Example Abstract of Research in Progress

The Effects of Antiretroviral Therapy on the Cardiovascular and Metabolic Health of Mice

Presenter(s): Priscilla Ajala

Author(s): Priscilla Ajala, Taylor Kress, and Eric Belin de Chantemele

Faculty Sponsor(s): Eric Belin de Chantemele, PhD

Affiliation(s): Department of Chemistry and Physics, Department of Vascular Biology Center

ABSTRACT

The Coronavirus Disease, identified in 2019 (COVID-19) became a Pandemic that challenged the healthcare industry to assume a new position of preparedness to respond quickly and purposefully amid mounting operational trials. Administrators were challenged to defend the safety of their patients and staff against a novel virus, equipped with little information about the virulence of SARS COV-2. Studying the virus' establishment among vulnerable populations will shed light on how to protect these groups. Research has demonstrated that COVID-19 has disproportionately affected the senior population (Centers for Disease Control and Prevention, 2020, Severe Outcomes Among Patients with Coronavirus Disease 2019), with adults over 65 years of age constituting 80% of hospitalizations and exhibiting a mortality rate 23 times higher than their counterparts under 65 (Mueller et al., 2020). As a subset of this population, residents of long-term care facilities are a particularly at-risk bracket of individuals. Long-term care facilities can include intermediate care facilities, nursing homes, assisted living communities, inpatient hospice, and community integration homes. For this study, nursing homes will be the primary subject of discourse. On December 28, 2020, at a Georgia Governor's press conference, Dr. Kathleen Toomey, commissioner of the Georgia Department of Public Health, affirmed that residents in nursing homes comprised greater than 95% of all COVID-19 deaths in Georgia, despite accounting for only 5% of positive cases in the state (Trubey & Sturgus, 2020). Also, in December 2020 (the peak of pandemic-related U.S. deaths), the United States Government Accountability Office reported 33,600 nursing home resident cases and 28,600 staff cases (Dicken, J. E., & United States, 2021, p. 4). It is crucial to learn from initial local responses to the novel coronavirus to understand how nursing homes can be equipped to respond to future emergencies. This study is in progress, and three out of four participants have responded to the survey thus far. As such, the introduction, background, and general data on the case rates in the Central Savannah River Area will be included in the poster. Additionally, a preliminary analysis of survey data will be included in accordance with the timeframe of coordination efforts with the Augusta University Biostatistics Department.

Example Abstract of Qualitative Study in Education

Mentor Science Identities and their Influence on Student Relationships with Science

Presenter(s): Melvin Hilson and Jerin Jamil

Author(s): Melvin Hilson, Jerin Jamil, and Alexandra St. Louis

Faculty Sponsor(s): Alexandra St. Louis, PhD

Affiliation(s): Center for Undergraduate Research

ABSTRACT

This qualitative study aims to investigate the individual properties present within science identities of undergraduate mentors. It also aims to inquire how these science identities are shared with students in the classroom and virtual classroom setting to improve learning in science education and STEM programming. This research is crucial because science identities strengthened through mentoring programs have correlated with increased GPAs and success in the field of research. In this study, data from the Fall 2021 cohort of the iBEARS program was utilized. This program consisted of undergraduate science mentors guiding K-12 classrooms through creating a research project utilizing project based learning. The constant comparison method was used to identify individual aspects of the science identities of undergraduate mentors participating in the iBEARS program over 15 weeks.Three classrooms were observed, with three undergraduate mentors assigned to each. Four prevalent themes emerged: a sense of community, being built by intrinsic and extrinsic attitudinal factors, a match between real science and school science, and perception of science. These themes are broken down further to emphasize the individual properties in our data set. The codes for this study were created using the in-vivo coding method. Our results primarily reflect the previous literature on science identities held by students, mentors, and teachers in the classroom and research laboratory setting. We look to investigate further components of science pedagogy that may explain the relationship between mentor science identity and student reactions.

Example Abstract in Social Sciences

Sociodemographic Influences on Opinions about Physician Assisted Suicide

Presenter(s): Makenzie Jane

Author(s): Makenzie Jane and Angela Bratton

Faculty Sponsor(s): Angela Bratton, PhD

Affiliation(s): Department of History, Anthropology, and Philosophy

ABSTRACT

Physician-assisted suicide (PAS) is the voluntary termination of one's life via administering a lethal substance with a physician's direct or indirect assistance. In the U.S., only nine states legally offer assisted suicide. These "right to die" states have death with dignity laws that seek to help individuals with terminal illnesses take their own lives to avoid suffering. In general, public opinion regarding the legality of PAS seems to be divided. This medical anthropology research paper aimed to analyze the influence of various sociodemographic factors on people's opinions regarding physician-assisted suicide, focusing specifically on religious identity, income, and age. The study implemented 45 detailed questions to voluntary participants 18 years or older. The questions served to sort the participants into demographics and gather information on their opinions about PAS and different conditional circumstances. The study's results suggested that most of the sample supported the idea of "dignity over death," a common argument for proponents of PAS. The detailed analysis confirmed the belief that approval of PAS is dependent mainly on the patient's autonomy and mental state. Age also influenced the participant's support of PAS to end one's suffering. Additionally, the religious affiliation also affected people's beliefs, with some stating their spiritual authority as the only one with control over life and death, and others citing their religious ruler's mercy as a reason why they support the procedure. This study also discussed the role of income in people's medical discussions regarding end-of-life support. This study furthers understanding of how people's social status may influence their opinions about life-ending procedures and medical decisions.

