



graduate

RESEARCH SYMPOSIUM

2023

**Welcome to Angelo State University's 12th Annual
Graduate Research Symposium and Award Ceremony
Friday, April 21, 2023
CJ Davidson Conference Room, Houston Harte University Center**

Schedule of Events

Poster Session.....	4:00 – 5:15 pm
Break/Buffer.....	5:15 – 5:30 pm
Awards Ceremony.....	5:30 – 6:30 pm

The Graduate Research Symposium and Award Ceremony is coordinated by the Office of Research and Sponsored Projects and the College of Graduate Studies and Research:

- Dr. David Bixler, Dean, College of Graduate Studies and Research
- Elizabeth Randell, Director of Student Research
- Chelsea Renteria, Director of Graduate Studies
- Katie Plum, Director of Sponsored Projects
- Amanda Martinez, Graduate Admissions Coordinator
- Angela Allen, Thesis Coordinator and Graduate Admissions Assistant
- Melissa Castillo, Office Coordinator II, College of Graduate Studies and Research
- Jan Heinen, Assistant Coordinator, Office of Research and Sponsored Projects

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The Effect of Condensed Tannins on Immune Response in Beef Cattle-Sebastian Schreiber-Pan

Faculty Mentor: Dr. Cody Scott

Department: Agriculture

Selection for nutrients alone is likely insufficient to account for highly variable ruminant diets. Selection for plant secondary compounds may occur to rectify deficiencies and even self-medicate. This study investigates the relationship between condensed tannins and immune response. Twenty angus heifers were randomly assigned treatment groups. All heifers were offered 4% body weight in feed, daily. Treatment feed contained 6% grape/blueberry pomace as a source of tannins. Intake was measured for the duration of the trial (21 days). On day 15, heifers were vaccinated with modified-live IBR/BVD vaccine. Body temperatures and blood (erythrocytes, leukocytes, and immunoglobulins) were collected pre/post-inoculation. Treatment group intake was higher post-inoculation (P 0.05). Blood data and average daily gain were similar among treatments. A significant, though apparently artifactual, group-day interaction was observed for body temperature. While a relationship between condensed tannins and immune cells/antibody production was not established, intake results suggest tannins may still be relevant.

Suspected Glyphosate Resistant Johnsongrass Found in Texas -Ryan Matschek

Faculty Mentor: Dr. Cody Scott

Department: Agriculture

Johnsongrass (*Sorghum halepense*) is among the most problematic weeds in Texas croplands. A population of Johnsongrass with potential glyphosate resistance has been identified in the Rolling Plains of Texas. Indoor dose-response trials were coordinated to verify whether glyphosate resistance is present. The experiment is a randomized complete block design with 10 replications and 7 or 8 treatments, between 0x and 50x the labeled rate, applied to susceptible and suspected resistant populations, respectively. Preliminary findings indicate reduced sensitivity and mortality due to glyphosate in the potentially resistant population, although further assessment is needed to confirm the presence and level of resistance.

Host Pathogen Interactions: Determining the function of Cbu0513, a *Coxiella burnetii* virulence protein.-Anna Rodriguez

Faculty Mentor: Dr. Emerson Crabill

Department: Biology

Sponsorship: Graduate Research Fellowship, The Head of the River Ranch Research Grant

Q-fever is a zoonotic disease caused by the intracellular bacterial pathogen *Coxiella burnetii*. Q-fever is common in ruminants such as sheep and goats, and the death of livestock animals from spontaneous abortions associated with the disease can cause significant economic losses and is an ongoing problem for pastoralists.

After invasion of a host cell, intracellular bacteria like *C. burnetii* must develop strategies for accessing materials from the host in order to utilize them as a source of nutrients and materials required to expand the *Coxiella*-containing vacuole (CCV). Frequently, bacteria evolve elaborate strategies for inhibiting or inducing autophagy in order to access these otherwise unavailable nutrients. *C. burnetii*, like many bacterial pathogens, utilize specialized secretion systems to translocate bacterial proteins from the bacterial cytosol into the host cell cytosol. One such effector protein employed by *C. burnetii* is Cbu0513.

Based on bioinformatic predictions, I hypothesize that Cbu0513 is a functioning fructose-1,6-bisphosphate aldolase/phosphatase enzyme. I further hypothesize that *C. burnetii* utilizes Cbu0513 as a bacterial effector protein to induce autophagy in the host cell to recruit and promote fusion with autophagic vesicles in order to gain the nutrients and components necessary for its proliferation and for expansion of the CCV. Here, I utilize an array of molecular biological techniques in order to test this hypothesis. Preliminary results suggest that when Cbu0513 is expressed in HeLa cells, an upregulation of LC3 is observed, which further indicates an upregulation of autophagy.

A molecular reevaluation of Bewick's wren (*Thryomanes bewickii*) subspecies of New Mexico, Oklahoma and Texas-Jeffrey Roth

Faculty Mentor: Dr. Ben Skipper

Department: Biology

Modern advancements in sequencing technology now allow for fine scale analyses of genetically distinct populations to test subspecific boundaries at a genetic level. Despite these advances, many avian subspecies have not undergone reevaluation since their morphologically based designation decades ago. The Bewick's wren (*Thryomanes bewickii*) is a small wren species in North America currently subdivided into 15 recognized subspecies. These designations have been questioned because some specimens used in the original designations suffered from foxing or were soiled skins, necessitating reassessment. Of the described subspecies, four occur across Texas, Oklahoma, and eastern New Mexico (*T. b. pulichi*, *T. b. cryptus*, *T. b. eremophilus*, and *T. b. sadai*). Population structure among these subspecies was tested using a combination of molecular methods; screening genomic DNA for single nucleotide polymorphisms and sequencing of the ND2 mitochondrial gene. Across New Mexico, Oklahoma, and Texas 68 individuals were captured and sampled. Analysis of population structure using the program STRUCTURE found the populations of Bewick's wrens within the study area to be a panmictic population with little genetic structuring. Construction of a haplotype network generated based on the ND2 gene suggested two distinct clusters across the study area with all birds in Oklahoma, Texas, and eastern New Mexico clustering together and birds in New Mexico west of the Rio Grande representing a second cluster.

