Inductive Qualitative Content Analysis, the research explored TikTok videos to understand perceived patterns and themes of hate crimes. Through analysis of existing literature, case studies, and empirical data the research examined what type of hate crimes appeared to be most prominent and what ethnicities were targeted the most. As well as themes corresponding to the genders and ages of the victims and the genders and ages of the

offenders. Limitations of the study include sample bias of TikTok as it is run by an algorithm which is tailored to each user. The app might have filters to not display everything on hate crimes based on the user's patterns. Another limitation would be ethical considerations of client privacy that are not provided when using videos from TikTok as they often include identifying characteristics. For future research, exploring the extent to which digital hate crimes impact on the victims would be beneficial to refine future safety guidelines on these social media platforms.

Tooth Tutors: An Oral Health Program for 2nd-Graders at Liberty Elementary

Kaitlyn Runyan, Lacie Jones, Chloe Hartsough

Dental caries is one of the most infectious diseases in childhood, making oral health a prioritized health need within this population. Over the last two semesters, three senior dental hygiene students created the community outreach program the 'Tooth Tutors'. This program was aimed toward 2nd-grade students at Liberty Elementary School with the goal of promoting oral health through educational techniques. Through this in-class presentation, we started with a pre-test to collect base-line data about the 2nd-graders knowledge regarding oral health. During implementation, we presented the students with information about cavities, cavities prevention, and proper oral hygiene techniques. From here, the students were split into three groups in which they took turns demonstrating c-shaped flossing, the Fones brushing method, and identifying detergent foods to the dental hygiene students. Through these activities, we aimed to increase students' awareness of hygiene techniques. A post-test was completed to identify what the students gathered from the entire presentation. The program objective was for 80% of the class to demonstrate 75% proficiency in Fones brushing and c-shaped flossing, as well as identifying one detergent food from a given list. The results from the post-test concluded that the program objectives were met. Among the children in each activity group, 86% (13 children) successfully performed both the c-shaped flossing method and the Fones brushing method back to the dental hygiene students, and 80% (11 children) correctly recognized all detergent foods from a list.

Tweeting Away Malware: Cybershield

Edwin Gonzalez

Online Social Networks (OSN's) have introduced new communication methods such that new social relationships and connections between users give cybercriminals another medium through which they can propagate malware (Fleizach et al. 2007). The social construction of cybercrimes, as depicted in the media, often feature identity theft and cyberbullying, with concerned matters of malware distribution. To investigate distributions of malware on Twitter, a Modified Inductive Qualitative Content Analysis was used. The research questions addressed in the current study examined possible patterns and characteristics of accounts on Twitter and social engineering techniques to manipulate users. The findings showed four prominent themes pertaining to distribution of malware: tweets, account activity, bots, and celebrity cases. Limitations and potential areas for further study will be discussed.

Unveiling the Media's Influence on Mental Health Stigma of Mentally Ill Offenders in Prisons: Modified Inductive Qualitative Analysis Using Documentaries

MacKenze Kiser

Individuals with mental health issues have been socially constructed as being more inclined to commit violence. Researchers has invariably made it known that mental health while being incarcerated is more than just a societal problem. Furthermore, the mental illness stigma

surrounded in the media today is unbarring. Male inmates who seek treatment may be labeled as weak and unstable to deal with their own problems (Severson, Toman & Alvarado 2020). The media influences the public's perception with negative stereotypes through its predominately negative depictions of individuals with mental illness (Chan & Yanos, 2017). These misconceptions stem from a variety of media types. Through the methodology of documentaries, (e.g. The Definition of Insanity, The Released, The New Asylums, and Warehoused: Life & Death of Tristin Murphy). The current research used a Modified Inductive Qualitative Analysis to examine documentaries regarding the mental health stigma with mentally ill male offenders. Results included four themes related to male incarcerated mentally ill offenders: more training needed, isolation, failed society/nation, and no empathy. Research questions for the study explored the type of labels incarcerated male mentally ill offenders receive and as well as the types of services implemented for these individuals. The limitations of this study and future research will be explored.

Water Conductivity: A Physicist's Approach to Studying Water Quality

Phillip Derrickson

The health and quality of communities is dependent on the quality of the water around it, the better the water quality the healthier the community. Regular testing is prohibitively expensive however, and water studies occur on the order of years (five in the case of the St. Joseph River here in South Bend). This is a long period of unaccounted time for water to flow and contaminants to be introduced. The solution is to find a low-cost method of estimating dissolved solids in flowing water. The solution to this problem is to take advantage of our understanding of the flow of electricity to measure the conductivity of moving freshwater in real time. Developing devices utilizing Arduino microprocessors and homemade electronic components, we can take real time conductivity measurements of running water and estimate how much dissolved solids are present (units on the scale of $\mu\text{S}/\text{cm}$). Consulting with other measured acceptable levels of total dissolved solids, this device can act as a low-cost signal, to warn the community of a problem before it worsens.

What Oral Hygiene Practice Do First Graders Implement at Home?

