

Student Research Symposium Proceedings



Missouri Valley College
Fall 2024





Missouri Valley College

Marshall, MO, USA

Student Research Symposium Fall 2024
Proceedings

02nd December 2024

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Message from the President, Missouri Valley College

The flagship Missouri Valley College Student Research Symposium is a testament to our commitment to academic excellence, innovation, and student success. This event provides a platform for students to showcase their research and creative endeavors, fostering an environment where inquiry, discovery, and intellectual curiosity thrive. Through this Symposium, we celebrate the dedication of our students and faculty in advancing knowledge and contributing to meaningful academic discourse.

At Valley, we foster innovation, collaboration, and excellence in education. We welcome research or creative work from every academic school and discipline. We support student success by promoting research-based teaching practices, meaningful discussions, professional development, and experiential learning opportunities. Our initiatives align with Missouri Valley College's mission, enhancing intellectual inquiry through shared resources, feedback, and campus-wide partnerships.

This year, we are introducing a significant addition to the Symposium—the launch of post-conference proceedings that will be indexed with our library. This new endeavor provides a platform for showcasing the excellent work of our students and offers a strong means to highlight their scholarly and creative contributions moving forward. By capturing and preserving the research and creative works presented at the Symposium, we are reinforcing the importance of sharing ideas, fostering academic dialogue, and preparing students for professional and scholarly engagement during their time at Valley.

The Symposium provides ambitious, intellectually motivated undergraduate students the opportunity to present and defend their original research or creative work among peers, faculty, family, and friends. Through its emphasis on original research and creative work, the Symposium seeks to inspire undergraduate students to analyze, critique, and engage with the world around them. The addition of an indexed academic publishing opportunity further underscores our commitment to the professionalization of student work, ensuring that their contributions receive the recognition and longevity they deserve.

I extend my heartfelt congratulations to all participants and gratitude to the faculty and staff who make this event and publication possible. I look forward to witnessing the outstanding achievements of our students and the lasting impact their work will have within and beyond our academic community.

Dr. Joe Parisi -President

Missouri Valley College

Message from the Vice-President of Academic Affairs

Dear Missouri Valley College Community,

The Missouri Valley College Fall 2024 symposium highlighted the dedication, creativity, and academic excellence of our students, whose research spanned a diverse range of disciplines and reflected the depth of inquiry fostered at Missouri Valley College.

Research is at the heart of discovery and progress, and this event honored the hard work and perseverance of our student scholars. Their efforts-guided by the mentorship of our esteemed faculty exemplified the spirit of inquiry that defines higher education. Throughout the symposium, we celebrated student achievements while fostering collaboration, critical thinking, and the exchange of ideas that will shape the future.

This semiannual event is more than a showcase of research; it embraces celebration of the intellectual curiosity and commitment that drive academic success. Engaging in research and scholarly inquiry strengthens critical thinking, creativity, and problem-solving skills. These experiences open doors to scholarships, internships, and career advancements, reinforcing the real-world impact of student research.

Congratulations to all participants for their outstanding contributions to scholarship and innovation. Your ideas and discoveries matter, and your research has the potential to create meaningful change.

In pursuit of wisdom and understanding,

Cynthia J. Bice, EdD

Vice President of Academic Affairs

Dean of Graduate Studies

Message from the Co-Chairpersons / SRS 2024

It is our pleasure to present the proceedings for the Fall 2025 MVC Student Research Symposium. We are proud to honor the excellent scholarship of our curious, creative, and hard-working students and we are grateful for the time, resources, and care invested in the Symposium and the Proceedings by our faculty, staff, and administration. Special thanks to Dr. Tonya Eddy, Dr. Chamara Jayasundera, and Reid Ronsley for their indefatigable work to launch this publication.

Warmly,

Claire Schmidt and Jenn Livengood

Symposium Co-Chairs/ Fall 2024

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Dr. Chamara Jayasundera, Ph.D.

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PROCEEDINGS

School of Arts and Humanities

Spanish Freshmen Mental Health

Carlota Abril Davila and Claire Schmidt

School of Arts & Humanities

This project in Claire Schmidt's class deals with the mental health of freshman students in Spain. We focused on conducting interviews with different students on campus, specifically from Spain. Thanks to the information we collected, we were able to conduct a simple study that shows how the mental health of these students evolves over the years. I conducted research using websites, primarily Credo to find images and information to persuade my readers to visit Vermont. Using the MLA format, I cited all sources including images that were used in the brochure.

Keywords: Freshmen, Mental Health, International Students

SpAr Debate

Royce Adeniken, Micah Mumford and Douglas Roberts

School of Art & Humanities

This presentation of debate will examine the debate format of Spontaneous Argumentation (SpAr). SpAr debate is a limited preparation style of debating that provides a short amount of time to prepare on a topic both debaters have not seen before. The two participants will receive three different topics. The negative will strike one topic and then the affirmative will select the final topic between the two topics that remain. The two debaters will have 10 minutes of prep and will have approximately a 15 minute debate. The topic of this debate will explore relevant topics of interest pertaining to athletics.

Keywords: SpAr, Debate

The Scars Beneath our Sweaters

Kila Burchett and Matt Rahner

School of Art & Humanities

Jim Goldberg's book, *Rich and Poor* was my inspiration for this project; in this book, he shows us the reality of society's different perspectives. His subjects aren't posed for a perfect picture, he shows us the ugly parts that no one wants to see. With these pictures, he included handwritten notes from the subjects that add even more depth and meaning to the photos. My project will portray the real parts of being a woman today that society wants to suppress. It won't be pretty and posed, but real and meaningful. In this series I will show the hardships these women have endured and the issues our culture seemingly ignores. Along with the pictures will be handwritten notes of acknowledgement and encouragement from these women as a message to others not to be afraid to speak out and make our troubles known.

Keywords: Women in Society, Photographic Story

Performance of Distinction in Debate: Poetry Interpretation

Maria Greider and Douglas Roberts

School of Art & Humanities

According to the Anxiety and Depression Association of America, anxiety affects over 40 million Americans as one of the largest mental illnesses faced by Americans, yet only 36.9% receive treatment. Regularly, people are made fun of or told their anxiety is not a real instance of a mental health concern. Yet, this population is six times more likely to be hospitalized than those who do not face some form of anxiety. This nationally qualified debate performance is a representation utilizing poetry in order to tell a story surrounding the experience of living and struggling with anxiety. This performance is an advocacy piece pushing for better awareness and understanding of anxiety in our world.

Keywords: Anxiety, Poetry Advocacy

Rising Stars in Debate: Poetry Interpretation

Angelica Mancilla and Douglas Roberts

School of Art & Humanities

Feeling lost is not as uncommon as we might think it is, especially not in college. According to Business Wire 51% of students are not confident in their career path when they enroll into college and more than half of students change their majors at least once. Furthermore, according to PsychCentral thought college, students get to work on several skills such as, managing emotions, establishing an identity, and clarifying their purpose. Feeling lost is part of the process of getting to know ourselves. Although it is unpleasant, it's often a good sign, we are making major changes to ourselves and giving space for growth. With the poetry *I'm Trying to Put Together a Puzzle* by JJ Evendon, *Clear Vision* by Faerie, *Lost in the Woods* by Allan Brunmier, *Mirror* by Rita Dove, *Human* by Rachel H, *She is Clarity and Confusion* by Perry Poetry and *Life is a Mystery* by Julia L.

Keywords: Debate, Personal Growth

Silent Frail

Carla Medina and Mia Johnson

School of Art & Humanities

In *Silent Frail*, Medina represents a woman's portrait where her body is wrapped in a blue cloth, which appears transparent in some areas of the face to show the liberation of the suffocating cloth that is weighing her down, showing her evolution and mental struggle. The figure takes the focus for the oil painting while the background has a gradient brown color to express the evolution and progress of oneself.

Keywords: Mental Struggle, Women

Performance of Distinction in Debate: Extemporaneous Speaking

Tru Naumovitz and Douglas Roberts

School of Art & Humanities

Extemporaneous Speaking is a limited prep format of speaking where speakers receive three questions and thirty minutes of preparation. The speaker will select one question and prepare a complete seven minute speech answering that question. This presentation by a nationally qualified extemporaneous speaker will demonstrate fast paced research skills to answer extemporaneous questions surrounding popular culture.

Keywords: Extemporaneous Speaking, Debate

How Can an International Basketball Student-Athlete Find the Right Agency to Get an NCAA Athletic Scholarship?

Manuel Raguso, Kali Yassir and Claire Schmidt

School of Art & Humanities

This project is meant to be a guide for international basketball student-athletes in the pursuit of acquiring an NCAA athletic scholarship through the aid of a respectable sports agency. Finding an agency that fits an athlete's goals, abilities, and compliance with the NCAA can often be an extremely cumbersome process for an individual who has no experience in the American collegiate system and its complicated recruiting processes. The key factors that dictate an agency's suitability include: reputation, experience with international athletes, knowledge of NCAA eligibility requirements, and services offered, such as skills training, academic advisement, and exposure through showcases. We will detail steps on how to evaluate agencies, interviews to conduct, and how to verify credentials to ensure the agency practices ethically. We will also touch on part of maintaining eligibility by avoiding professional contracts or improper endorsements when it comes to the NCAA amateurism rules with international athletes.

Keywords: Sports, International Basketball, Scholarship

The Purple Patch's Drive60 Writing Contest

Reid Ronsley and Claire Schmidt

School of Art & Humanities

The Purple Patch, Missouri Valley College's literary and arts journal, has launched a writing contest open to students within the Drive60 Scholarship area; with this contest, the editorial board members hope to encourage young writers to explore the reasons they write and the ways literature can impact the world. The contest will have two categories, creative writing and academic prose. Three winners will be selected for each category, with the 1st and 2nd place winners receiving a cash prize. The six winning submissions will be published in the Purple Patch. The presentation will introduce Sigma Tau Delta and the Purple Patch, then describe the process of developing and promoting the contest to high schoolers and homeschoolers within a sixty mile radius of MVC's campus.

Keywords: Drive60 Scholarship, Writing Contest

Japanese Automatic Parking

Diego Ruiz, Shosei Watanabe, Santiago Castenada and Claire Schmidt

School of Art & Humanities

We are going to present a paper about how to create a small company about automatic parking in Tokyo, Japan. Our idea is to search for information both in documents, articles, books and through individuals to collect as much information as we can. Also, we will gather information by asking running companies how they sustain themselves and how it works to have a business. In addition, our idea is to show that growing a small business to a large one is possible. The idea of the project is to make a poster and present it to our class so that they can learn about this business method. Finally, we want to pass on this information to show our teacher Claire Schmidt how much we have dedicated ourselves to this project.

Keywords: Company Start-Up, Japan, Auto Parking

Kenya: The New Wave of Marathon Runners

Gagandip Singh, Tomas Ayapé and Claire Schmidt

School of Art & Humanities

Kenya is famous for producing some of the world's best marathon runners, known for their speed and endurance. Today, many young athletes in Kenya are attracted to marathon running, seeing it as a way to achieve success and recognition. For these young runners, the marathon represents more than just a sport; it is an opportunity for personal growth and social change. However, the intense competition can also lead to mental health challenges, which are often overlooked. Compared to previous generations, today's young athletes face greater pressure due to social media and high expectations. This project will explore how these young Kenyan runners handle the mental health challenges they encounter while benefiting from the growing popularity of endurance sports in Kenya.

Keywords: Kenya, Marathon Runner, Mental Health

School of Business and Technology

Leadership in Transition: New Models for a Changing Society

Lucía Valdivia Escabias

School of Business and Technology

Leadership is a fundamental ability, present in almost every job and field in our daily life. Our society is continually growing and changing, as it does, leadership models have also evolved. This presentation will unveil new methods of leadership, which have been incorporated into society due to the digital era and emotional intelligence. This research explains step-by-step how leaders should communicate and build strong relationships with their followers, and manage or resolve conflicts in stressful environments. In addition, qualities of a current leader, and how future leaders are sought to be cultivated through tailored training program or mentorship initiatives, are explained. At the end of the presentation, questions such as “How can the new generations learn to be good leaders?”, or “What is considered as a “good leader” nowadays?” will have been answered.