Molecular Systematics of *Sauromys* and *Platymops* within Molossidae-William McCoy

Faculty Mentor: Dr. Loren Ammerman

Department: Biology

Sponsorship: Graduate Research Fellowship, The Head of The River Ranch Research Grant

The family Molossidae is comprised of 16 genera and approximately 100 species, endemic to both the New and Old World. There is a relative consensus of the relationships among New World taxa but the phylogeny lacks consensus for taxa from the Old World. *Sauromys petrophilus* and *Platymops setiger* are two monotypic taxa found in Africa. There have been numerous taxonomic revisions that have shifted their positions within the family, largely based on morphological data and the most recent treatment of this group united *Sauromys* and *Platymops* as sister taxa. A recent molecular phylogeny showed a relationship between *S. petrophilus* and *Tadarida aegyptiaca* resulting in the paraphyly of the genus *Tadarida*, however this analysis did not include *Platymops*. In this project we obtained samples of both *S. petrophilus* and *P. setiger* as well as specimens of 4 other *Tadarida* species that occur in Africa to use molecular techniques to resolve their taxonomic positions. One mitochondrial gene (RAG2) and one nuclear gene (ND1) were amplified for our analysis. Our DNA sequences will be analyzed with reference sequences for RAG2 and ND1 from representatives of the family Molossidae available on GenBank. We will use Maximum Likelihood to test the hypothesis that *S. petrophilus* and *P. setiger* form a sister group within Molossidae

The New Majority: Nontraditional Students-Jennifer Roberts

Faculty Mentor: Dr. Amy Murphy

Department: Curriculum and Instruction

Sponsorship: No

In a higher education culture fixated on the dwindling population of traditional college-aged students, nontraditional students now outnumber traditional students enrolled in colleges and universities. The learning needs and competing family and work priorities for nontraditional students must take precedence as institutions either evolve to better serve this new majority or face the risk of financial failure. Due to being more “at-risk” to drop out, new accelerated and career pathways programs are options to allow more flexibility and occupational related academic advising and support to better serve the changing population. This project combined information gathered from interviews and review of literature to identify promising practices that holistically meet the needs of nontraditional students. The University of California at Berkley and Missouri State University are leading the way forward by creating adult learner-focused initiatives and departments dedicated for the academic, social, and economic needs of adult learners. Student affairs professionals must adapt to the evolving needs and expectations of today’s adult learners who are also college students. Nontraditional students can flourish with institutional support and initiatives that focus on hybrid and holistic models of student and academic support. Although change is inevitable, growth is optional and student affairs professionals must help facilitate innovative programs and practices to better serve the new nontraditional majority.

Comparison in Leadership Styles in Athletic Training Compared to Other Healthcare Professions-Blaine Todd

Faculty Mentor: Dr. Chelsea Proctor-Willman

Department: Health Science Professions

Background:

To investigate and compare differences of leadership styles in athletic trainers and to also compare these results to other healthcare professions. This study includes athletic trainers, hospital nurses, and emergency physicians. There is very little current research conducted on the leadership styles of athletic trainers compared to other health care professionals. Subjects were given a leadership style survey to identify their natural leadership style. The leadership style options in this particular study were: Autocratic, Participative, Situational, and Delegative.

Methods:

Data collection and outcome measurement for this study incorporated the use of a pre-existing leadership style quiz. This assessment consists of 12 questions where each subject was asked to critically think upon their career and rate themselves from a Likert-scale of 1-4 for each question. The scale is ranked as follow: 1=never, 2= sometimes, 3= often, and 4=always. Once the user completed the questionnaire, a score was tallied to identify a specific leadership style. 44 (N=40) total subjects participated in the survey. Of these, 27 were athletic trainers, 14 were nurses, and the remaining 3 were emergency physicians. Once surveys were completed, the researchers organized the data into SPSS and ran statistical methods to determine if significance was present to support the hypothesis or null hypothesis of the study. The Kruskal Wallis test was performed to examine the differences between groups and their natural leadership style. Due to the data bias of athletic trainers making up 61.4% of the participants while emergency physicians only made up 6.8% the Mann Whitney U test was performed between athletic trainers and hospital nurses to determine any additional significant differences.

Results:

The Kruskal Wallis test showed there was no significance in leadership style differences. The results of the Kruskal Wallis test are as followed: Autocratic leadership style $p=.890$, Participative leadership style $p=.693$, Delegative leadership style $p=.770$, and Situational leadership style $p=.517$. The Mann Whitney U test between athletic trainers and hospital nurses also showed no significant difference with results showing: Autocratic leadership style $p=.854$, Participative leadership style $p=.898$, Delegative leadership style $p=.737$, and Situational leadership style $p=.650$.

Conclusion:

This study concluded that with the collected data that there is no significant difference in leadership styles between athletic trainers, hospital nurses, and emergency physicians. Among all providers, the delegative style was the most often identified natural leadership style.

Correlation between Y-Balance Testing Composite Scores and Body Mass Index in Division II College Athletes-Kobe Roberson

Faculty Mentor: Dr. Yo-Rong Chen

Department: Health Science Professions

Background:

To investigate the correlation between Lower Quadrant Y-Balance Testing (LQYBT) Composite Scores and Body Mass Index (BMI) in order to determine if BMI is a predictor of lower extremity injury in collegiate athletes.

Methods:

Sixty-Four Division II collegiate athletes in a variety of sports were recruited (30 males and 34 females).

All subjects performed the standard LQYBT test, and had their height and weight measured at the time

of testing to determine their BMI. The subjects' LQYBT composite scores were then analyzed for their right leg. Pearson correlation coefficient was performed to determine the correlation between BMI and LQYBT.