Andrietta Scott

The purpose of this research is to explore the effects of dental homecare education on the oral hygiene habits of first graders at school. Understanding the homecare dental hygiene habits in small children and the oral health education received in the household can reveal ways to promote parental involvement and educate entire families. Oral hygiene practices and children's oral health status are heavily associated with parents' education, and economic status. Children without a strong foundation of oral hygiene behaviors and health literacy are likely to have experience one or more oral diseases. This study implements quantitative research while utilizing surveys to gather results. Participants for this study include first grade children (6-7 years old), teachers, and parents/guardians from an elementary school in Westfield, Indiana. The research purpose is explanatory to address known topics and concerns. The research will be constructed from past exploratory research to further address concerns of oral health and oral hygiene practices in children. Paper questionnaires will be used to gather data and electronic questionnaires using Qualtrics to reach participants that are out of classroom or not at the site chosen. Teachers, parents/guardians, dental professionals, and medical professionals will also have insight into the behaviors and the ages they are introduced, impact children's oral health

and daily oral hygiene routines. It is hypothesized that children with early childhood exposure to oral health information and health literacy develop strong and appropriate oral hygiene practice methods as well as reduce oral disease and disorders.

Whispers from the Shadows: Unveiling the Dynamics of Traditional Stalking

Samuel Snodgrass

Traditional stalking has not received a thorough examination in existing literature. While known for its dynamic nature, the behaviors and motivations involved may evolve influenced by environmental factors (Thompson, 2020). The term "stalking" has come to have a colloquial meaning, primarily when used in reference to the act of "stalking" an individual's account on social media platforms such as Instagram or X. This informal terminology fails to recognize the gravity of stalking as a criminal act; this type of social construction can have negative consequences. Utilizing a Modified Inductive Qualitative Content Analysis, fictional crime TV shows such as YOU, Criminal Minds, Gypsy, and The Rookie were examined. Research questions provided insight into the psychological causes and motives behind stalking, along with identifying the similarities and differences in the dynamics of male-to-female stalking in comparison to female-to-male stalking. Themes such as obsession, manipulation, control, deception, and justification emerged from the analysis. Relational proximity analysis revealed connections between themes, notably stalking to manipulation and control, deception to justification, and justification to manipulation and control. While the research provides valuable insight, it also considers certain limitations that must be examined further in subsequent research endeavors.

Why Parents are Choosing to Be Ant-Vaccine Advocates

Kaira Simpson

This research will dive into why parents choose not to vaccinate their children by gathering information from this population. This population includes individuals who live in either South Bend, Indiana or Niles, Michigan, male or female, and who have a child or children from ages newborn to ten years of age. The data will be collected through surveys completed via social media (Facebook). The survey was created on Qualtrics and the link was shared with participants. There are many different reasons why parents are choosing not to consent to their children receiving childhood vaccinations. The results gathered from this survey will provide the top reason for parents choosing not to vaccinate. The results collected from this research, varied mostly between parents choosing not to vaccinate their children due to adverse reactions and the lack to information on childhood vaccinations. This survey collected thoughtful responses supporting their reasoning for and against vaccinating. I have gained lots of education involving research and collecting data. I have learned how to reach out to specific populations, building trustworthy relationships, and methods involving collecting data. I am proud of to show off this research!

Within Our gates Divided

Sahara Mackey

The conversation about the modern state in which Black Americans find themselves is usually centered around how systemic racism has caused Black people to suffer. Whether it be financially, emotionally, socially, or psychologically Black individuals in America have not been given an equal opportunity. One could argue that it is obvious the effects that White racism has

had and still has on Black Americans. However, there is not enough conversation around how White racism led to a sort of Black inside-racism. Black Americans often times turned on each other. The argument can be made that if one takes a people and dehumanizes them and does this on the basis of physical characteristics such as skin complexion, eventually those said people will believe themselves to be sub-human and of course they would go on to project this mentality onto others who resembled them. In the film *Within Our Gates*, director Oscar Micheaux utilizes the characters of Effrem and Old Ned to highlight the figurative corner that African Americans were often forced into having to choose between self-preservation or support for their community. This survival tactic is highlighted in the shot of Old Ned Standing with his back to the door and Effrem being lynched.

Women with Mental Health and Offending

America Esparza

The population of women incarcerated has increased more than 750% (Park, 2022). The number of female offenders with mental health issues has drastically increased in prisons across the U.S. Issues pretraining female offenders and mental health are that, media is creating inaccurate information regarding the population of women being incarcerated and women acting like they have a mental health issue to get a lesser sentence. The media portraying this is taking away awareness from mental health occurring in sanctions. The method used for this study was Modified Inductive Qualitative Content Analysis. The research questions observed were the types of mental health issues that occurred more for these women incarcerated and the types of punishments these women with mental health issues faced. The information was gathered by selecting four podcasts (“Examining Gender Differences In Mental Health”, “Behind Bars, mentally Ill Inmates Are Often Punished for Their Symptoms”, “Mentally Ill and Incarcerated”, “Mental Health struggles in Prison”). There was extensive note taking regarding these podcasts. There was also a selection of two literature reviews to gain more knowledge on the topic and extend my research to get my findings. Limitations pertaining to the current study and future research will be discussed.