Keywords: Changing Society, Leadership

Impact of Playing Surface on Lower Extremity Injuries in Men College's Soccer: A Comparative Study of Grass and Turf Fields

Andrea Grigoras and Mel Corlija

School of Business and Technology

An increasing number of college campuses are being asked to support more outdoor athletic teams, which poses a challenge for athletic departments trying to stay within budget constraints. One potential solution is converting natural grass fields to synthetic turf, which research shows has various advantages. However, synthetic turf also appears to increase the risk of lower extremity injuries. Our qualitative study examined injury reports from two comparable men's college soccer teams—one playing on natural grass, the other on synthetic turf. Using a Two Proportions: Two-Tail Z Test, our findings aligned with previous studies, confirming increased injury rates on synthetic turf and leading us to reject our null hypothesis.

Keywords: Impact of Playing Surface, Men College's Soccer

Beyond the Court: Economic Impacts of Sports in a Post-Pandemic World

Diogo Hansen, Matheus Curl and Rina Fedorowich

School of Business and Technology

This project aims to understand the role sports had on the recovery of the global economy post-pandemic, with a bigger focus on its impacts within the United States. We aim to analyze how different modalities across the globe adapted to COVID given their limitations and geographical circumstances, looking into different types of tournaments (national and international) across different types of sports, such as the Champions League in Europe and the NBA in the United States. We look at how and why changes in economic factors may or may not have taken place within this business and how the pandemic affected the economics of sports and vice-versa. With that, we look at how companies and institutions related to the business were able to come back from a revenue drop of more than 60 billion dollars in the U.S. only.

Keywords: Sports Economics, Post-Pandemic Impact

Smart Savings: A Guide to Education Tax Credits

Lane King and Christina Wilson

School of Business and Technology

The aim of this poster is to give a comprehensive overview of educational tax credits. These credits include the American Opportunity Credit and the Lifetime Learning Credit. It will detail eligibility criteria, potential savings, and the application process. Many students are unfamiliar with tax returns and tax credits, so educating them on potential money they could receive just by adding additional information on their tax returns could save them a substantial amount of money and reduce their overall education expenses. Through making this poster, even if it only helps one student, that student will have more money that can go towards bolstering their education and future.

Keywords: Tax Credits, Smart Savings

Risk Management: Playing It Safe in Your Financial Journey

Xhuliano Marku, Christopher Libby and Milena Simic

School of Business and Technology

Understanding risk is crucial, as it distinguishes between achieving financial stability and facing potential bankruptcy. Every financial decision carries inherent risks, whether it's purchasing a home, saving for retirement, investing in the stock market, or buying a car. In this presentation, the audience will gain insights into the fundamentals of organizational risk management, with a particular emphasis on personal financial risk. I will define risk management and discuss various techniques for identifying risks. We will examine common financial risks, such as job loss and unexpected medical expenses, supported by relevant data from the United States. Furthermore, we will explore how individual risk tolerance varies, impacting preparedness for adverse events. In conclusion, we will outline effective strategies for managing risk, including budgeting, to enhance financial resilience.

Keywords: Financial Resilience, Potential Bankruptcy

Operating Systems and Virtualization

Rubal Pradhan and Tom Rodriguez

School of Business and Technology

This project explains how virtualization has become a key technology in modern computing, allowing better use of resources, improved scalability, and flexibility, especially in cloud and enterprise systems. In the project, I will examine how operating systems manage virtualized environments, focusing on resource allocation, I/O management, and security in virtual machines (VMs) and enclosed systems. I will talk about how operating systems have adapted to support virtualization, using hardware features and advanced scheduling to improve performance. This project also highlights security challenges like VM isolation and threats, and the growing role of virtualization in hybrid and edge computing. By comparing different virtualization methods and operating system approaches, my project offers insights into the future of operating systems in a virtualized world.

Keywords: Virtualization, Operating Systems

Building a Brand: The Role of Social Media in Shaping Department Identity

Inês Rocha, Leonardo Borzaga and _____ Simic

School of Business and Technology

Our "Building a Brand: The Role of Social Media in Shaping Department Identity" project researched effective ways social media can raise the School of Business and Technology through visibility and engagement. Charged with the responsibility of managing the department's Instagram, our objective was to create an energetic and yet coordinated online brand identity appealing to students, faculty members, and prospective students alike. This shall be actualized through the implementation of targeted content strategies, visually appealing posts, and interactive reels showcasing events taken and experiences of the students. It was also important to analyze the audience's engagement for feedback to refine the approach in order to make sure that the approach is in tandem with the mission and values of the department

Keywords: Building a Brand, Role of Social Media

Applications of Modern Abstract Algebra in Cryptography

Paula Romero and Liam Kahmeyer

School of Business and Technology

The paper discusses some of the major applications of abstract algebra to cryptography, especially representing how algebraic structures such as groups, rings, and fields provide a foundation for various modern cryptographic protocols. The main emphasis is on public-key cryptography. We discuss how finite groups, together with modular arithmetic, are used to develop secure encryption systems, with specific focus on the Diffie-Hellman key exchange and RSA encryption. The paper will also discuss elliptic curve cryptography, pointing out the efficiency and security advantages it receives from the algebraic properties of elliptic curves. In this way, this paper intends to show how abstract algebraic principles build up cryptographic methods that are robust yet efficient.

Keywords: Abstract Algebra, Cryptography

Necrotizing Fasciitis

Josie Stuver and Michele Reinke

School of Business and Technology

What is Necrotizing Fasciitis? Necrotizing fasciitis (NF) is a soft tissue infection that usually affects the fascia and subcutaneous tissue and advances rapidly, and is characterized by widespread tissue necrosis. It is often brought on by trauma, surgery, or underlying conditions like immunosuppression or diabetes. NF is typically caused by a polymicrobial infection, with *Streptococcus pyogenes* and *Staphylococcus aureus* being common causes. Systemic symptoms such as fever and shock, erythema, edema, and excruciating pain that is excessive for the initial lesion are examples of clinical presentations. Unfortunately, these symptoms can often be misdiagnosed for other diseases which can prevent the patient from getting the proper care. Better outcomes require early diagnosis, rapid surgical intervention, and broad-spectrum intravenous antibiotics. This poster presentation will address semiology, diagnosis, therapy, and the disease's long-term effects.

Keywords: Necrotizing Fasciitis, Widespread Tissue Necrosis

Residential Energy Tax Credits

Elijah Wise and Christina Wilson

School of Business and Technology

Home Energy Tax credits are credits that are available if a homeowner or renter makes improvements to their existing primary residences; some improvements to secondary residences can also apply; from 2022 to 2034. Homeowners and renters can take a percentage of the total cost of improvement in the year of installation up to a specified dollar amount. In order to qualify, improvements must be used for clean energy or have met or exceeded the 2021 Energy Star efficiency criteria or the Energy Conservation Code standards. This tax credit has no lifetime dollar limit and you can claim the maximum annual credit every year that eligible improvements or installations are made until 2033.

Keywords: Tax Credits, Residential Energy

School of Education and Social Sciences

State Tri-Fold Brochure: Vermont

Carlota Abril Davila and Penny Clair

School of Education & Social Sciences

I work for the tourism board in the advertisement department for the state of Vermont. I decided to create a tri-fold brochure on Canva to promote tourism and highlight the best places to visit such as attractions, events, and activities that will capture the interest of my readers. I also included images of unique attractions that set the state apart from others. I conducted research using websites, primarily Credo to find images and information to persuade my readers to visit Vermont. Using the MLA format, I cited all sources including images that were used in the brochure. I discuss the two best seasons to visit Vermont, fall and winter. I talk about the different opportunities that this territory offers such as skiing in Killington where we can find the most snowy ski slopes in the world, or also where you can visit the Ben & Jerry's ice cream factory in Burlington.

Keywords: Vermont, Tourism

State Tri-Fold Brochure: Louisiana

Tomas Ayapé and Penny Clair

School of Education & Social Sciences

I work for the Louisiana tourism board in the advertisement department for the state of Louisiana. I decided to create a tri-fold brochure on Canva to promote tourism and highlight the best places to visit such as attractions, events, and activities that will capture the interest of my readers. I also included images of unique attractions that set the state apart from others. You will see the 6 best places and activities that you can do in Louisiana. I conducted research using websites, Credo, Academic search complete, photo dune, etc... For some pictures to find images and information to persuade my readers to visit Louisiana. With my brochure you will want to go to Louisiana. I used the MLA format, I cited all sources including images that were used in the brochure.

Keywords: Louisiana, Tourism

To What Extent Does the Current Extreme-Right in Europe Have Direct Impacts on the Liberal Democracies of Italy, Germany, and Spain?

Ona Bartolome-Areny, Christopher Libby and Tiffany Bergman

School of Education & Social Sciences

This project examines the resurgence of far-right parties in Europe, particularly in Italy, Germany, and Spain—countries with histories of dictatorship under Mussolini, Hitler, and Franco. The investigation centers on the impact of parties like Italy's Northern League, Germany's Alternative for Germany, and Spain's Vox on European liberal democracies, addressing the question: "To what extent does the European far-right influence liberal democracies in these countries?" The findings highlight two primary factors in this resurgence: generational shifts and ongoing crises. Young people who lack direct experience with past far-right dictatorships may be unaware of the dangers, while current challenges related to immigration, economics, and politics have eroded public confidence in mainstream governments. This dissatisfaction creates a space for far-right groups to step in, offering simplified solutions to complex issues, thereby drawing substantial support.

Keywords: Democracy, Europe, Liberal

State Tri-Fold Brochure: Washington

Kaina Bitencourt Fiel and Penny Clair

School of Education & Social Sciences

I work in the advertising department of the Washington State Tourism Board. I decided to create a tri-fold brochure on Canva to promote tourism, highlighting the best places to visit, such as attractions, events, and activities that would capture the interest of readers. I included images of unique attractions that set the state apart. I conducted research using websites, primarily Credo, to find information and images that would persuade my readers to visit Washington. Some of the must-see locations include the Space Needle in Seattle, the Zoo and Aquarium in Tacoma, and Bellevue Square. To ensure the brochure effectively targets its audience, I also included local restaurants, hiking trails, and scenic spots like Mount Rainier and the San Juan Islands. These destinations offer a variety of experiences that showcase Washington's natural beauty. Using the MLA format, I cited all sources including images that were used in the brochure.

Keywords: Washington, Tourism

Mapping Diversity: An Analysis of International Student Representation and Strategic Recruitment at MVC

Joaquin Calderon

School of Education & Social Sciences

This short study explores the diversity of the international student population at Missouri Valley College, examining the range of countries represented, the factors contributing to higher enrollment from specific nations, and strategies to enhance recruitment efforts in underrepresented regions. By analyzing the distribution of international students and identifying the motivations that attract students from certain areas, this research aims to provide insights into how Missouri Valley College can build a more inclusive and globally diverse campus.

Keywords: Recruitment, Diversity

Drug Policies and its Impact on Crime Rates

Chandler Christiansen and Karen Reeter

School of Education & Social Sciences

The purpose of this study is to examine drug policies and its impact on crime rates. If the United States implements drug policy reforms then there will be less drug related criminal activity. With current socioeconomic factors like poverty, unemployment, and social exclusion affecting citizens with a drug problem creating drug related criminal activity. With the current drug policies in place in the United States it is creating mass incarceration for drug related criminal activities. If we can create drug policy alternatives and reforms it can help lower the mass incarceration rate we are seeing in our prisons.

Keywords: Drug Policy, Crime Rate

The Power of Education and the Book *Educated*

Felipe Delcorco

School of Education & Social Sciences

The 2018 memoir *Educated* is about Tara Westover's journey from growing up in an isolated family with no formal education to discovering the power of learning and transforming her life. Education is essential because it helps us have different perspectives and ideas and formulate our opinions based on our beliefs. Learning helps us discover what interests us and how we can make a difference in our world, equipping us with many skills to solve problems and help others. *Educated* proves that through education, individuals gain knowledge, skills, and understanding that empower them to overcome challenges, pursue their dreams, and contribute positively to the world.