Results:

There were no significant differences between BMI and LQYBT in all athletes ($p = .125$, $r = .194$) and in

male athletes only ($p = .468$, $r = -.138$). However, a low positive correlation was found in female athletes ($p = .043^*$; $r = .349$). The means of BMI among all athletes, male, and female athletes was 25.17 ± 3.32 , 25.95 ± 2.45 , and 24.47 ± 3.83 (kg/m^2). and the means for the composite score was 93.61 ± 8.61 , 95.22 ± 8.86 , and 92.20 ± 3.83 .

Conclusion:

In female Division II Collegiate Athletes, BMI has a low positive correlation to YBT composite scores.

Clinical Relevance:

BMI may be a low correlational predictor of injury and YBT composite scores in Division II Female College Athletes. To determine significance for other athletes, more research could refocus on the relationship between LQYBT and other body composition, such as skeletal muscle mass.

Exploring the differences of emotional intelligence in athletic training apprenticeship programs vs. professional athletic training education programs, 2023-Mariah Sarmiento

Faculty Mentor: Dr. Chelsea Procter-Willman

Department: Health Science Professions

Background:

The purpose of this research study is to investigate the emotional intelligence (EI) differences across athletic training apprenticeship programs and professional athletic training education programs.

Methods:

A convenience sample of athletic training students in Texas were solicited to complete this survey. There were 32 total responses (8 males, 24 females). Subjects were asked to complete a questionnaire composed of 4 domains with 10 statements each. This survey was developed from The Quick Emotional Intelligence Self-Assessment. SPSS was utilized to analyze the collected responses. A Mann-Whitney test was conducted to evaluate differences across the two program types and differences between genders. This study also utilized the Kruskal-Wallis test to evaluate differences across age and program level.

Results:

After evaluation, the collected data showed no significant difference across either athletic training programs. However, additional statistics comparing EI levels across the participating student's age, gender identity, and program level were conducted. Results identified a significant difference in the emotional management domain across gender identities. The mean score was 24.50 for males and 13.83 for females, showing that males recorded higher levels of emotional management than females.

Conclusion:

There is no significant difference in EI levels across athletic training apprenticeship programs and athletic training professional programs. Further research will be needed to determine the importance of emotional intelligence in the field of athletic training.

Clinical Relevance:

Evaluating EI differences across two different educational programs may call for an increased emphasis in EI within the curriculum of each program type.

Practices in Breast Cancer Imaging: Does Insurance Status Affect Time to Diagnosis-Jaime Hyatt

Faculty Mentor: Dr. Dinah Cummings, Dr. Babajide Sadiq

Department: Health Science Professions

Current literature has shown that costs associated with best practices in breast cancer imaging can be a limiting factor in reaching a definitive diagnosis. Patients may need four or more expensive imaging procedures before their diagnosis can be considered conclusive. The goal of this research is to determine whether insurance status has an effect on the time to diagnosis. This measurement can be analyzed with data from our local hospital records. Patient data including demographics, initial screening mammogram date, diagnosis date, and insurance status, will be analyzed for those who have been diagnosed with breast cancer over a five-year period. Interpretation of outliers may reveal underinsured as an additional barrier. Demographics will be analyzed for possible links to socioeconomic confounders as well. Research has been approved by Angelo State IRB process as it includes only deidentified data.

Prevalence of Mental Health Disorders within DII Collegiate Athletic Programming-Giselle Aldrete

Faculty Mentor: Dr. Chelsea Procter-Willman
Department: Health Science Professions

Background:

Mental health continues to be an important issue for collegiate student-athletes. Risk factors include gender, academic standing, history of injury, high-performance athletes, etc. Mental health decline often begins with student-athletes being impacted by these risk factors, making them more prone to depression, anxiety, and stress. It is important to identify preventative and evaluative methods to reduce the prevalence of mental health disorders within the Division II collegiate level.

Methods:

The participants (109 subjects, 32 males, 76 women, 1 unknown) were from DII colleges in Texas and were invited to complete the Depression, Anxiety and Stress Scale (DASS-21) and Center for Epidemiologic Studies Depression Scale (CES-D) via a Qualtrics survey. Both the Mann-Whitney U-Test and the Kruskal Willis Test were used to identify differences between male and female responses, age, sport, and level of academic standing.

Results:

Analysis revealed that female athletes presented with more severe mental health behaviors than male athletes (anxiety $p=.027$ & depression $p=.060$). The highest subcategory being anxiety in female athletes ($p=.020$). Juniors experienced higher levels of anxiety ($p=.001$) and stress ($p=.008$). African-American students experienced higher levels of depression (mean=71.57) and stress (mean=72.1; $p=.047$).

Conclusion:

The results concluded that DII female collegiate athletes show more severe symptoms of mental health behaviors when compared to their male counterparts. Both depression and anxiety presented with high outcomes in female athletes.

Clinical Relevance:

Identification of the need for prevention and evaluative strategies for mental health disorders that are occurring in DII NCAA collegiate athletes.

Best Practices for Prevention of Catheter Associated Urinary Tract Infections (CAUTI's) & UTI's-Steven Salinas

Faculty Mentor: Dr. Dinah Cummings, Dr. Babajide Sadiq

Department: Health Science Professions

Urinary catheterization is one of the most common procedures nurses perform in hospitals. As a result, catheter-associated urinary tract infections (CAUTIs) are a common and highly problematic healthcare-associated infections. Significant risk factors for the development of CAUTIs in all settings include the presence of the catheter, insertion method, and length of duration of the urinary catheter. Other risk factors include foley care, hand hygiene, gender, and age. This study will utilize data from rehabilitation hospital network in West Texas from January 2022 through December 2022, conducted over patients of all ages; however, most of these individuals are >50 years of age from it being a rehab hospital. This study aims to prevent UTIs and CAUTIs in adult care patients setting by using the best evidence-based practice protocol. From this dataset hand hygiene, foley care, and catheter days per patient (catheter utilization) audits were selected to investigate the which method of practice is best used for preventing UTIs and CAUTIs. Descriptive statistical models will be created for each audit then compared to determine if there is statistically significant difference between the three types of best practices.