Example Abstract for College Student Success

Analyzing the Efficacy of the Embedded Tutor Program

Presenter(s): Makenzie Jane

Author(s): Makenzie Jane and Charlotte Christy **Faculty**

Sponsor(s): Charlotte Christy, PhD **Affiliation(s):**

Department of Biological Sciences

ABSTRACT

The Course Learning Assistant (CLA) program was a new program implemented into all biology classes (1101 and 1107) for the fall 2022 semester. This program was designed to facilitate student learning and provide academic support inside and outside the classroom. Embedded tutoring is a form of supplemental instruction where academic tutors work closely with instructors to provide individualized support and targeted, early-on interventions for struggling students. The CLA program was dissolved after one semester at Augusta University because of cost constraints. However, no significant information was released regarding the program's effectiveness. This study set out to analyze the efficacy of the course learning assistant program regarding relative achievement. Information about exam scores from the fall 2022 semester (class with CLA) and the spring 2023 semester (class without CLA) was used to compare the semesters. The four comprehensive exams for a biology 1102 course were juxtaposed to ensure that the students from both semesters were asked the same questions. The exams were then analyzed by looking at the correct percentage for each question. The results of this analysis concluded that across all four exams, almost 50% of the questions were answered more correctly by the class with the embedded tutor relative to the class without the tutor. To further the understanding of the success of this program, the questions in which the percentage correct were drastically different between semesters were considered. The goal was to determine if there were any specific question types that one semester demonstrated a higher level of understanding compared to the other semester. The question types include content recall, conceptual understanding, and content application. Preliminary results suggest no specific question types that one semester outperformed the other on. This may indicate that the level of comprehension was the same across the two semesters. However, further analysis must be completed to determine the exact difference in the level of question comprehension. These results are significant to understand further the efficacy of one of the implemented tools for student success on the Augusta University campus and further demonstrate the success of embedded tutoring programs even at the college level.

Example Abstract in Physiology

Filtration is Absent in the Rat Kidney Early in Reperfusion

Presenter(s): Chloe Johnson

Author(s): Chloe Johnson and Paul O'Connor

Faculty Sponsor(s): Paul O'Connor, PhD

Affiliation(s): Department of Biological Sciences, Department of Physiology

ABSTRACT

Ischemic acute kidney injury (AKI) occurs following a period of ischemia and is a major clinical problem. In AKI, the cellular structure of the kidney often appears relatively normal, despite the almost complete loss of kidney function. Red blood cell (RBC) trapping occurs in AKI and is the trapping of RBC in the capillaries of the kidney medulla. As RBC trapping increases pressure in the kidney, this increased pressure may obstruct the tubules, limiting kidney filtration even when cellular injury is mild. In the rat ischemic reperfusion model of AKI, RBC trapping is most prominent early in kidney reperfusion (2-6 hours) before dissipating. As this is before most tubular injury is evident, if RBC trapping is responsible for the decline in kidney function, glomerular filtration rate (GFR) should be most reduced early in reperfusion. Therefore, the current study tested the hypothesis that 'the greatest reductions in glomerular filtration rate following ischemia occur early in reperfusion'. The rat warm bilateral arterial clamp model of ischemia reperfusion injury (IRI) was used. 4 male rats underwent IRI surgery and 3 rats were used as controls. GFR was determined early (2-4 hours) and late (24-25 hours) in the reperfusion period. The rats were anesthetized and the renal artery of each kidney was then clamped for a period of 45 minutes before removing the clamps and allowing the animals to recover. To measure GFR, sinistrin (20mg) was administered via the tail vein. Sinistrin is a molecule excreted by the kidney. The clearance of sinistrin from the blood can be used to estimate GFR. The clearance of fluorescent sinistrin from the blood was measured across the skin using a device stuck to the back of the rat (Medibeacon). As expected, glomerular filtration rate was markedly reduced following IRI compared to control rats with the ½ life of sinistrin in the blood of control rats being 23.6 minutes verses 2246 minutes for IRI rats. Importantly, the greatest reductions in GFR occurred early in reperfusion with the ½ life of sinistrin in the blood being 3728 mins between 2-4 hours of reperfusion before falling to 765 mins by 24 hours of reperfusion ($P<0.001$ (Paired t-test). Our data are consistent with RBC trapping promoting the functional decline of the kidney following ischemia. Understanding the relationship between vascular congestion and renal functionality is essential for the development of clinically effective treatment options for acute kidney injury.