Keywords: Book Summary, Education

State Tri-Fold Brochure: Colorado

María García Rodríguez and Penny Clair

School of Education & Social Sciences

I work for the tourism board in the advertising department for the state of Colorado. I decided to create a tri-fold brochure on Canva to promote tourism and highlight the best places to visit such as attractions, events, and activities that will capture the interest of my readers. I also included images of unique attractions that set the state apart from others. I conducted research using websites, primarily Credo to find images and information to persuade my readers to visit Colorado. I talked about the capital of Colorado, Denver. I focused on two activities, one of them is the Red Rocks and the other one is Rocky Mountain National Park. Then I talked about Aspen, what activities you can do there, and I am focused on Christmas vacation. For example, see Christmas tree lighting ceremonies. Using the MLA format, I cited all sources including images that were used in the brochure.

Keywords: Colorado, Tourism

Student Perceptions of Mental Health Services on College Campuses

Ryan Greenwood

School of Education & Social Sciences

This study investigates student perceptions of mental health services at Missouri Valley College, focusing on factors such as adequacy, accessibility, stigma, and barriers to help-seeking behavior. As mental health challenges like anxiety, depression, and stress increasingly affect college students, institutions must provide adequate support systems. Previous research highlights the impact of stigma, accessibility issues, and perceptions of service adequacy on student utilization of mental health resources. Through a survey of Missouri Valley College students, this study seeks to determine whether the current mental health services meet their needs and identify potential improvement areas. Findings indicate that while awareness of mental health services is relatively high, stigma and accessibility issues remain significant barriers. The study concludes with recommendations for enhancing mental health support at Missouri Valley College, including increasing resources, improving outreach, and fostering a more supportive campus climate to promote positive student mental health outcomes.

Keywords: Mental Health Services, College Students

Evaluating the Association Between Procrastination and Academic Achievement

David Gysbers

School of Education & Social Sciences

It has been well established that procrastination is a significant issue among college students. Prior research has documented the high prevalence of procrastination and the relationship between procrastination and academic success. This study aims to determine the impacts of procrastination on student achievement at Missouri Valley College. This research will focus on active versus passive procrastination, academic apathy, and their correlation with academic achievement. A convenience sample of 100 Missouri Valley students will be analyzed through an online questionnaire containing 34 items. This questionnaire will test four categories: general procrastination, active versus passive procrastination, academic apathy, and academic achievement. After collecting the responses, the data will be presented and discussed.

Keywords: Procrastination, Academic Achievement, College Students

Understanding and Developing Academic and Behavioral Interventions for Students with Bipolar Disorder

Jayden Hardy and Rhonda Ryther

School of Education & Social Sciences

This argument expresses different ways the teacher in a classroom can help the student or students with bipolar disorder not only academically but also with their behavioral characteristics. As Educators there are still problems in the classroom handling and helping students with bipolar disorder not only emotionally but the students still tend to have behavior problems in the classroom. As educators we need to help these students with bipolar disorder by showing and expressing different learning strategies, different instruction as teachers and also the student attitudes and how they improve in the classroom.

Keywords: Education, Bipolar Disorder

The Milestones of Development in Children

Cheyenne Hendrix-Woodward and Rhonda Ryther

School of Education & Social Sciences

Every child's development is different but most follow in the same age range. By a certain age, children should be hitting milestones of interactions with others, social skills, and some behavioral tendencies although children with Autism tend to fall behind in these categories. Not every child who falls behind in milestones has Autism, maybe they just need to work more on each step of development. Although people focus on the negative aspects of Autism there are times when an autistic child develops better in some skills.

Keywords: Child Development, Autism

AAC

Marco Iberle and Rhonda Ryther

School of Education & Social Sciences

Augmentative and Alternative Communication (AAC) assists students who have difficulty communicating orally in the United States. Electronic AAC devices allow them to express their thoughts and needs in other ways, such as through tablets or specialized speech computers. These technologies not only support students in the classroom but also strengthen their social relationships and self-confidence. Teachers and therapists often work closely together to select customized devices and software that meet the student's needs. AAC is helping to make education more inclusive and enabling all children to develop better communication and learning skills.

Keywords: AAC, Oral Communication

State Tri-Fold Brochure: Oklahoma

Yassir Kali and Penny Clair

School of Education & Social Sciences

I work for the tourism board in the advertisement department for the state of Oklahoma. I decided to create a tri-fold brochure on Canva to promote tourism and highlight the best places to visit such as attractions, events, and activities that will capture the interest of my readers. I also included images of unique attractions that set Oklahoma apart from others. I conducted research using websites, primarily Credo to find images and information to persuade my readers to visit Oklahoma. The state offers a lot of attractions, outdoor activities, and cultural events that make it a unique travel destination. Visitors can explore beautiful places like the Oklahoma City National Memorial & Museum, enjoy the charm of historic Route 66, and admire art at the Philbrook Museum in Tulsa.

Keywords: Oklahoma, Tourism

The Red Car Theory

Valentin Laser and Claire Schmidt

School of Education & Social Sciences

Over the past few weeks, I had the chance to talk about the importance of the Student Research Symposium to several freshman seminars. Throughout my presentations, I had realized that this is an opportunity that every student should take advantage of. Opportunities can be difficult to see for many of our students (Red Car Theory), but it can be extremely beneficial to look for those and leave your comfort zone, take the risk and make an impact. Therefore, I discuss the importance of looking for the right opportunities, the powerful impact decision can have on a student's life and the purpose behind making it to the point where we currently are.

Keywords: Freshmen, Opportunities

IEP

Graylon Lindsey III and Rhonda Ryther

School of Education & Social Sciences

An Individualized Education Program (IEP) is a critical educational framework in the United States, designed to meet the unique needs of students with disabilities and provide them with a pathway to academic success and personal growth. Under the Individuals with Disabilities Education Act (IDEA), IEPs are legally mandated for eligible students from preschool through high school, ensuring they receive tailored support and accommodations that address specific learning challenges. This document is developed collaboratively by a team that includes educators, school administrators, parents or guardians, and, when appropriate, the student, to create a comprehensive and personalized approach to the student's education. The IEP process involves assessing the student's current level of academic and functional performance, setting measurable goals, and specifying the services, modifications, and accommodations necessary to achieve those goals. Regular review and updates ensure the program remains aligned with the student's progress and evolving needs, adapting as they grow.

Keywords: Education Plan, Students with Disabilities

Adolescents Engage in Video Games That Affect Their Health

Josiah Matamua and Karen Reeter

School of Education & Social Sciences

The goal of this project is to investigate the impact of video games on Young adults ' health, particularly their mental health, and to better understand the complex relationship between gaming activity and psychological well-being. Given the growing popularity of video games and their immersive nature, it is critical to investigate how long-term gaming exposure may affect a person's mental health, including possible hazards and benefits. Sedentary behavior, such as playing video games, is linked to poor health and an increased risk of morbidity from chronic diseases also to see how it could lead to more on the route of Criminal behavior. However, the association between health practices and video gaming is not well recognized and explored.

Keywords: Video Games, Adolescents

ADHD in High School Classrooms

Shayne Mobley-Koutsky and Rhonda Ryther

School of Education & Social Sciences

Attention-Deficit/Hyperactivity Disorder (ADHD) presents unique challenges for students in traditional academic settings. Many symptoms overlap with giftedness or simply an energetic child. This can significantly impact a student's academic progress and overall well-being. When these students are diagnosed with ADHD often we turn to medication. We should be leveraging ADHD's benefits. ADHD has a multitude of symptoms that make it hard for them to succeed in a neurotypical classroom. Our job as educators is to make sure every student has enough tools to thrive in our society. That entails educators creating a more supportive learning environment for students with ADHD and facilitating their academic success.

Keywords: ADHD, Academics

Physical and Verbal Aggression in College Students

Nienke Nijendijk and Jennifer Livengood

School of Education & Social Sciences

Aggression is a complex behavior that can manifest in various forms, including physical and verbal aggression. Understanding the prevalence and expression of these behaviors is particularly relevant in college settings, where students experience significant social and emotional transitions. This study aimed to investigate the prevalence of physical and verbal aggression among college students and determine which form of aggression is more common. The study used a combination of literature research and an experiment. For the experiment, a sample of 12 undergraduate students completed a survey assessing both physical and verbal aggression using a Likert scale. The results showed that verbal aggression ($M = 1,833$) was slightly more prevalent than physical aggression ($M = 1,281$), supporting the alternative hypothesis that college students are more verbally aggressive. These findings suggest that verbal aggression may be a more prominent issue in college settings.

Keywords: Aggression, college students

The Influence of Parental Involvement on Cognitive Development

Nienke Nijendijk and Lee Jones

School of Education & Social Sciences

Parental involvement plays an important role in shaping a child's development. This includes cognitive abilities such as memory, learning, and language. Even though we are aware of this, the effects of parental neglect on a child's cognitive development remain a significant area of concern in child and family social work. Parental neglect, characterized by the failure to meet a child's basic emotional, educational, and physical needs, has been associated with unfavorable outcomes in multiple areas of a child's life. Despite all the research on the emotional and behavioral consequences of neglect, less attention has been given to its direct impact on cognitive outcomes. This study addresses the question: How does parental neglect influence a child's cognitive development? Understanding this relationship could provide valuable insights for social workers and policymakers, as cognitive development is a key factor in a child's long-term success in education and life.

Keywords: Cognitive Development, Parental Involvement

Confidence Measure Social and Academic Confidence

Alonta Orange and Jennifer Livengood

School of Education & Social Sciences

A person's self-perception in various educational and social circumstances is regularly evaluated through study using measures of academic and social confidence. These assessments shed light on how individuals perceive their skills in a variety of fields. The assessment of social confidence involved observing behaviors such as clear speech, maintaining eye contact, and not fidgeting. Social confidence is the feeling of assurance in social interactions with friends, classmates, and in general. Examining how comfortable students were responding to questions in class, giving presentations, attending classes, getting ready for examinations, and using newly learned material allowed researchers to determine their academic confidence. With an emphasis on how these types of confidence affect students' general well-being and performance, this study investigates techniques for assessing students' social and academic confidence. Academic and social confidence are important markers of a student's capacity to handle both academic and interpersonal difficulties.

Keywords: Confidence, Social Confidence

Balancing Act: Exploring the Relationship Between Effort Satisfaction and Outcome Satisfaction in Athletic Motivation

Autumn Perez and Jennifer Livengood

School of Education & Social Sciences

Satisfaction which was split into two subscales: satisfaction with effort and satisfaction with outcome. A 20 question survey was created, including four questions about demographics and two sections. Factor A measured satisfaction with effort with eight questions on a numerical scale, and Factor B measured satisfaction with outcome with another eight questions on a numerical scale. Classmates completed the survey to provide their responses. Using the survey responses, several statistics were calculated. Composite scores were found for all three scales, showing the average or total score for each. Inter-scale correlations were measured, resulting in three Cronbach Alpha statistics: one for the overall scale (16 items) and one for each of the two subscales (8 items each). Inter-item correlations were also analyzed and can be shown in one or two matrices at the end of the report.

Keywords: Satisfaction, Motivation

HSV1 and HSV2

Autumn Perez and Jennifer Livengood

School of Education & Social Sciences

Herpes Simplex Virus types 1 and 2 (HSV-1 and HSV-2) are common, lifelong infections, with HSV-1 typically causing oral lesions and HSV-2 associated with genital herpes. However, both types can infect either region, and HSV-1 genital infections are increasingly common. Transmission occurs through direct contact, often when individuals are asymptomatic. These viruses establish latency in nerve cells, reactivating intermittently, often triggered by factors like stress or weakened immunity. HSV infections cause significant discomfort, and in rare cases, can lead to severe complications such as encephalitis or neonatal infections. Current treatments focus on antiviral therapies that reduce symptoms and frequency of outbreaks, though no cure exists. Recent advances in vaccine research and gene-editing technologies provide hope for improved management and potential cures. Ongoing research into HSV's biology and immune evasion mechanisms is crucial for developing better treatments and preventive strategies.