Use of Weighted Blankets to Decrease Anxiety in College Students-Alexa Fernandez

Faculty Mentor: Dr. Kristi White

Department: Health Science Professions

Sponsorship: Graduate Research Fellowship, Baloo Living Weighted Blankets

Background: To investigate the weighted blankets treatment effect on anxiety in college students using General Anxiety Disorder Assessment-7 (GAD-7).

Methods: Eighty subjects (40 experimental and 40 control group) aged 18-30 years old and weighing 150-200 lbs. enrolled in the study. Both groups completed the GAD-7 questionnaire, to get a baseline of their anxiety levels. The GAD-7 questionnaire measures generalized anxiety disorder with seven questions with responses categorized as (0) "not at all", (1) "several days," (2) "more than half the days," and (3) "nearly every day" to each question asked. The experimental group received the weighted blanket and were asked to use it every day for four weeks. Individuals in both groups were then asked to complete the GAD-7 questionnaire again to see if there were any changes in their anxiety levels, with an additional short Qualtrics survey. This concluded the study and the control group participants received a free weighted blanket for participating.

Results: Sixty-nine individuals completed the study (34 experimental and 35 control). The mean baseline GAD-7 anxiety score for all 69 participants was 9.55 (8=minimal anxiety, 29=mild anxiety, 22=moderate anxiety, and 10=severe anxiety). The post-GAD-7 mean score was 6.74 (27=minimal anxiety, 26=mild anxiety, 13=moderate anxiety, and 4=severe anxiety). All four participants with a severe anxiety post-score were in the control group. A paired sample t-test determined the mean difference of 2.812 between pre and post scores of all participants to be significant 0.000 ($p \leq 0.05$). An independent t-test found significance 0.00 ($p \leq 0.05$) between the difference in pre and post test scores of the two groups.

Conclusion: The use of a weighted blanket significantly decreased anxiety in college students over a four-week period.

Clinical Relevance: Weighted blankets can help college students decrease their levels of anxiety.

Patellar Tendon Stiffness Differences Between Patellofemoral Syndrome Subjects and Healthy Individuals, 2023-Kylar Lowrance

Faculty Mentor: Dr. Yo-Rong Chen

Department: Health Science Professions

Background:

The purpose of this study was to compare patellar tendon (PT) stiffness in those with and without patellofemoral syndrome (PFS)(PFS and CON groups). The result would provide clinicians to seek a better rehabilitation approach for PFS patients.

Methods:

Fourteen subjects (7 in each group) with moderate activity levels without other lower extremity injuries were recruited. Subjects that qualified for PFS experienced one or multiple of anterior knee pain when 1) sitting for long periods of time 2) ascending and descending stairs 3) jumping 3) squatting 4) kneeling 5) and/or stiffness in knees. Shear Wave Elastography (SWE) was used to quantify the stiffness (kPa) while in 30° of knee flexion and 60° of torso inclination. Images at proximal (0.5 cm) and distal (1 cm) PT were obtained on the worse symptom leg in PFS group, while CON was collected on the dominant kicking limb. The means of three measurements at each PT site were calculated. An independent-t test was performed to compare the group differences at each measured site. A preliminary reliability study (n=10) was completed first to ensure measurement accuracy.

Results:

The high intraclass correlations were established in measurement reliability ($r=.806$ at proximal, $r=0.825$ at distal) were established. There were no significant differences found between PFS and CON groups at proximal ($p=0.085$; PFS: 109.27 ± 51.42 kPa; CON: 164.49 ± 58.50 kPa) and distal ($p=.122$, PFD: 92.68 ± 39.99 ; CON: 130.85 ± 45.56) sites.

Conclusion:

There were no significant group differences in tissue stiffness between PFS and CON groups on both measured sites.

Determining the Clinical Effectiveness of including Balance-Board Activities in Post-Concussion Rehabilitation-Breanna Trevino, Makenzie Cramer

Faculty Mentor: Dr. Kristi White

Department: Health Science Professions

BACKGROUND: To investigate the effects of using a balance-board in concussion rehabilitation in return to play time between a control group as well as between athletes and the general population. **METHODS:** Participants are patients at Shannon Concussion Clinic who completed their concussion rehabilitation protocol in the last 10 years. A total of 2,500 patients were used for this study (1,250 without balance board rehabilitation programs, 1,250 with balance board rehabilitation programs) in the last 10 years. The patients in this study sustained their concussions from sports, motor vehicle accidents, falls, and by other mechanisms. The data gathered will be secondary data received through Shannon Concussion Clinic. After the data is received, it will be sorted based on the concussion protocol used. The data will be sorted and analyzed using SPSS (IBM SPSS Statistics 26) software. An independent t-test will be used to see if there is a significant difference in RTP time after the balance board was implemented into the rehab protocol. **RESULTS:** The following project was just approved by the Startling IRB through Shannon. Results and conclusion will be provided soon. **CONCLUSION:** Pending. **CLINICAL RELEVANCE:** Using a balance-board in concussion rehabilitation may potentially decrease the time for a patient to return to activity or play as well as help improve cognition, balance, and psychological function for patients that have suffered a concussion.

Differences in Muscle Hypertrophy of the Lower Extremity Between Males and Females After Blood Flow Restriction-Oswaldo Roman

Faculty Mentor: Dr. Yo-Rong Chen, Dr. Adam Parker, Dr. Kendra Nicks

Department: Health Science Professions

Background:

The purpose of blood flow restriction (BFR) is to increase local muscle mass and strength while training with lower resistance. This study investigated muscle hypertrophy differences between males and females after applying BFR.