Example Abstract in Literature
Monarchs—They're Just Like Us: People Magazine Arthur

Presenter(s): Elana Koehler

Author(s): Elana Koehler and Blaire Zeiders

Faculty Sponsor(s): Blaire Zeiders, PhD

Affiliation(s): Department of English & World Languages

ABSTRACT

Among scholars of Arthurian literature, Richard Johnson's Tom a Lincoln, initially published in 1599 and 1607, is often referred to as an example of a depiction of King Arthur that strays far from the generous, glorious, and chivalrous depictions of Arthur in other literature of its time. While I agree that Tom a Lincoln is discussed as a branching off from the traditional depictions of monarchs, I maintain that the 1668 republishing of Tom a Lincoln presents the opportunity for investigating the anticipated views of its readers, as well as their perceived opinions on the monarchy given the post-Restoration climate. I argue that Johnson has created a "People Magazine Arthur" through which the general masses of people in Britain can see a representation of a monarch making many human errors and can then project their issues with their monarch onto him. I highlight the aspects of manuscript culture within the 1668 Tom a Lincoln and how they emphasize the facade of a perfect monarchy. I connect Johnson's depiction of King Arthur with the more modern People Magazine's methods of anticipating audiences latching on to the scandals of famous political and entertainment figures. I maintain that by analyzing 1668 Tom a Lincoln through Roger Chartier's method of looking to the text to construct a perceived readership, as well as his use of Michel de Certeau's "mystical reader" concept (Chartier 51), the perceived readership of Tom a Lincoln becomes clearer: a community of readers that were familiar with the errors of monarchs and were looking for somewhere or someone onto which to project their frustration after the Restoration of the monarchy. I posit that "People magazine Arthur" in Johnson's 1668 work epitomizes the use of a familiar celebrity or familiar character to capture the attention of a predicted readership, while the plot of the text emits the important theme of not blindly trusting a leader simply because they demand it. Simultaneously, Johnson's work epitomizes the idea that the general populous not only appreciates, but relishes in the publicizing of the scandalous activities of those in power, especially when they have previously been depicted as free from fault.

Example Abstract in Psychiatry and Biology

Are Annual Overdose Deaths for High-Risk Drugs Impacting Google Search Frequencies?

Presenter(s): Kaamya Mehra

Author(s): Kaamya Mehra, Pierce Brody, Mehul Mehra, Rishab Chawla, and Vanessa Spearman-McCarthy

Faculty Sponsor(s): Vanessa Spearman-McCarthy, MD

Affiliation(s): Department of Biological Sciences, Department of Psychiatry & Health Behavior

ABSTRACT

The CDC reports over 75,000 attributable to overdoses in the 12-month period between March 2019 and March 2020. Previous studies have examined internet searches as predictors of opioid-related emergency department visits and hospital admissions, finding high correlations between internet searches and prescription utilization. However, no studies have linked Internet GT scores or score seasonality to deaths associated with overdoses of medications more generally. The CDC disaggregates ICD-10 accidental deaths due to medication overdose by demographic variables such as age, race, and gender from 1999 to 2019. We conducted a retrospective analysis correlating deaths associated to specific drugs with Google Trends (GT) scores of corresponding drug topics. Though the sizeable majority of deaths is attributable to legal and illegal opioid overdoses, a growing percentage is also due to nonopioid classes of medications, such as benzodiazepines. This novel study links United States trends in online interest toward a particular drug class or medications with the number of overdose deaths. The findings may help researchers and policymakers with outreach programs and surveillance-related public health initiatives targeted toward certain communities. From 2004-2019, a Pearson's correlation coefficient concluded a moderately strong positive correlation between USA "Overdose" scores and Total Overdose Deaths (R2=0.723). The correlation coefficients between GT scores and deaths for drug categories Any Opioids and Benzodiazepine were 0.951 and 0.929, respectively. Further analysis of 2004-2019 GT scores and deaths revealed a strong positive correlation for Fentanyl (R2=0.989) and a moderately strong positive correlation for Heroin (R2=0.741). Overdose deaths and GT scores have a direct relationship showing that, for overdose overall and our drug classes' overdoses, the public is actively seeking out information more when the overdoses increase, regardless of drug legality. As awareness is appropriately changing, further investigation should target evaluating the quality and accessibility of online information to ensure optimal self- education for patients, patient's families, and the general public as the overdose situation continues. Overall, this study displays that public awareness of Overdose, Opioids, Heroin, Fentanyl, and Benzodiazepines in the United States is proportionally changing based on the annual incidence of corresponding overdose deaths.