Keywords: Herpes Virus, Infections

Become Informed about Autism in Children

Catalina Ramirez and Rhonda Ryther

School of Education & Social Sciences

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by challenges in social interaction, communication, and repetitive behaviors. ASD is found in 1 in 36 children in the United States, and is a lot more common than most people think it is. The spectrum of symptoms and severity presents differently in each child, making diagnosis and treatment individualized. Early awareness of this condition include; delay of speech, repetitive behaviors, and difficulty with social cues. By educating parents, educators, and healthcare professionals about ASD we can create a better understanding, reduce stigma, and enhance support networks. My goal in this project is to help inform and shed light over Autism Spectrum Disorder so as a whole we can be educated together.

Keywords: Autism, Education

State Tri-Fold Brochure: Alabama

Anthony Ramirez and Penny Clair

School of Education & Social Sciences

I work for the tourism board in the advertisement department for the state of Alabama. I decided to create a tri-fold brochure on Canva to promote tourism and highlight the best places to visit such as attractions, events, and activities that will capture the interest of my readers. I also included images of unique attractions that set the state apart from others. I conducted research using websites, primarily Credo to find images and information to persuade my readers to visit Alabama. Using the MLA format, I cited all sources including images that were used in the brochure. Alabama is a state located to the southeastern United States, its capital is montgomery. Its industrial city is Huntsville and the name of the football team is “Crimson” and the population is 5,108,468 and its governor is Kay Ivey. One top beach from Alabama is Gulf Shores.

Keywords: Alabama, Tourism

State Tri-Fold Brochure: New Mexico

Santiago Rocha and Penny Clair

School of Education & Social Sciences

I work for the tourism board in the advertisement department for the state of New Mexico. I decided to create a tri-fold brochure on Canva to promote tourism and highlight the best places to visit such as attractions, events, and activities that will capture the interest of my readers. I also included images of unique attractions that set the state apart from others. I conducted research using websites, primarily Credo to find images and information to persuade my readers to visit New Mexico and know about the towns like Albuquerque, the city of the balloons, and the capital Santa Fe “The City Different”. Also, there is influence of Mexican culture in the city of Taos, and Las Cruces. Using the MLA format, I cited all sources including images that were used in the brochure.

Keywords: New Mexico, Tourism

State Tri-Fold Brochure: Alaska

Diego Ruiz and Penny Clair

School of Education & Social Sciences

I work for the tourism board in the advertisement department for the state of Alaska. I decided to create a tri-fold brochure on Canva to promote tourism and highlight the best places to visit such as attractions, events, and activities that will capture the interest of my readers. I also included images of unique attractions that set the state apart from others. I conducted research using websites, primarily Credo to find images and information to persuade my readers to visit Alaska. Using the MLA format, I cited all sources including images that were used in the brochure. Alaska is the largest state of the union in land area. It has 12 types of different penguins. The fun fact is that there are 17 types of penguins in the world. Also, this state is one of many that have the most penguins in the world.

Keywords: Alaska, Tourism

Pirates of the Golden Age

Abdelrahman Shehata and Stephanie Gooden

School of Education & Social Sciences

This research explores the lives and legacies of some of history's most notorious pirates, spanning from the 16th to the 19th century. Figures like Blackbeard, Captain Kidd, and Bartholomew Roberts exemplified the high-risk world of piracy, marked by daring exploits such as the capture of ships and blockades of major ports. Pirates like Anne Bonny and Mary Read challenged societal norms, displaying courage and skill in an era dominated by men. This paper also covers Sir Francis Drake and Sir Henry Morgan, privateers whose actions straddled the line between sanctioned military service and piracy, as well as Jean Lafitte and Hayreddin Barbarossa, whose influence extended into geopolitical arenas, shaping naval power dynamics. Key themes explored include pirate culture, life aboard pirate vessels, and the impact these figures had on maritime history. By examining their exploits, cultural significance, and long-term impact, this study sheds light on how pirates influenced trade routes, colonial policies, and the public imagination, leaving a complex legacy that persists in folklore and modern media.

Keywords: Pirates, History

State Tri-Fold Brochure: Pennsylvania

Gagandip Singh and Penny Clair

School of Education & Social Sciences

I work for the tourism board in the advertisement department for the state of Pennsylvania. I decided to create a tri-fold brochure on Canva to promote tourism and highlight the best places to visit such as attractions, events, and activities that will capture the interest of my readers. I also included images of unique attractions that set the state apart from others. I conducted research using websites, primarily Credo to find images and information to persuade my readers to visit Pennsylvania because there are a lot of places to visit like the Countryside of Philadelphia, the Independence Hall, such as the Liberty Bell Center and many other important sites in Pennsylvania. Using the MLA format, I cited all sources including images that were used in the brochure.

Keywords: Pennsylvania, Tourism

Anti-Monogamy & Human Possibilities of Love

Alexx Torres-Gonzalez and Jennifer Livengood

School of Education & Social Sciences

This presentation, which I will also be giving in my Human Sexuality class with Ms. Livengood, will be talking about anti-monogamy and consensual non-monogamy and human possibilities of love outside of societally prescribed and expected monogamy. I will speak on my 7 academic research articles centered on consensual non-monogamy and research on deviation from monogamy. After going through my academic sources, I will go through my supplemental political resources and speak and explain that as well.

Keywords: Human Sexuality, Anti-Monogamy

Acceptance of The Death Penalty In Society

Hannah VanDeventer and Karen Reeter

School of Education & Social Sciences

Social discussions over morality and capital punishments evolve - the death penalty remains one of the most contentious issues in society. This study will investigate the influencing factors of the acceptance of the death penalty as the supreme form of capital punishment throughout students at Missouri Valley College. The method used was a survey sent to the student body, the research includes the significance of public opinion, legal reform, the nature of crimes, and the geographic location over societal perspectives towards capital punishments. The findings suggest that over 65% of the respondents will agree that the death penalty was accepted as the supreme form of punishment.

Keywords: Death Penalty, Societal View

The Detrimental Effects of Stress on Police Officers and Their Families

Brianna Vela and Karen Reeter

School of Education & Social Sciences

This research paper addresses the detrimental effects of stress on police officers and their families. The effects of stress on the human body can cause a multitude of negative health conditions such as cardiovascular diseases, insomnia, depression disorders, anxiety disorders, and/or substance abuse. These are some examples that many police officers deal with worldwide and there is not a sufficient way to help these officers cope. Stress in officers can also affect their families causing marriage issues, divorce, and/or abuse. It is not safe for anyone, including the officers, when they are emotionally drained and in a negative headspace due to the lack of resources offered. Our government needs to find a more effective way to help police officers cope with the stressors from their profession.

Keywords: Stress, Police, Families

Effects of Frequent Marijuana Use on College Students

Caitlyn Vela and Karen Reeter

School of Education & Social Sciences

Frequent marijuana use has been posing an issue to people of all ages. While it may be used as a treatment for medical conditions, more than 50% of its users are smoking or ingesting marijuana for recreational purposes. Most college students fall into the category of recreational users. The frequent use of marijuana in colleges is raising concerns about the impact it has on college students. Are college students becoming dependent on marijuana? This study aims to examine how frequent marijuana use has caused college students to become dependent on marijuana to complete daily tasks such as forming relationships and maintaining academic performance.

Keywords: College Students, Marijuana

Blood Money: The High Price of the Animal Black Market

Sha Wilson and Karen Reeter

School of Education & Social Sciences

This project investigates the global crime impacts of illegal wildlife trafficking and poaching, a massive industry with widespread and far-reaching consequences. By mapping connections between wildlife trafficking and other organized crimes—such as drug smuggling, human trafficking, and arms trading—this research reveals the complex web of criminal networks that exploit vulnerable species and habitats for profit. It examines how these illicit operations not only drive biodiversity loss but also exacerbate corruption, undermine law enforcement, and destabilize fragile ecosystems. This project explores the ways in which the animal black market disrupts conservation efforts and breeds violence in various ways worldwide. This research highlights the urgent need for collaborative international policies, more effective legal frameworks, and innovative enforcement methods to dismantle these criminal networks.

Keywords: Wildlife Trafficking, Poaching, Industry Impact

Performance of Distinction in Debate: SpAr Debate

Sha Wilson & Tru Naumovitz

School of Education & Social Sciences

This presentation of debate will examine the debate format of Spontaneous Argumentation (SpAr). SpAr debate is a limited preparation style of debating that provides a short amount of time to prepare on a topic both debaters have not seen before. The two participants will receive three different topics. The negative will strike one topic and then the affirmative will select the final topic between the two topics that remain. The two nationally competitive debaters will have 10 minutes of prep and will have approximately a 15 minute debate. The topic of this debate will explore relevant topics of interest for college students at Missouri Valley College.

Keywords: SpAr Debate,

School of Nursing and Health Sciences

The Fight Against Childhood Obesity

Margaret Blakely and Tonya Eddy

School of Nursing & Health Sciences

Childhood obesity is on the rise in the United States (Harding, 2023). Childhood obesity can lead to health problems that affect the cardiovascular system, contribute to a fatty liver, and increase the risk of type II diabetes (Isoldi, 2020). If not prevented, these effects may follow children into adulthood. Educating children about proper nutrition is one way to prevent obesity. Another way to combat childhood obesity is to increase physical activity and reduce sedentary time. I will create an educational module directed towards elementary school children and their parents about eating a healthy diet and incorporating physical activity into their everyday life. I hope that this module will educate children about what they can do to be healthy and improve their health for the present and for the future.

Keywords: Obesity, Exercise, Nutrition

Types of Anterior Cruciate Ligament Grafts used in Reconstructive Surgeries

Stefán Cekic and James Menz

School of Nursing & Health Sciences

As the primary restrictor of anterior tibial translation and an essential component in rotational stability, the anterior cruciate ligament (ACL) is an essential part of the knee joint. Sports injuries commonly affect the ACL, with an estimated 50% of knee injuries involving this ligament (Widner et al., 2019). In the United States, around 175,000 ACL reconstruction (ACLR) surgeries are performed each year, highlighting the importance of current research for optimal surgical outcomes (Banovetz et al., 2023). A crucial aspect of ACLR is graft selection, guided by factors like patient age, re-rupture risk, graft rejection, and personal preference (Arida et al., 2021). Available graft options include autografts (patient's own tissue), allografts (cadaver tissue), and synthetic/artificial grafts (Sim et al., 2022). This paper evaluates these graft types, comparing their advantages and limitations to support patients and surgeons in making informed decisions about ACLR treatment options.

Keywords: Cruciate Ligament, Reconstruction

SGLT2 Inhibitors Impact on Patients with Heart Failure

Logan Chronister and Peggy Van Dyke

School of Nursing & Health Sciences

This study analyzes a systematic review of the research question: In adults ages 60-80 with an ejection fraction percentage (EF%) less than forty percent, what is the impact of using a sodium-glucose cotransporter 2 (SGLT2) inhibitor on patients diagnosed with heart failure with reduced ejection fraction (HFrEF)? HFrEF poses a significant burden on the elderly population. These patients have significantly higher morbidity and mortality rates. SGLT2 inhibitors were initially developed for diabetes management but have shown significant reduction in cardiovascular events that include HF hospitalizations regardless of whether the patient has diabetes. The use of SGLT2 inhibitors in this setting is relatively new, with somewhat limited research. However, they have become a mainstream medication used in HFrEF patients because of the notable improvement recorded in studies and trials. This systematic literature review aims to evaluate the impact of SGLT2 inhibitors on decreasing worsening heart failure and cardiovascular mortality in elderly patients (aged 60-80 years) with HFrEF.

Keywords: Sodium-Glucose Cotransporter Inhibitor, Heart Failure, Reduced Ejection Fraction, Cardiovascular

Ozempic for Diabetes & Weight Loss

Xiomara Corpier and Dr. Tonya Eddy

School of Nursing & Health Sciences

Adults in the United States struggle with obesity. Obesity poses a risk for many chronic diseases that include type 2 diabetes, cardiovascular diseases, and musculoskeletal disorders like osteoarthritis. Ozempic (semaglutide) is a medication increasingly prescribed for type 2 diabetes and weight management. As its popularity rises, understanding the full spectrum of potential adverse effects is important for both healthcare providers and patients. These side effects include gastrointestinal disturbances, cardiovascular complications, and potential mental health issues. To facilitate education of those using Ozempic, whether for Type II diabetes or for weight loss, a pamphlet was designed describing the risks and benefits. Many adults are desperate to lose weight and they do not always know the side effects of these weight loss measures. It is hoped that the educational pamphlet will inform and educate the public of the potential side effects of Ozempic.