Methods:

Fourteen subjects (7 males and 7 females) closely matched in age and physical activity level participated. Measurements and interventions came from the subject's non-dominant limb. The outcome measurements collected before and after training, including skinfold and circumference measurements of the thigh and calf. A Bioelectrical Impedance Analysis device was used to measure muscle mass changes. Determination of the subjects' 30% of 1 Repeated Maximum (1RM) on seated leg extension. Delfi's Personal Tourniquet System was used while the subject performed leg extension with their current 30% of 1RM resistance. There were six visits in a two-week window where the subjects performed in a 75-repetition (30, 15, 15, 15) protocol for leg extensions under BFR with the according resistance. Post-measurements were taken 24 hours after the last BFR visit. Two-way mixed ANOVAs were used to determine if time and sex differences impact muscle mass changes.

Results:

No significant differences in interaction and sex main effect were found. There were significant changes in time effect in leg girth ($p < .001$; $\eta_p^2 = .772$; pre-BFR < post-BFR) and in leg skinfold ($p = .021$; $\eta_p^2 = .399$; pre-BFR > post-BFR)

Conclusion:

Sex differences did not impact muscle hypertrophy. However, the leg girth and skinfold showed significantly improved after a two-week BFR training.

Masking in the Mirror: Neurodiversity and Reflective Writing-Madeleine Trees

Faculty Mentor: Dr. Mellisa Huffman

Department: Natalie Zan Ryan Department of English and Modern Languages

Sponsorship: Graduate Research Fellowship, Research Travel Fund

Recent scholarship on disability in the composition classroom has revealed that university instruction systematically depends on assumptions of neurological normativity. Scholarship on reflective writing fails to answer whether metacognitive frameworks apply to neurodiverse students. Metacognition and reflection still rely on neurotypical paradigms of cognition itself. Neurodivergent processes like masking or camouflaging, atypical organizational schemas, and factors that influence attention or presentation expose the inadequacies of this paradigm. Most college instruction is created with the assumption that its recipients are neurotypical unless otherwise stated. The existence of camouflaging within neurodiversity, however, proves this approach may only address neurodivergence at its most visible level. Furthermore, it assumes the student has both knowledge of their diagnosis and the language to explain accompanying difficulties. In truth, a neurodivergent student may find that their only linguistic tools are shaped by medicalized notions of their condition, and that processes different from the medical paradigm are harder to explain.

In this presentation, I unite scholarship on metacognition and reflection in composition and studies in neurodiversity in order to center a teaching approach that plans *for* rather than *around* neurodiversity, regardless of disclosure, discussion, or camouflaging. First, I utilize research on neurodiversity that encompasses both clinical and experiential methodologies. Then, I contrast this research with commonly applied frameworks for reflection, metacognition, and learning transfer. Finally, by uniting the two, I begin illuminating paths forward for the composition instructor who wants to make reflection and metacognition more accessible to all students.

Implementing the Use of Electronic Health Record (EHRs) Systems in Undergraduate Nursing School to Increase Nurse Competence and Improve Patient Outcomes: A Systematic Review-Heather Mason, Hannah Love

Faculty Mentor: Dr Denise Goddard

Department: Nursing

Purpose

The purpose of this systematic review is to determine the impact of undergraduate nursing education regarding Electronic Health Record (EHR) systems on competency and patient outcomes.

Background & Significance

Training and education for undergraduate nursing students to understand the importance, utilization, and impact of EHRs is critical. Regulatory agencies require that graduate nurses be prepared to utilize informatics such as EHRs. The HITECH Act called for EHR systems to be implemented in every healthcare setting, thus creating a need for educating nurses on health information technology.

Method

The literature search included Cochrane Library, PubMed Central, MEDLINE, and CINAHL. Search terms included informatics, EHR, electronic health record, undergraduate, nursing students, and simulation. Limiters were articles within the past five years, peer reviewed, scholarly articles, full-text articles, and written in the English language. Of the hundreds of articles that populated with the limiters, twenty articles were selected to be included in the systematic review. The twenty articles selected provided evidence to support and answer the research question.

Results/Implications for Nursing

Based on the evidence collected through the literature search, a focus on informatics is necessary to incorporate in undergraduate nursing school. Students will be more confident and competent in their informatics skills. Therefore, patient outcomes will ultimately improve when students become more efficient and are able to use informatics to support their nursing care. Further research should be conducted to understand how EHR implementation in nursing school programs affects the large population of graduate nurses entering the workforce every year.

Impact of Technology Information on Nursing Student Education-Rylee Morales

Faculty Mentor: Dr Denise Goddard

Department: Nursing

Purpose

The purpose of this Systematic Review is to evaluate the use of information technology in undergraduate nursing programs to provide a comprehensive education that improves attitudes, skills, and knowledge application.

Background & Significance

With the emergence and growth of information technology in education, it is vital to identify best practices. This presentation identifies the most effective and relevant practices for nursing students and nurse educators using information technology to provide comprehensive education.

Method

The keywords were information technology, undergraduate nursing programs, nursing students, and COVID-19. Databases included Google Scholar, CINAHL Plus, Cochrane Library, and PubMed. Inclusion criteria included: published between 2018 to 2022, involved nursing students in an undergraduate nursing program, and the articles were written during the transitions of COVID-19 regulations for students, facility, and institutions.

Results/Implications for Nursing

Undergraduate nursing students will benefit from the appropriate integration of information technologies along with face-to-face and hands-on learning. Students that can adapt their educational curriculum based on specific learning techniques, allowing for increased flexibility, and increasing exposure to education materials, which result in higher knowledge, attitudes, skills, and competencies. As individuals begin integrating these learning opportunities into their regular curriculum, they should continually ask questions regarding whether this is the most current version of technology information or whether more information needs to be identified. Suitable implementation will take time in all levels of education. In order to effectively use new integration techniques, policies must be assessed and revised to reflect current requirements.

Effects of Ankle Compression Garments on Fatigue and Single-leg Balance in Collegiate Basketball Players-Jeffrey Hamon, Tyler Vickers, Justin Hu, Lauren DeBolt

Faculty Mentor: Dr. You-jou Hung

Department: Physical Therapy

Sponsorship: Graduate Research Fellowship

BACKGROUND AND PURPOSE: Basketball players are prone to ankle sprains and recurrent injuries due to the dynamic nature of the sport. Ankle injuries often occur when the players are in a fatigued state. The purpose of this study was to investigate the effects of wearing ankle compression garments on time to fatigue and single-limb balance control, as well as the impact of fatigue on single-leg balance in Division II (D2) collegiate basketball players with and without chronic ankle instability.

METHODS: The Cumberland Ankle Instability Tool (CAIT) was used to assess ankle stability. Fatigue was induced in the participants through deficit heel raises with a speed of 30 bpm for as long as they could tolerate it or when the Rating of Perceived exertion (RPE) reached 18/20 using the Borg scale. Participants were randomly assigned and examined in two separate test sessions, with a one-week washout period. For each session, time to fatigue was recorded, and single-leg balance was assessed with the Athletic Single Leg Stability Test (ASLST) of the Biodex Balance System before and after the fatigue protocol.

RESULTS: Based on CAIT, 10 out of 16 (62.5%) basketball players were classified as having CAI. Wearing CGs did not have a clinically significant impact on time to fatigue ($P = .774$), and participants with CAI and without CAI had a similar time to fatigue ($P = .958$). Prior to fatigue, participants exhibited significantly better single-leg balance without CGs than with CGs ($P = .021$). After fatigue, CGs condition ($P = .537$), ankle stability status ($P = .520$), and their interaction ($P = .463$) did not have a significant impact on single-leg balance. Single-leg balance significantly improved in participants wearing the CGs after the fatigue protocol ($P = .027$).

CONCLUSION: Although not significant, participants with CAI had an increased time to fatigue with CGs than without CGs. Pre-fatigue, participants wearing CGs had decreased balance control compared to those without CGs, which could be due to ROM limitations. With CGs, participants' single-leg balance improved after going through the fatigue protocol. The results suggest that wearing ankle CGs might have the potential to prolong the time to fatigue, as well as enhance single-leg balance after fatigue. Further studies will be beneficial to examine further the impact of wearing ankle CGs.

Dynamic and Static Single-Leg Balance: Collegiate Female Soccer Players vs Non-Soccer Players-Jesus Aguilar, Courtnie Cano, Matthew Cunningham

Faculty Mentor: Dr. You-jou Hung

Department: Physical Therapy

Sponsorship: Graduate Research Fellowship

About 70% of sports-related injuries involved the ankle joint. The purpose of the study was to examine if female collegiate soccer players have worse ankle stability and single-leg balance (static and dynamic) than female non-soccer players, and whether having chronic ankle instability (CAI) can have a negative impact on static or dynamic single-leg balance. Twenty-seven female college students (18 years and older) participated in the study. There were eleven participants in the “soccer” group recruited from the female soccer team at Angelo State University. The sixteen participants in the “non-soccer” group had not participated on a soccer team competitively or recreationally in the past. The Cumberland Ankle Instability Tool (CAIT) was used to examine ankle stability, the Athletic Single Leg Stability Test (ASLST) of the Biodex Balance System was used to examine static balance control, and the Y-Balance Test (YBT) was used to examine dynamic single-leg balance.

Despite a much higher percentage of having CAI, results show female collegiate soccer players do not have worse ankle stability or single-leg balance than female non-soccer players. A potential explanation is because soccer players can establish better motor control to compensate for the deficit at the ankle joint.

Although ankle injuries are common in female soccer players, they may not have a direct impact on players’ static and dynamic single-leg balance and sport performance. CAIT is a valid and reliable tool for ankle instability analysis but should not be a sole indicator for balance control, therefore sport specific balance testing should be considered.

The Effects of Single-leg Jumping Events on the Dynamic Balance of Athletes with and without Chronic Ankle Instability-Grant Garza, Braden Harrison, Tim O'Meara, Zak Potts

Faculty Mentor: Dr. You-Jou Hung

Department: Physical Therapy

Sponsorship: Graduate Research Fellowship

Introduction: The goal of this study was to determine whether the repetitive loads sustained by a collegiate jumper's take-off leg lead to ankle instability and compromised dynamic single-leg balance compared to non-athletes. We hypothesized that the athletes will have a higher prevalence of chronic ankle instability (CAI) and decreased dynamic balance.

Methods: 75 subjects (37 non-athletes, 38 athletes) participated in the study. Athletes who participated in the study included collegiate pole vaulters, high jumpers, and long jumpers. The Cumberland Ankle Instability Tool (CAIT) was used to assess ankle instability. The Y-balance test was used to examine dynamic single-leg balance, performed in the anterior (AN), posteromedial (PM), and posterolateral (PL) directions. The composite normalized (CN) value of the 3 directions was also calculated.

Results: There was a statistically significant difference in CAIT scores between athlete and non-groups, with the athletes having worse ankle stability ($p=0.038$). There was no significant difference between groups in Y-balance scores in all directions ($p = .113$ AN, $.567$ PM, $.542$ PL, $.311$ CN). Only very low correlations were found between the CAIT and the Y-balance scores in all directions ($r = 0.052$ AN, -0.067 PM, -0.107 PL, -0.046 CN).

Conclusion: Despite having worse ankle stability, jumping athletes performed similarly on the Y-balance test compared to non-athletes. This could be due to enhanced motor control due to training, psychological self-motivation, and/or implementing compensatory strategies. In addition, results also suggest that the integrity of the ankle joint may not play a significant role in overall balance control.