Keywords: Ozempic, Weight Loss, Diabetes

Do You Need Therapy?

Jada Dangerfield, Doryan Cole, Elizabeth Gonzalez, Hugo Lorenzo Vieira Dos Santos & Kassidy Welch and Jennifer Livengood

School of Nursing and Health Sciences

This project underscores the vital role of therapy, especially for those who may not recognize its importance. Highlighting mental health's impact on overall well-being, the initiative uses skits and role plays to convey three key messages: the universal need for therapy, the challenges of personal growth, and therapy's benefits in addressing past traumas. It also explores attachment theories and the importance of supportive relationships for healthy psychosocial functioning. By examining historical trauma and generational cycles, the project illustrates how fostering well-being and connections can enhance mental and physical health. Through relatable scenarios and personal narratives, the presentation will demonstrate that therapy is beneficial for everyone, promoting personal growth and self-awareness. Ultimately, it will reinforce the necessity of therapy in adulthood and its positive implications for quality of life.

Keyword: Historical Trauma, Generational Cycles, Emotional States, Mental Health.

Importance of Improving Health Literacy Among Adolescents

Bobbi Gibson and Dr. Tonya Eddy

School of Nursing & Health Sciences

According to Jafari et al. (2021) improving health literacy improves healthy behaviors. Adolescence is a time to implement teaching tools aimed at improving healthcare literacy which can help this population navigate and utilize services more efficiently. Huang et al. (2023) found that utilizing modern methods such as social media, apps, or online resources are engaging tools for adolescents. To help promote improved health literacy in High School students, an educational module was developed introducing basic medical terminology, how to access available resources, and differences in medical insurance plans. The aim is to increase the knowledge base of senior students to facilitate their journey into responsible self-management of their healthcare.

Keywords: Healthcare Literacy, Adolescents

Educating Families of Hospice Patients

Stephanie Griffith and Dr. Tonya Eddy

School of Nursing & Health Sciences

Currently, 1.8 million people in the United States use hospice. Hospice is a specific type of care that focuses on the patients' quality of end-of-life care provided. Studies show 70% of the population have no knowledge of hospice. The purpose of this project is to educate family members of patients on hospice about pain management strategies, nonverbal cues the patient is suffering, and differences between palliative and hospice care in booklet form. The goal is for family members of these patients to be able to care for their loved ones with minimal harm being caused. Around 40-80% of information provided to patients is immediately forgotten and of that retained, 50% is incorrect. One way to ensure that family members comprehend the material of the education they receive is to use the teach-back method. In the event that a patient forgets any education, they can refer to this take-home booklet.

Keywords: Hospice, Patient Education

Authoritative Parenting & Childhood Psychological Development

Jesus Gutierrez, Brittani Heuszel, Julia Vidallon and Jennifer Livengood

School of Nursing & Health Sciences

The presentation will aim to inform parents, future parents, and caregivers in effective techniques to help guide children through the childhood development period. Research has shown that children thrive in authoritative parenting households and are less likely to experience mental health issues (Wang et al., 2024). Authoritative Parenting is an interactive parenting style that combines high levels of affection, sensitivity and responsiveness with moderate to high levels of regulations and demandingness (Broderick & Blewitt, 2020). Childhood psychological developmental periods and influences of authoritative parenting style will be covered in the presentation to help caregivers better guide children in building firm foundations that foster positive and desirable traits. The presentation will be broken into 3 parts; Why authoritative parenting is positive. Why it's important to middle childhood development, and ways to effectively implement authoritative parenting with a child going through that phase of psychological development.

Keywords: Parenting, Psychological Development

Hyperbaric Oxygen Therapy versus Skin Substitution on Diabetic Foot Ulcers

Madison Hohne and Peggy Van Dyke

School of Nursing & Health Sciences

Wound care is one of the more complex specialities that involve an array of different treatments. More advanced modalities of treatment include hyperbaric oxygen (HBO) therapy as well as skin substitutes of different heterogeneous types. Both very effective methods depending on the wound and both needing very specific criteria in order to be utilized. With this comes a treatment deadline to ensure the treatment is used effectively and cost efficient. This review will compare the two treatments to understand use of modalities and effectiveness on both wound healing as well as the cost of treatments on patients and facilities, on diabetic patients.

Keywords: Hyperbaric Oxygen (HBO), Skin Substitutes, Wound

Hidden Wounds: The Impact and Healing Pathways for Child Sexual Abuse Survivors

Whitney Leadbetter

School of Science and Agriculture

Hidden Wounds: The Impact and Healing Pathways for Child Sexual Abuse Survivors' examines the profound and lasting effects of child sexual abuse on survivors, including emotional, psychological, and social challenges. This presentation highlights evidence-based healing pathways, emphasizing resilience, therapeutic interventions, and community support to foster recovery and empowerment for survivors. It will also include some personal reflection on my growth while working with clients who have experienced sexual abuse as children.

Keyword: Child Abuse, Sexual Abuse, Abuse Survivor

Animal Assisted Therapy

Sumar Lunceford and Tonya Eddy

School of Nursing & Health Sciences

Animal assisted therapy can be defined as “positive interaction between an animal and a patient within a therapeutic framework”. Previous studies have reported beneficial effects of animal assisted therapy. Positive effects of animal assisted therapy supported by research include elevation of patients’ moods and decreased heart rates in patients suffering from anxiety. The aim of this project is to educate healthcare professionals in nursing home facilities with a powerpoint presentation on decreasing the level of anxiety in the elderly when animal assisted therapy is used, compared to elderly patients with no animal exposure.

Keywords: Animal Assisted Therapy, Anxiety, Geriatric

How Relationships with Parents Affect Adolescents

**Karintzin Patron-Arreola, Tyra Mckenzie, Drake Tipton, Ethan Towers & Khalyn Smith
and Jennifer Livengood**

School of Nursing & Health Sciences

This presentation aims to assist parents in understanding the impact of parenting styles on the cognitive, emotional, social, and identity development of adolescents. The purpose of this presentation is to bring awareness to how different parenting styles such as authoritative, permissive, authoritarian, and neglectful affect adolescents in their social, emotional, and cognitive growth. We aim to create discussion on its immediate effect in adolescence and long-term effects on mental health, social skills, academic performance, and emotional regulation. We emphasize the importance of a parenting style that balances independence with parental support as well as providing examples of each parenting style in everyday scenarios. This analysis is critical for parents to understand the magnitude of their influence on their adolescent's well-being and ability to create relationships. We will touch on different parenting styles and their characteristics, the impact of parenting styles on adolescent development, and strategies for effective parenting.

Keywords: Relationships, Adolescents, Parenting Style

The Effects of Twice Daily or Once Daily Medication to Decrease Blood Pressure

Lyndsi Phillips and Tonya Eddy

School of Nursing & Health Sciences

Patients diagnosed with hypertension have a higher risk of developing heart disease or having a stroke. Hypertension is uncontrolled in approximately 50% of adults. Exercise and nutrition are important to help decrease blood pressure in addition to antihypertensive medications. Some current research indicates that administration of the prescribed daily dose of antihypertensive over two doses per day instead of the more common once a day is more therapeutic in maintaining blood pressure at an optimal level. An educational pamphlet was designed to describe the benefits of twice-daily medication dosing vs. once-daily medication dosing, and the dangers of uncontrolled blood pressure. The intended population would be patients who already take blood pressure medications to provide them with information they can discuss with their healthcare provider. It is hoped the education in this pamphlet will help patients live healthier lives with hypertension and decrease the risk of stroke or heart disease.

Keywords: Medication Efficacy, Lisinopril

Macy Catheter

Lisa Pritchett and Tonya Eddy

School of Nursing & Health Sciences

There are approximately 150 to 200 million peripheral intravenous catheters placed each year in the United States. There are many factors that complicate the process of obtaining peripheral intravenous access such as obesity, intravenous drug use, and hypovolemia. Obtaining IV access in the emergency department, skilled nursing facility, or home settings can sometimes be challenging. The Macy Catheter is an alternative method for fluid and medication delivery, functioning as a rectal delivery system capable of administering any medication that can be crushed or is available in liquid form. Fluids can be delivered rapidly through the catheter, reducing emergency department wait times, staff workload, and iatrogenic complications associated with intravenous therapy. This project will educate healthcare professionals on the use of the Macy Catheter instead of other routes of medication and fluid administration, potentially resulting in increased utilization of this less invasive method.

Keywords: Macy Catheter, Rectal Medication Administration. IV Alternative

The Importance of RSV Prevention

Jesmi Reyes and Tonya Eddy

School of Nursing & Health Sciences

Respiratory syncytial virus (RSV) affects 60-80% of children below 1 year and is the primary cause of acute bronchiolitis (Cutera et al, 2024). Prophylaxis is a common recommendation when providing care for the pediatric patient population. One specific group of pediatric clients that is at higher risk for RSV due to underdeveloped lungs is the preterm infant. Palivizumab (Synagis) is an option for RSV prophylaxis within this higher-risk population. This project aims to highlight the importance of providing mothers with information regarding administering Synagis to preterm infants. An educational module was designed containing information on the benefits of Synagis to potentially empower mothers and providers alike to make an informed decision regarding care. It is hoped that with increased information, hospitals and care providers may develop policies to ensure decreased RSV in preterm infants in the future.

Keywords: Respiratory Syncytial Virus, Newborn, Immunity

The Unique Journey of Care: Supporting Infants and Toddlers with Developmental Disabilities through Effective Parenting Strategies

Katarina Ribar, Anastasija Dragovic, Milesha Butler and Jennifer Livengood

School of Nursing & Health Sciences

This presentation explores the journey of parenting infants and toddlers with developmental disabilities, with a strong emphasis on parenting strategies that aim to foster children's growth and well-being. The main objective is to provide parents and caregivers with practical tools and information that will better their understanding of developmental needs, including specific milestones and common challenges faced by these children. Key advocacy principles will be discussed, including understanding families' rights and available resources, as well as strategies for navigating the complex education and healthcare systems. While the aim is to share the effective parenting strategies that focus on promoting emotional, social and cognitive development of children, we will also address the very important topic of managing parental stress, offering coping strategies the significance of self-care and mental health support for parents/caregivers. This presentation intends to empower parents, caregivers, and community members by providing them with knowledge, information and tools that build a supportive environment.

Keywords: Parenting, Developmental Disabilities

Joint Popping: What Happens to Your Body when Articulations Pop?

Katherine Rojas Leon and James Menz

School of Nursing & Health Sciences

Joint popping is a common phenomenon that often occurs in different parts of the body, including fingers, knees, and ankles. Despite its popularity, the mechanisms and consequences on a person's health are often misunderstood. This project explores the science behind joint popping, focusing on the structure of synovial joints and its role in allowing optimal movement. In addition, it mentions the main causes of joint bursting, such as the formation of gas bubbles (cavitation) within the synovial fluid and the movement of tendons or ligaments on bones. Although joint pops are generally harmless, there are occasions where pain may occur as an indication of underlying problems such as arthritis or tendonitis.