Removing the Stigma of “Crazy” and Restoring Humanity: Improving Student Health and Wellbeing through Education, Primary Prevention, and Connection- Hollis Haby, Madi Jennings

Faculty Mentor: Dr. Drew Curtis, Dr. Leslie Kelley, Dr. Dinah Cummings, Mr. Mark Rehm

Department: Psychology

Sponsorship: Trellis Foundation for Student Mental Health and Wellbeing, Research Travel Fund

Angelo State University is a Hispanic Serving Institution, with 42% of students being Latino/a based on the 2018-2019 institutional data. The current project is aimed at informing and connecting students, specifically Hispanic, female, and students from other minority groups to resources and supports related to navigating the hardships related to higher education through a pandemic. The project is specifically focused on unifying various efforts and resources on campus to promote students' mental health and well-being. For this project, we looked at different aspects of student's physiological, social, emotional and psychological health as well as myths, values, and attitudes they have toward seeking professional help. The university currently provides resources for students' mental health needs and wellbeing (e.g., Counseling Services, Laura Bush Institute for Women's Health, Ram Pantry). However, students are not always knowledgeable of these resources or may be hesitant to pursue these supports due to stigma or other forms of barriers. After establishing baseline data of students' health and wellbeing, we looked at feedback and student responses to interventions on campus to see if there were ways we could close the gaps we saw in students' health and wellbeing. The next phase of our research involves making changes to these interventions to better serve our students, and reassessing student needs in Fall 2024 to see if our interventions have made an impact.

The Impact of Transformational Leadership on Collegiate Athlete Performance-

Connor MacKinnon

Faculty Mentor: Dr. Cheryl Stenmark

Department: Psychology

Sponsorship: Graduate Research Fellowship

Problem

This study investigates the relationship between transformational leadership and collegiate athlete performance. In an organizational setting, performance is impacted by leadership, but different types of leadership, exhibited by supervisors, affects the level of performance differently (Lee & Ding, 2020; Mehta, Dubinsky, & Anderson, 2003). Instead of this research focusing on an organizational context, it is applied in a sports context. We hypothesized transformational leadership will be correlated to performance, and cohesion and motivation will be significant mediators in the relationship.

Method

To understand this phenomenon, a Qualtrics survey was developed to collect information from past athletes. The survey was distributed on Amazon's MTurk online service. Each participant was asked to complete an informed consent form, demographic questions, and six other questionnaires.

Results

The results of this study found evidence that transformational leadership is positively related to individual ($r = 0.61$) and team performance ($r = 0.58$). Additionally, intrinsic motivation partially mediated the relationship between transformational leadership and individual performance. Cohesion, as a mediator, did not have a significant indirect effect on individual performance ($b = 2.40e-4$, $p > .05$). The same results were found when team performance was used as the dependent variable. This means cohesion is not a significant mediator in this study.

Conclusion

The null effects regarding cohesion could be due to the participants' not being active current participants in sports. Future studies should use a current collegiate athletes' sample and investigate collegiate athletes' preferences and attitudes toward a coach's leadership style.

The Influence of Ambiguity in Determining Sexual Consent-Lauren Brooks

Faculty Mentor: Dr. Nicole Lozano

Department: Psychology

There have been many initiatives that have been implemented in attempt to prevent sexual assault and promote clear communication regarding sexual consent. However, although several different organizations such as Rape, Abuse, and Incest National Network (RAINN) and Planned Parenthood have provided ambiguous descriptions of the term, there is currently no uniformly accepted definition of sexual consent (Shafer et al., 2018). As a result, individuals are often left with the challenge of defining sexual experiences based upon their own values, perceptions, and previous experiences with sex and consent (Kilimnik & Terry, 2018). Thus, it is important to explore the ways in which sexual consent is perceived and understood. Participants were recruited using Prolific ($n=64$), mostly from the UK. Of these individuals, 41 identified as female and 23 identified as male. The average age was 29.26 ($SD = 9.34$) The majority of participants identified as white (65%). Participants were administered several scales followed by a vignette describing an ambiguous sexual encounter modeled after Humphrey's (2007) vignette measuring perceptions of sexual consent. After reading the vignette, participants were asked to decide if the encounter was consensual ($n=49$) or non-consensual ($n=15$) as well as identify where consent did or did not occur. Regardless of whether they identified the vignette as consensual or non-consensual, it was evident that participants relied on physical cues to determine consent and emphasized the woman's physical cues more so than any other cues. Therefore, these results suggest that individuals are more likely to rely on a woman's physical cues to determine consent when presented with an ambiguous sexual encounter.

Blameworthiness Toward Sex Trafficked Persons-Chloe Gibson

Faculty Mentor: Dr. Nicole Lozano, Dr. Tyler Livingston, Dr. Leslie Kelley, Dr. Bruce Bechtol
Department: Psychology

Sex trafficked individuals face blame because the public tends to conflate sex trafficking with prostitution, which is subjected to a lack of social empathy given the belief that prostitution is a choice. However, 66% of sex buyers and 66% of non-sex buyers stated majority of women are lured, tricked, or trafficked into prostitution (Farley et al., 2017). Despite some acknowledging prostitution is not always voluntary, sex buyers continue to purchase services from sex trafficked persons and non-sex buyers become bystanders. Additionally, there has been a history of criminalizing Black individuals more so than White peers. According to previous literature, there are expectations of what an ideal victim looks like. For instance, Suzanne Smalley wrote the article "This Could Be Your Kid" in which a nice, blond, social teenage girl named Stacey from Minnesota was lured by a pimp at the mall. Stacey lived in an upscale neighborhood with a bright future (Baker, 2018). There is not much representation of trafficked persons of color or those of lower socioeconomic status. Black females have historically been perceived to be bad, sexually promiscuous Jezebels that are seductive, hypersexual, or manipulative with men (Menaker & Franklin, 2013). These stereotypes promote the idea that Black women are responsible for their sexual victimization. Using a randomized vignette scenario, this study sought to understand how participants' perceived blameworthiness of sex trafficked persons are impacted by participants' empathic traits, racial attitudes, attitudes toward sex trafficking, and sexual self-acceptance.