Keywords: Joint Popping, Synovial Joints

Effects of Continuous Blood Glucose Monitoring Compared to Self-Monitoring Blood Glucose on Hemoglobin A1C Results

Ali See and Dr. Peggy Van Dyke

School of Nursing & Health Sciences

This research project analyzes a systematic review of the research question, in patients with Type II Diabetes Mellitus, what is the impact of continuous blood glucose monitoring (CGM) compared to traditional self-monitoring blood glucose (SMBG) on lowering their hemoglobin A1c (HgbA1c) over 1 year of treatment? There is variability in the research on the reliability and efficacy of continuous glucose monitoring methods, and if accuracy is comparable to traditional SMBG. Conflicting information regarding results between CGM and traditional methods found in the articles indicates the need for further research on this topic. To better understand the effects of CGM, quantitative studies with broader timeframes and a larger population of subjects are needed to address gaps found in the systematic review. With further research, Type II diabetics could benefit from the findings by being able to choose what type of glucose monitoring they find decreases the HgbA1c most effectively. Without further research studies, delays in treatment and worsening outcomes for Type II diabetics are possible

Keywords: Continuous Glucose Monitoring, Hemoglobin A1c, Type II Diabetes

Newborn Respiratory Distress: Benefits of CPAP vs. Mechanical Ventilation

Korissa Whitney and Tonya Eddy

School of Nursing & Health Sciences

Respiratory distress syndrome (RDS) is a common complication in preterm infants, often managed with respiratory support in neonatal intensive care units (NICUs). Research increasingly supports nasal continuous positive airway pressure (CPAP) as a preferable, less invasive alternative. CPAP reduces lung injury and infection risks and promotes natural lung development, fostering parent-infant bonding through skin-to-skin contact and typically shortening NICU stays. Empowering NICU nurses to advocate for CPAP requires a structured approach: education on CPAP's benefits, protocol development, and hands-on training. Protocols favoring CPAP as the first-line option, with mechanical ventilation as secondary, ensure consistency in practice. To facilitate this change, a PowerPoint for NICU nursing staff was developed, describing the research information and actions to take to improve neonatal outcomes. This strategy supports NICU nurses in championing CPAP, enhancing care standards and patient outcomes through data-supported protocols.

Keywords: Mechanical Ventilation, CPAP, Newborn, Respiratory Distress

School of Science and Agriculture

Group B Strep Disease

Bailey Azarovitz and Michelle Reinke

School of Science and Agriculture

Group B streptococcus (GBS) is a disease that is a type of bacterial infection affecting mostly pregnant women, newborns, or women with other health issues. This is a type of streptococcus bacterial disease mostly found in the gastrointestinal or genital tracts. In newborns, it can cause pneumonia or meningitis which is often found throughout childbirth or from mothers who could possibly be carrying it. Women have urinary tract infections (UTI) that could be a result of streptococcus during pregnancy, or postpartum infections. In adults, it mostly affects the individuals who deal with chronic illness such as cardiovascular diseases or diabetes. Some prevention that could be considered could be screenings for pregnant women to see if their babies are in any danger or intrapartum antibiotics. Understanding all of this can help the management of helping someone with Group B streptococcus and be a crucial impact for many women, and their babies.

Keyword: Group B Streptococcus, Urinary Tract Infections

Urinary Tract Infections

Indra Bernal and Michelle Reinke

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Urinary tract infections (UTI's) are infections in any part of the urinary system, which includes the kidneys, ureters, bladder, and urethra. UTI's are typically caused by the bacterium, *Escherichia coli*. This bacteria is the most prevalent pathogen, although viruses or fungi can also be at fault. UTI's can fall into two categories: upper (kidneys) or lower (ureters). Symptoms often include a strong burning sensation when urinating, murky or pungent urine and pelvic pain, particularly in situations of bladder infections. Although UTI's can affect people of any age or gender, they are more common in women due to anatomical considerations. Usually, a urine culture or urinalysis is used to make the diagnosis, and antibiotics are used as treatment. Proper hydration, personal hygiene, and the use of proactive antibiotics or other treatments are examples of prevention techniques.

Keyword: Group B Streptococcus, Urinary Tract Infections

Otitis and How to Prevent it

Jayden Briggs and Michelle Reinke

School of Science and Agriculture

This project investigates otitis, an inflammation of the ear often caused by infections, which is particularly common in children. Otitis can be categorized into different types, such as otitis media (middle ear) and *otitis externa* (outer ear), each with distinct causes, symptoms, and treatment approaches. The study aims to analyze the underlying mechanisms of otitis, examining risk factors like bacterial or viral infections, environmental influences, and genetic predispositions. Additionally, the project explores current diagnostic methods and treatment options, including antibiotic and surgical interventions, while also evaluating the effectiveness of preventive measures like vaccinations and hygiene practices. By gaining a deeper understanding of otitis pathophysiology and treatment, this research seeks to inform strategies for improved patient outcomes and to identify future directions for preventive and therapeutic innovations in managing ear infections

Keyword: *Otitis Externa*, Bacterial and Viral Infections

Pneumonia: Causes, Symptoms, and Treatment

Erica Burch Palomino and Michelle Reinke

School of Science and Agriculture

Pneumonia is an inflammatory lung disease of varying intensity that remains a challenge in health systems worldwide for a number of people, especially the younger population, the weak, the elderly, and patients with chronic diseases. This mural gives a brief explanation about what causes pneumonia, in terms of microbial pathogens which comprise bacteria and viruses. Also, the mechanism of infection, the response of the immune system and the pathophysiological changes occurring in the lungs of a person that constrain pneumonia. Furthermore we will talk about the dynamics of the disease and the manifestations of the illness. What are the procedures to diagnose pneumonia, therapeutic and preventive measures, which includes vaccinations and measures for preventing it.

Keyword: Pneumonia, Inflammatory Lung Disease

Bovine Brucellosis

Makayla Casjens and Michelle Reinke

School of Science and Agriculture

Bovine Brucellosis, also known as “Contagious Abortion” or “Bangs Disease,” is a zoonotic infection caused by the bacterium *Brucella abortus*. *B. abortus* affects cattle, elk, and bison populations. This disease causes aborted calves, retained placentas, male reproductive tract lesions, and arthritis. Before federal governance of the disease, brucellosis infected 50% of U.S. cattle herds, but today, most states are brucellosis-free. Brucellosis devastated production herds, as meat and dairy cattle aborted or had weak offspring, infertility, and reduced or no milk production causing less production of cattle commodities and damaging local economies. Although there is no current treatment for *B. abortus*, animal health officials have herd management steps in place to remove the disease from an infected herd. In this presentation, I will share details of the *Brucella abortus* bacterium, its effects, how the disease impacts herds and our communities, and herd management plans in place to prevent the disease.

Keyword: Bovine Brucellosis, Animal Health

Lyme Disease

Jack Corriveau

School of Science and Agriculture

A poster board will be made to present the information on Lyme disease. The project will cover topics like the history of Lyme disease and how it originated, the way ticks and humans become infected with the bacteria. The regions where this disease is prevalent along with the other details into the infectious information on this disease. The symptoms and long term implications of this disease will also be discussed in the presentation. The characteristics of the bacteria that causes lyme disease will also be presented in detail, to understand fully how the disease works. Images of the ticks that are infected by the bacteria along with images of the bacteria itself will be presented to go along with the disease information.

Keywords: Lyme disease

The Chorionic Villi Sampling Process

Emily Crawford

School of Science and Agriculture

This project will explore the process of Chorionic Villi Sampling. The CVS test is usually administered between 10-13 weeks of pregnancy, to screen tissue(s) for chromosomal or genetic abnormalities, and is not routinely recommended to expecting mothers. However, if the mother is considered high risk, has a family history of complications, or expresses concern during an earlier screening, a CVS test might be recommended. Meanwhile, there is plenty of controversy surrounding the test and whether it can lead to further complications that question its validity.

Keywords: Chorionic Villi Sampling

End the Attack on Women's Reproductive Rights

Kyra Cunningham

School of Science and Agriculture

This project will cover the topic of reproductive healthcare. By first defining abortion healthcare, then explaining the importance of access, I intend to prove that it is more ethically responsible to allow women the access to reproductive freedom. This project is inspired by my mother who desperately needed a hysterectomy, and was denied access to life saving healthcare by several practitioners due to her age. After a perilous search, she was granted a physician who would perform her procedure with the signature of my father. Luckily my mother had the resources to ultimately gain access to the healthcare that she needed, however this is not the case for many women in the United States. Therefore, this project will address the dangers of leaving women's healthcare rights at the mercy of state legislation, along with the benefits that come when healthcare providers address and treat women in regards to their presenting issues, instead of buying into society's attack on women's rights..

Keywords: Anxiety Disorder

History of the Ebola Virus

Logan Cunningham and Michelle Reinke

School of Science and Agriculture

The species orthoebolavirus zairensis, more commonly known as the ebola virus first had an emergence in 1976 in Zaire, now known as the Democratic Republic of the Congo. With this unfortunate breakout there were 318 cases with 280 deaths, and a 88% case fatality rate. Over the years more outbreaks have occurred with the most devastating one happening in recent times. The Ebola Virus has had huge outbreaks with symptoms of severe hemorrhagic fevers that resulted in a very large fatality rate. This outbreak started in West Africa from 2014-2016 with cases in the Democratic Republic of the Congo with over 28,000 cases and 11,000 deaths making the fatality rate 46%. It was spread through contact with bodily fluid of an infected person, which made it very difficult to contain. There are two FDA approved treatments for the virus today. Due to its historic effects on countries in the southern part of Africa, it's important to keep surveillance on any new cases so it can never have a huge outbreak again.

Keywords: Ebola Virus

Microhabitat Selection of Snakes in Marshall Junction Conservation Area, Saline County

Estefano Del Aguila Delgado and Waylon Hiller

School of Science and Agriculture

This study examines snake microhabitat selection at Marshall Junction Conservation Area, comparing diversity and abundance between a south-facing and west-facing slope. Snakes play essential ecological roles, making it important to understand their habitat preferences for effective conservation. Using a visual encounter method, we recorded snake sightings and environmental data, including temperature, cover, and elevation. Results showed greater snake diversity and abundance on the warmer, sunnier south-facing slope, supporting our hypothesis. Six snake species, mainly *Diadophis punctatus*, were observed on this slope, while only one species was found on the west-facing slope. The findings emphasize the role of microclimate in shaping snake habitat use.

Keyword: Snakes in Saline County, Microhabitat Selection

Tuberculosis Uncovered: Understanding the Disease and Its Impact

Arimiah Egner and Michelle Reinke

School of Science and Agriculture

Tuberculosis was discovered in 1882 and at the time was killing one out of every seven people in the U.S. and Europe. Tuberculosis is a disease caused by *Mycobacterium tuberculosis* and spreads when the germ is inhaled. It starts by settling into the lungs and then slowly moves to other parts of the body. There are two types of Tuberculosis, inactive or latent Tuberculosis and Active Tuberculosis. Inactive Tuberculosis is when you have the germ but don't feel sick and cannot spread the germs to other individuals. Active Tuberculosis is when they cannot be stopped from multiplying and can be passed to other individuals. Latent Tuberculosis can be treated by taking certain drugs for three to six months while active Tuberculosis is treated for up to nine months. Common drugs for treatment are Isoniazid, Rifampin, Rifabutin, Rifapentine, Pyrazinamide, and Ethambutol.

Keyword: Tuberculosis

Protecting Newborns from Whooping Cough

Kevonna Frye and Michelle Reinke

School of Science and Agriculture

Whooping cough, or pertussis, is a highly contagious and dangerous illness for newborns. Pregnant women can help protect their babies by taking preventive measures, especially vaccination. According to the CDC (2022), vaccinating during the third trimester significantly reduces the risk of passing pertussis to the baby. Studies, including those by Eberhardt et al. (2019) and Winter et al. (2017), support the benefits of maternal vaccination in preventing this disease. Expecting mothers should receive the Tdap vaccine in the third trimester and encourage close family members to get vaccinated as well. These precautions help create a protective environment for the newborn, reducing the risk of exposure to whooping cough. This project will provide an overview of the latest research supporting these measures, highlighting how maternal vaccination and family immunization can lower the incidence of whooping cough in newborns.

Keyword: Whooping Cough

Beyond Talk: Addressing Trauma with Integrative Techniques

Glenda Gallardo-Menendez

School of Science and Agriculture

Trauma profoundly affects both the mind and body, leading to chronic psychological and physical conditions such as anxiety, depression, chronic pain, nervous system dysregulation, and autoimmune disorders. Traditional talk therapy often proves insufficient in addressing the multifaceted impact of trauma. This presentation synthesizes insights from leading research on trauma treatment, highlighting the importance of integrative approaches to healing. This session aims to provide a comprehensive framework for recognizing the effects of trauma and implementing evidence-based, body-focused interventions to enhance recovery and improve treatment outcomes.

Keyword: Trauma

The Diagnosis of Autism and Why It's Beneficial

Kaya Gorrow

School of Science and Agriculture

This project explores the process of getting a diagnosis in detail while also acknowledging the value of simply getting a diagnosis. I argue that getting a diagnosis is very beneficial because it opens the door to a multitude of possibilities for the child to enhance their educational career and provide them with the tools necessary to succeed beyond the classroom. Without a diagnosis, the child limits their opportunity to gain access to the resources they need to succeed in and out of school.

Keyword: Autism, Diagnosis

Community Composition of Catfishes in the Salt Fork Creek, Saline County, Missouri, with Notes on Interactions with Freshwater Mussels

Wyatt Grunwald and Waylon Hiller

School of Science and Agriculture

Catfishes (Ictaluridae) are an ancestral group of fishes with a fossil record dating back to the Cretaceous Period (~70 million years ago). Several species of catfishes reside in the Salt Fork Creek, Saline Co. The Salt Fork Creek is a third order stream that possesses physical characteristics from the Glaciated Plains to the north and Ozark Plateau to the south. The purpose of this research was to examine spatial differences in the community composition of catfishes in the Salt Fork Creek while also examining potential mussel parasites

Keyword: Catfishes (Ictaluridae)

Comparison of the Incidence of Foodborne Pathogens in the UK and USA

Maisie Harry and Michelle Reinke

School of Science and Agriculture

This poster will represent my research on how foodborne pathogens such as Salmonella, Campylobacter and E. Coli affect the populations in the UK compared to the USA. The question I am aiming to answer is if Americans are more at risk and have a higher incidence for these diseases than the British. Lots of research has been done on where in the world these are more common, however not many direct comparisons have been made. I would like to complete this research because of personal experience and interest on how successfully government laws and regulations affect food preparation and public health. My research includes gathering and comparing statistics. My findings all lead to the argument that the UK has lower rates of disease from foodborne pathogens than the USA. These findings are important as they could help the USA to decrease its rate of infection and renew its health laws to help prevent the problem in the future.

Keyword: Foodborne Pathogens, Salmonella, Campylobacter and E. Coli

Infectious Mononucleosis

Hailey Holland and Michelle Reinke

School of Science and Agriculture

In this presentation I will be discussing infectious mononucleosis (IM), commonly known as Mono or The Kissing Disease. Infectious mononucleosis is a viral disease caused by the Epstein-Barr virus, and affects more than 3 million individuals in the US each year. The symptoms and lasting effects of infectious mononucleosis are not widely-known and can be particularly dangerous for athletes. I will discuss how infection occurs, symptoms, diagnosis, treatment, and its lasting effects.

Keyword: Infectious Mononucleosis, Epstein-Barr Virus

Spatial Changes in the Community Composition and Diversity of Fishes in the Salt Fork Creek

Sidni Hunter and Waylon Hiller

School of Science and Agriculture

The community composition and diversity of fishes is a method used to determine the ecological health of a body of water and surrounding riparian area. A range of abiotic and biotic factors influence the distribution and abundance of fishes. Fish, instream habitat, and physical conditions were sampled at specific points along the Salt Fork Creek in the Fall of 2024. The purpose of this research is to determine the overall health of the Salt Fork Creek and to predict the trends that agricultural use will have on the integrity of the surrounding ecosystem.

Keyword: Diversity of Fishes, Abiotic and Biotic Factors, Salt Fork Creek

The Lasting Impact of Cholera

Camden Jackson and Michelle Reinke

School of Science and Agriculture

Cholera, nicknamed the blue death, is an extremely dangerous waterborne disease with lasting health effects across the globe, particularly in areas lacking in sanitation and access to clean drinking water. As the bacterium *Vibrio cholerae* is consumed the body begins producing massive amounts of fluids inside of the body. This causes extreme diarrhea and vomiting, resulting in severe dehydration. The disease is extremely fast-acting and can cause death in as little as a couple of hours. Cholera is an extremely preventable disease, despite this, there are many recurring epidemics in Asia, Africa, and South America. This highlights a critical need for improved water quality and sanitation in impoverished countries.

Keyword: Cholera, Waterborne Disease

Dying of a Broken Heart: An Analysis of Takotsubo Cardiomyopathy

Mariia Karabchevskaia and Andrew Linsenbardt

School of Science and Agriculture

Takotsubo Cardiomyopathy (TTC), first identified in Japan in 1990, is a striking form of acute heart failure that often mimics a heart attack. This condition, characterized by an unusual ballooning of the left ventricle, typically arises from intense emotional and/or physical factors, impacting primarily postmenopausal women. Symptoms can range from mild to severe, including dyspnea and tachycardia, often leading to misdiagnosis. The role of a catecholamine storm in TTC underscores the importance of stress management. Increased awareness and accurate diagnostic methods, particularly echocardiography, are essential to improve patient outcomes and mitigate the risks associated with this enigmatic syndrome.

Keyword: Takotsubo Cardiomyopathy, Cardiac

Vaginal Yeast Infection

Quinlynn Keller and Michelle Reinke

School of Science and Agriculture

Vaginal yeast infections, also known as candidiasis or thrush, is a common fungal infection that affects the vagina. Vaginal yeast infections are caused by an overgrowth of the yeast *Candida albicans*, or a different species of candida. Common symptoms of a vaginal yeast infection are irritation, discharge, and intense itching of the vagina and vulva. Reasons for an overgrowth to form are wearing tight or wet clothing. For mild infections, over the counter antifungal cream, ointment, or suppository may be taken. For severe symptoms, a single dose of diflucan and be taken. There are common misconceptions about vaginal yeast infections and stigma around the topic. With this presentation, I hope to spread awareness of what vaginal yeast infections are and the steps for prevention and treatment.

Keyword: Vaginal Yeast Infections

Echoes of Movement

Lucinda Lombaard and Andrew Linsenbardt

School of Science and Agriculture

By using images of hands, this piece of art seeks to convey the terrible effects of Parkinson's disease. The hands will be depicted in a range of tremors and stiffness to represent the mental and physical difficulties that people with the disease encounter. The piece aims to increase awareness of the difficulties of living with Parkinson's disease by showing the delicate interaction between strength and vulnerability. The artwork will act as a moving reminder of the resiliency of individuals impacted, promoting empathy and understanding among community members and stimulating conversations about neurological disease research and support.

Keyword: Parkinson's Disease, Echoes of Movement

Unveiling the Risks: The Role of Organic Chemicals in the Etiology of Parkinson's Disease and the Imperative for Occupational Health Measures

Lucinda Lombaard

School of Science and Agriculture

This presentation consists of research that investigates the potential link between organic chemicals, particularly volatile organic compounds like methyl ethyl ketone (MEK), and the onset of Parkinson's disease. Parkinson's disease is the leading cause of disability worldwide, and understanding how these chemicals contribute to its etiology is crucial. The presentation highlights the need for enhanced occupational health measures to protect workers in industries exposed to these neurotoxins. By analyzing case studies and health records, the research emphasizes the health implications for exposed individuals and advocates for improved safety protocols and further investigation into the long-term effects of organic chemical exposure on neurological health.

Keyword: Parkinson's Disease

Unveiling Human Papillomavirus The Dormant Assailant (HPV): Mechanisms, Risks, and Public Health Impact

Landen Lopez and Michelle Reinke

School of Science and Agriculture

Human Papillomavirus (HPV) is one of the most common, if not the most misunderstood virus, affecting roughly 80% of individuals that are sexually active across the entire world. With over 200 strains, HPV is linked to multiple cancers. This presentation will explore how HPV infects cells, evades immune detection in our bodies, and, at most times, remains dormant. We will address public misconceptions and why awareness remains low despite the virus's prevalence and the potential chaos that can arise. Emphasizing prevention through vaccination and screening, we will examine the efficacy of current vaccines and the challenges of increasing uptake, particularly in under-resourced areas. By bridging knowledge gaps about HPV's biology, risks, and preventive measures, this presentation aims to empower healthcare providers and educators to advocate for improved public health initiatives to reduce HPV-associated cancers.

Keyword: Human Papillomavirus

Fractal Geometry and its Effects on Human Movement Patterns

Natasha Louw

School of Science and Agriculture

This study will explore the potential of fractal geometry to advance human movement patterns, focusing on enhancing performance, diagnostics, and adaptability across various physical contexts. By examining the complex patterns inherent in human movement patterns, fractal analysis provides unique insights into motor control, variability, and adaptability. The question whether human movement patterns can be advanced using fractal geometry will be addressed within the paper while viewing the possibilities of fractal analysis in fields ranging from sports biomechanics and rehabilitation to neurological diagnostics. The use of fractal geometry may be proven useful in improving performance metrics, detecting early signs of physical/neurological disorder, and could even contribute to personalised training programs. The goal is to make use of existing research to seek ways to optimize fractal geometry in improving human motion and to offer improvement in both health and athletic performance

Keyword: Fractal Geometry

Septicemia (Sepsis)

Stacy Maimur and Michelle Reinke

School of Science and Agriculture

Sepsis is a serious, life-threatening condition that happens when the body has an extreme reaction to an infection. It usually starts with a bacterial infection that spreads, causing the immune system to go into overdrive and attack its tissues and organs. This can lead to organ failure and even death if not treated quickly. Early symptoms include fever, fast heartbeat, trouble breathing, and confusion, which can worsen rapidly. Treating sepsis requires immediate care, usually with antibiotics, fluids through an IV, and support to help organs work properly. Despite medical advances, sepsis is still a major health problem worldwide, especially among older people, those with weakened immune systems, and people with other health issues.

Keyword: Sepsis

Adolescents Engage in Video Games That Affect Their Health

Josiah Matamua and Karen Reeter

School of Science and Agriculture

The goal of this project is to investigate the impact of video games on Young adults ' health, particularly their mental health, and to better understand the complex relationship between gaming activity and psychological well-being. Given the growing popularity of video games and their immersive nature, it is critical to investigate how long-term gaming exposure may affect a person's mental health, including possible hazards and benefits. Sedentary behavior, such as playing video games, is linked to poor health and an increased risk of morbidity from chronic diseases also to see how it could lead to more on the route of Criminal behavior. However, the association between health practices and video gaming is not well recognized and explored.

Keyword: Adolescents Engage

Understanding HIV/AIDS

Kloee Mills and Michele Reinke

School of Science and Agriculture

Human immunodeficiency Virus (HIV) is a viral infection that in some cases causes acquired immunodeficiency Syndrome (AIDS). HIV is a virus that infects cells within the body that are supposed to help the body fight against infection. This makes a person more vulnerable to other infections and diseases. HIV can be transmitted through having unprotected sex, from mother to children during childbirth, and sharing needles/getting stuck with a needle that is contaminated by HIV blood. HIV is incurable but there are treatment options for those infected. By using Antiretroviral Therapy there has been a change in the way that those affected with HIV/AIDS live with the disease. A once deadly disease is now a manageable disease that one can live with. There are a lot of misconceptions with HIV/AIDS and I hope with this presentation I can clear the misconceptions up and teach others about HIV/AIDS.

Keyword: HIV/AIDS

Understanding Hepatitis B

Jovana Moròn and Michelle Reinke

School of Science and Agriculture

Hepatitis B, a viral infection caused by the hepatitis B virus (HBV), remains a global health concern affecting millions of people worldwide. This poster explores the components of hepatitis B, modes of transmission, prevention strategies, and worldwide impact. Hepatitis B targets the liver, often leading to chronic disease, liver cirrhosis, or hepatocellular carcinoma, and in some cases causes death. Transmission primarily occurs through exposure to infectious bodily fluids. Which include; blood, semen, and saliva. This puts healthcare environments and certain living conditions at high-risk for contracting. Effective prevention methods, including vaccination and safe practices such as hand washing, have shown success in reducing hepatitis B prevalence, but socioeconomic barriers and poor healthcare pose challenges to stay aseptic

Keyword: Hepatitis B, Infectious Bodily Fluids

Diphtheria Disease

Crysta Newton and Michelle Reinke

School of Science and Agriculture

Diphtheria is a highly contagious bacterial infection caused by *Corynebacterium diphtheriae*, first observed in 1883 by Edwin Klebs. This disease targets mainly the respiratory tract leading to sore throat, hoarseness, swollen glands, fever and chills, nasal discharge, and specifically a thick gray membrane covering the throat and tonsils that can obstruct breathing. In severe cases, Diphtheria can damage the heart, kidneys, and nervous system potentially resulting in life threatening complications. Diphtheria spreads through respiratory droplets, contaminated items, or direct contact with an infected wound, making this a health concern in unvaccinated communities. Effective prevention has been researched such as vaccination which was invented and widespread throughout the 1920s-1930s, the standard DTaP vaccine is administered during childhood and administered continuously throughout life through booster shots. Due to vaccination efforts, Diphtheria is currently quite rare in many parts of the world, but remains a concern in developing countries with low immunization rates.