Does Gender Moderate the Effect of Power on Goal-Seeking in Organizations?-

Connor MacKinnon, Carter Adams

Faculty Mentor: Dr. Tyler Livingston
Department: Psychology

Problem

Goal-seeking in organizations may be gender-dependent such that men only “go above and beyond” (e.g., volunteering on committees) with high perceived organizational support, whereas women go above and beyond regardless of the level of support (Thompson et al., 2020). We examined the effect of power on goal-seeking in organizations and tested gender as a moderator. We hypothesized that women would endorse goal-seeking across levels of power, but men would endorse goal-seeking only at high levels of power.

Method

A community sample of 94 men and 54 women ($M_{age} = 36.51$, $SD = 11.78$) received random assignment to a high-power or low-power condition. Participants then completed a measure of goal-seeking in organizations ($\alpha = .97$).

Results

A two-way ANOVA testing the effects of power and gender on goal-seeking revealed a main effect of power condition qualified by a gender-by-condition interaction ($F(3,144) = 4.13$, $p = .008$). In the high-power condition, women ($M = 5.98$, $SD = 0.80$) and men ($M = 5.68$, $SD = 1.29$) reported equal endorsement of goal-seeking ($t(75) = -1.13$, $p > .05$). In the low-power condition, men ($M = 5.55$, $SD = 1.21$) reported significantly greater goal-seeking compared to women ($M = 4.79$, $SD = 1.78$; $t(69) = 2.14$, $p = .04$).

Conclusions

Results were opposite to predictions. Men reported high goal-seeking across levels of power, whereas women reported higher goal-seeking in the high-power (vs. low-power) condition. Thus, women's endorsement of wanting and goal seeking was more power-dependent compared to men's.

Impostor syndrome as a self-fulfilling prophecy of stereotype threats for minorities in STEM-Carter Adams

Faculty Mentor: Dr. Kyle van Ittersum

Department: Psychology

Sponsorship: Graduate Research Fellowship

Background

Coworkers' views and perceptions of each other can impact workplace culture and belonging. The current study aimed to explore the relationship between stereotype threats and impostor syndrome in demographically diverse STEM workers as self-fulfilling prophecy of work performance. Although research currently exists independently in each of these areas, the author is unaware of any research that incorporates all three of these phenomena into one study. In examining all three phenomena together in one study, a more accurate, holistic understanding can be gained regarding this timely, trending topic.

Method

Participants ($N = 325$) were community members recruited from Amazon's MechanicalTurk. Participants were randomly assigned to one of six experimental conditions, differing in gender and race. Participants responded to a series of questions from their condition character's perspective to determine that character's level of impostor syndrome, organizational commitment, job satisfaction, interpersonal communication, and affectivity. Participants then responded to a Big 5 Personality assessment and demographic questions based on their own experiences.

Findings

No significant interactions or correlations were found between job constructs and vignette characters' gender and/or race.

Conclusions

The current study aimed to explore if minorities in STEM fields would experience greater feelings of impostor syndrome as a self-fulfilling prophesy of stereotype threats, they might be more commonly subject to in technology fields. No significant differences were found based on race or gender; however, more research should be done in this area with stronger, more effective interventions to either confirm or refute the current results.

The "Role" of Role Clarity in Organizations-Isaac Carter

Faculty Mentor: Dr. Cheryl Stenmark

Department: Psychology

Sponsorship: Graduate Research Fellowship

Role clarity within teams and organizations has been seen as a contributing factor to the performance of individuals and as possibly a predictor of overall organizational performance, with factors such as work engagement, role ambiguity being important. Previous research has been conducted and found that role clarity can have an effect on work engagement and overall performance, as well as reduction in role ambiguity. Having an understanding of one's role in a group can help to make work smoother and more effective. The present study used the online multiplayer game, League of Legends, to evaluate the relationship between the following factors: role clarity, engagement and performance. Participants filled out surveys and questions based on the most recent game they played. The findings of this study were consistent with previous research, which found that participants who believed their performance to be better also indicated that they had a better role understanding. While there was a close to significant relationship between role clarity and task engagement/enjoyment, this relationship was not statistically significant. These findings suggest that there is a relationship between role clarity and factors that can contribute to performance such as engagement and role ambiguity, and that more emphasis on role clarity in organizations can lead to better overall performance.

Outstanding Student Awards

Agriculture.....	Justin Galley
Animal Science.....	Sebastian Schreiber-Pan
Athletic Training.....	Breanna Trevino
Biology.....	Jeffrey Roth
Communication.....	Sage Wilbanks
Criminal Justice.....	Kaylee Hervey
Curriculum & Instruction-Advanced Instructor.....	Ashley Allen
Curriculum & Instruction-Educational Administration.....	Tommie Alvarez
Curriculum & Instruction-Educational Leadership.....	Laurie Norrell
Curriculum & Instruction-Mental Health and Wellness Counseling.....	Allen Higby
Curriculum & Instruction-Student Development & Leadership-Higher Education:	Kate Homminga
English.....	Madeleine Trees
Family Nurse Practitioner.....	Jillian Tate
Global Security Studies.....	LT Elizabeth Satran
Kinesiology: Coaching, Sport, Recreation and Fitness Administration.....	Kirkland Mackey
Nurse Educator.....	Heather Mason
Physical Therapy Doctorate.....	Jeffrey Hamon
Professional Accountancy.....	Clayton Edmiston
Psychology-Counseling.....	Chloe Gibson
Psychology-Applied.....	Mike Burns
Public Health.....	Jaime Hyatt

Superlative awards recipients:

- Academic Excellence – LT Elizabeth Satran
- Leadership Excellence – Kirkland Mackey
- Research Excellence – Jeffrey Hamon
- Community Service Excellence – Heather Mason