Keyword: Diphtheria, Respiratory Disease

Impact and Challenges of Malaria: Epidemiology, Diagnosis, and Treatment

Sara Ortiz Navarro and Michelle Reinke

School of Science and Agriculture

Malaria is a potentially fatal infectious disease caused by parasites of the genus Plasmodium and transmitted to humans through the bite of infected mosquitoes. The disease is prevalent in areas such as Asia, sub-Saharan Africa and Latin America, where it continues to be a very dangerous public health problem. Malaria presents with symptoms such as fever, chills, headache and, in severe cases, anemia or organ damage. In my paper, the current epidemiology of malaria, recurrent treatments and the challenges associated with its early diagnosis in these areas of the world such as drug resistance or limited access to healthcare will be discussed. In addition, the eradication of the disease will be explored, as well as the role of new strategies, such as vaccines. The aim of this paper is a current overview of this disease, with emphasis on future research and opportunities to improve health outcomes in affected communities

Keyword: Malaria, Epidemiology, Diagnosis, and Treatment

Strangles in Horses: What You Need to Know

Giavanna Parisi and Michelle Reinke

School of Science and Agriculture

Strangles is a highly contagious bacterial infection that affects the upper respiratory tract in horses. It is very similar to strep throat in humans and may cause very big abscesses in the lymph nodes. These lymph nodes can get big enough to compress the airways, which is where the name Strangles comes from. Some signs a horse may show if it has Strangles is a fever or thick, nasal discharge. Horses may also become disinterested in eating because of swelling under their jaw. Treatment usually depends on the horse itself but most can clear this infection on their own. About 75% of horses will be immune for five years after the infection clears. The goal for this presentation is to give a brief overview of the history, cause, symptoms, prevention and treatment of Strangles in horses

Keyword: Strangles, Horses

Meningitis in the Brain

Jasmin Perdomo and Michelle Reinke

School of Science and Agriculture

Meningitis is a life threatening condition influenced by inflammation of the protective membranes covering the meninges. This inflammation can result from bacterial, viral, fungal, or parasitic infections, with bacterial meningitis being the most severe form. The condition disrupts the blood brain barrier, leading to increased intracranial pressure and potentially causing neurological damages, such as seizures, cognitive impairment, and hearing loss. Treatment varies based on the underlying cause, with bacterial cases requiring immediate antibiotic treatment and viral infections often managed with supportive care. Despite advances in vaccination programs and medical treatments, meningitis remains a global health concern with significant mortality, particularly in low resource settings. Understanding the importance of meningitis prevention and treatment is essential to reduce the disease burden, improve public health outcomes, and ensure global preparedness for future outbreaks.

Keyword: Meningitis, Blood Brain Barrier

Tetanus

Ulises Ramirez and Michelle Reinke

School of Science and Agriculture

My project for the Student Research Symposium is going to be a presentation on Tetanus. Tetanus is a bacterial infection that can cause disease and it comes from *Clostridium tetani*. *Clostridium tetani* is an anaerobic bacteria. It most commonly enters the body through open wounds. Once it enters the body it produces tetanospasmin which is a neurotoxin that causes the disease tetanus. The symptoms are muscle stiffness and muscle spasms that can be severe in some cases. The toxin tetanospasmin travels through the bloodstream to the nervous system, where it binds to nerve endings and blocks the release of inhibitory neurotransmitters, such as glycine and GABA. These neurotransmitters relax muscles. When they are affected by tetanospasmin it causes nerve impulses to trigger constant muscle contractions which leads to muscle spasms. For my poster presentation I will further explain where tetanus comes from and what it does in the body. As well as how we treat the disease if someone contracts it and how it is often prevented with vaccines

Keyword: Tetanus, *Clostridium tetani*,

Climate Change Effects on Global Agriculture

Pedro Rodriguez Mantilla and Stephanie Gooden

School of Science and Agriculture

Climate change poses significant challenges to global agriculture, impacting food security, crop yields, and agricultural sustainability. This project investigates the relationship between climate change variables—such as temperature shifts, extreme weather events, and altered precipitation patterns—and their effects on crop growth, soil health, and pest dynamics. By analyzing recent data and case studies, this research identifies regions and crops most vulnerable to climate-related stresses and explores adaptive strategies, such as drought-resistant crops, agroforestry, and precision farming. Special focus is given to how smallholder farms and low-income communities face disproportionate impacts, further deepening global food inequities. This study aims to shed light on both the risks and the adaptive innovations within agriculture to guide policies and practices that can support resilient, sustainable farming systems in the face of climate change.

Keyword: Climate Change, Global Agriculture

The Impact Bacterial Vaginosis has on Women's Health

Brooklin Rose and Michelle Reinke

School of Science and Agriculture

Bacterial Vaginosis is very common in women's health as vaginas are sensitive. Bacterial Vaginosis is a unique infection that is commonly caused by the "disappearance of lactobacilli and overgrowth of Gardnerella Vaginalis and resident anaerobic vaginal bacteria" (Sobel, 2000). In this presentation participants will explore the impacts of bacterial vaginosis. Bacterial Vaginosis is an infection that constantly throws off the woman's vagina which can cause an unpleasant smell like a "fishy Odor". It also causes irritation in the vagina which can cause the vagina to itch, burn and or swell due to the PH balance being thrown off. Bacterial vaginosis can be mistaken for other STDs due to the symptoms it can cause, but usually your doctor can tell right away if you have bacterial vaginosis. If Bacterial Vaginosis goes untreated you're more prone to infections, and STIs. Bacterial Vaginosis can sometimes be mistaken for yeast infection because they both cause a discharge.

Keyword: Bacterial Vaginosis, Women's Health

Chickenpox

Azlyn Schwarzer and Michelle Reinke

School of Science and Agriculture

Chickenpox, caused by the varicella-zoster virus, is a highly contagious viral infection characterized by an itchy rash and flu-like symptoms. Historically, chickenpox was a common childhood illness, with records dating back to the 5th century. It was initially mistaken for smallpox but was recognized as a distinct disease over time. The introduction of the varicella vaccine in the mid-1990s significantly transformed the management and prevalence of the disease, resulting in a dramatic decrease in cases and related complications. Symptoms typically begin with fever and malaise, followed by the emergence of itchy vesicular lesions. While generally mild in children, chickenpox can lead to severe complications in adults and immunocompromised individuals. Public health campaigns promoting vaccination have highlighted the importance of preventing outbreaks, contributing to the broader efforts to control infectious diseases. Today, chickenpox remains a preventable illness, emphasizing the significance of immunization for community health

Keyword: Chickenpox, Itchy Rash and Flu-like Symptoms

Necrotizing Fasciitis

Josie Stuver and Michelle Reinke

School of Science and Agriculture

What is Necrotizing Fasciitis? Necrotizing fasciitis (NF) is a soft tissue infection that usually affects the fascia and subcutaneous tissue and advances rapidly, and is characterized by widespread tissue necrosis. It is often brought on by trauma, surgery, or underlying conditions like immunosuppression or diabetes. NF is typically caused by a polymicrobial infection, with *Streptococcus pyogenes* and *Staphylococcus aureus* being common causes. Systemic symptoms such as fever and shock, erythema, edema, and excruciating pain that is excessive for the initial lesion are examples of clinical presentations. Unfortunately, these symptoms can often be misdiagnosed for other diseases which can prevent the patient from getting the proper care. Better outcomes require early diagnosis, rapid surgical intervention, and broad-spectrum intravenous antibiotics. This poster presentation will address semiology, diagnosis, therapy, and the disease's long-term effects.

Keyword: Necrotizing Fasciitis, Trauma, Surgery, Immunosuppression or Diabetes

Chronic Wasting Disease: The Prion Disease Killing Cervids

Carter Taylor and Michelle Reinke

School of Science and Agriculture

Chronic Wasting Disease (CWD) is a fatal prion disease occurring in Cervids. Currently there are no known cases of CWD in animals other than Cervids; although, there are other spongiform encephalopathies in animals. These include the Creutzfeldt-Jakob Disease in humans as well as the mad cow disease in cattle. Although CWD has not been found in humans, its transmissibility to the species still remains in question. Cervids are popular game animals, meaning if CWD was transmissible to humans, it would have many opportunities to spread into the population as hunters come into contact with infected deer. There are also other detrimental effects of CWD occurring now, including reductions in deer populations in some areas, which result in unhealthy ecosystems and harm to local economies especially in rural areas. The many dangers of CWD make it an important disease to study to ensure human safety and good conservation of natural resources.

Keyword: Chronic Wasting Disease, Creutzfeldt-Jakob Disease

Poliomyelitis

India Trimble and Michelle Reinke

School of Science and Agriculture

Poliomyelitis, also known as polio, was a widespread epidemic that attacked the world in the 1940's. Infecting infants and children, polio is a fatal disease that infects motor neurons in the central nervous system resulting in paralysis. Polio symptoms present themselves like Influenza. Fever, vomiting, headache, and muscle stiffness are the initial symptoms, however, paralysis can happen within hours. Most cases result in irreversible paralysis, but, 5-10% of cases result in death when the respiratory muscles become immobilized. Polio is mostly spread through person-to-person contact and contaminated food and water. There's no cure, but it can be prevented. Inactivated and oral polio vaccines are used to prevent polio. Some countries still battle polio eradications and outbreaks. Vaccination efforts are important to reach polio eradication at the global level. We have made loads of progress to achieving that, but it's still necessary that we fight to eliminate polio.

Keyword: Poliomyelitis, Polio symptoms

A Look Into The Disease Leprosy

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I will be presenting on the disease leprosy (also known as Hansen's Disease), a bacterial infection that affects the host's skin, nose, eyes, and nerves. It is caused by the bacteria *Mycobacterium leprae*. I intend to cover how the disease is contracted, how it affects the host's body, what the lingering effects are, the treatment process, and the history of the disease . My research will include people of all ages, even though children seem to be the most susceptible to the disease.

Keyword: Disease Leprosy, Hansen's Disease

Tar Spot in Corn

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Tar Spot is relatively new to the United States and has been a very hot topic specifically in the Midwest recently. The first discovery of Tar Spot in the United States was in northwest Indiana in 2015. In 2018, the first high yield-reducing event was noted. It is a major issue for corn producers around the world with many studies having concluded that the presence of Tar Spot in corn fields can rob upwards of 60 bushels per acre. Often, these results are due to reduced photosynthetic capacity causing poor grain fill, kernel abortion, and reduced kernel test weight. It also can cause significant lodging and reduced stalk integrity.

Keyword: Corn Blight, Tar Spot

Chytridiomycosis

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Chytridiomycosis is a fungal disease that affects amphibians. The fungus infects the skin of amphibians and causes lesions. Healthy skin of an amphibian is vital for health and essential for respiratory functions. Most amphibians have pores that allow oxygen to pass through their bloodstream, allowing them to breathe. The two types of fungal pathogens that cause Chytridiomycosis are *Batrachochytrium dendrobatidis* and *Batrachochytrium salamandrivorans*. *Batrachochytrium dendrobatidis* has been recorded in Australian, European, North American and Neotropical species. *Batrachochytrium salamandrivorans* has been isolated in European species. These two fungal pathogens have different environmental preferences regarding their spread and infection rates. Host type is also a factor for its growth and harm. The symptoms that present themselves are species dependent. Common symptoms are shedding of skin, redness, and discoloration. In some cases there are no physical signs of disease, but behavior is affected, especially with *Batrachochytrium dendrobatidis*. Some species experience symptoms of lethargy, leading to the loss of effective swimming patterns and predation.

Keyword: Chytridiomycosis, Amphibians