

**The Thirty-third Annual  
Psychology and Neuroscience  
Poster Day**



**Tutt Science Center  
Colorado College  
May 3, 2024**

# **The Thirty-third Annual Psychology and Neuroscience Poster Day May 3, 2024**

|                                 |           |
|---------------------------------|-----------|
| <b>Schedule of Events .....</b> | <b>03</b> |
| <b>Psi Chi Induction .....</b>  | <b>04</b> |

## **PARTICIPANTS**

|   |           |
|---|-----------|
| <b>Denise Benitez Garcia</b><br><i>BIPOC Considerations in Psilocybin-Assisted Psychotherapy<br/>Research and Implementation.....</i>     | <b>05</b> |
| <b>Charlotte Bisaccia</b><br><i>Disordered Eating &amp; Body Image in Emergency Medical<br/>Services Staff .....</i>                      | <b>06</b> |
| <b>Luke M. Bleckman</b><br><i>More and Less Structured Toys: Can Different Toys Change<br/>the Prosocial Behaviors of Children?.....</i>  | <b>07</b> |
| <b>Basimah Curry</b><br><i>Exploring Decision Reversibility Through College Grade Track<br/>Changes .....</i>                             | <b>08</b> |
| <b>Violet Datcu</b><br><i>Mental Health and Wellbeing of Undergraduates Based on<br/>Financial Aid Status .....</i>                       | <b>09</b> |
| <b>Addie Dodge</b><br><i>Where Do We Go from Queer? Psychology and Its<br/>Conceptualization and Treatment of Sexual Minorities .....</i> | <b>10</b> |
| <b>Raymond Fleming</b><br><i>The Effects of Estradiol and Novel Song Exposure within<br/>the Zebra Finch Nidopallium .....</i>            | <b>11</b> |
| <b>Isabella Hageman</b><br><i>Impact of Coming Out Experiences and Perceived Support on<br/>Attachment .....</i>                          | <b>12</b> |
| <b>Riley Hester</b><br><i>Exploring Laughter as a Catalyst for Constructive Conflict<br/>Resolution in Romantic Relationships .....</i>   | <b>13</b> |

**Jack Higgins**

|  |           |
|--|-----------|
| <i>Mitigating Sevoflurane-Induced Postoperative Cognitive Dysfunction (POCD): Pharmacological and Clinical Interventions .....</i> | <i>14</i> |
|--|-----------|

**Ian P. Johnson**

|   |           |
|---|-----------|
| <i>Presence of Pathogenic Variants in Circular RNA of presenilin 1 and 2.....</i> | <i>15</i> |
|---|-----------|

**Lizbeth Lucero Chavez**

|  |           |
|--|-----------|
| <i>Identification with a Mental Illness and Attitudes Towards Seeking Psychological Help .....</i> | <i>16</i> |
|--|-----------|

**Gina Lynch**

|  |           |
|--|-----------|
| <i>Universality of the Need for Novelty Across Age Groups: Potential for Inclusion in Basic Psychological Needs Theory .....</i> | <i>17</i> |
|--|-----------|

**Luca I. Pieretti**

|   |           |
|---|-----------|
| <i>Assessing the Equine Guided Learning and Healing Experience: A Self-Determination Theory Perspective .....</i> | <i>18</i> |
|---|-----------|

**Kira R. Schulist**

|  |           |
|--|-----------|
| <i>Predictors of Relationship Satisfaction for Transgender Individuals and their Romantic Partners .....</i> | <i>19</i> |
|--|-----------|

**Annie Seymour**

|   |           |
|---|-----------|
| <i>Substance Free and In College: An Examination into How to Best Support Students Defying the Norm .....</i> | <i>20</i> |
|---|-----------|

**Haley E. Strom**

|   |           |
|---|-----------|
| <i>Intellectual Humility and Prosocial Behavior between Political Partisans in the Gun Control Debate .....</i> | <i>21</i> |
|---|-----------|

**Emily Sulocha**

|   |           |
|---|-----------|
| <i>Incorporating Christianity in Counseling: Theoretical Backgrounds and Efficacy .....</i> | <i>22</i> |
|---|-----------|

**Matthew Viozzi**

|  |           |
|--|-----------|
| <i>Impact of Inulin/Psyllium Diet Enrichment on Serum BDNF and Memory in Maternally Separated Rats .....</i> | <i>23</i> |
|--|-----------|

**Fargol Yageneh Fathi**

|   |           |
|---|-----------|
| <i>Digital Media Consumption and Honor Beliefs in Iran.....</i> | <i>24</i> |
|---|-----------|

**Cerella Zhao**

|   |           |
|---|-----------|
| <i>A Feminist Perspective on Parasocial Romance Relationships in Gaming .....</i> | <i>25</i> |
|---|-----------|

# SCHEDULE OF EVENTS

## Poster Session 1 1:00 – 2:00 pm

|                       |              |
|-----------------------|--------------|
| Luke M. Bleckman      | Psychology   |
| Basimah Curry         | Psychology   |
| Violet Datcu          | Psychology   |
| Raymond Fleming       | Neuroscience |
| Ian P. Johnson        | Neuroscience |
| Jack Higgins          | Neuroscience |
| Lizbeth Lucero Chavez | Psychology   |
| Kira R. Schulist      | Psychology   |
| Annie Seymour         | Psychology   |
| Emily Sulocha         | Psychology   |
| Fargol Yeganeh Fathi  | Psychology   |

## Psi Chi Induction Ceremony 2:00 – 2:30 pm

(See Page 4)

## Poster Session 2 2:30 – 3:30 pm

|                       |              |
|-----------------------|--------------|
| Denise Benitez Garcia | Psychology   |
| Charlotte Bisaccia    | Psychology   |
| Addie Dodge           | Psychology   |
| Isabella Hageman      | Psychology   |
| Riley Hester          | Psychology   |
| Gina Lynch            | Psychology   |
| Luca I. Pieretti      | Psychology   |
| Haley E. Strom        | Psychology   |
| Matthew Viozzi        | Neuroscience |
| Cerella Zhao          | Psychology   |

**PSI CHI:  
The International Honor Society in Psychology**

**Induction Ceremony  
Tutt Science 108 at 2:00 pm**

**New Members:**

Elena Berg ('25)  
Andrew Han ('25)  
Ian Johnson ('24)  
Gabriel Keller ('24)  
Nicole Peirson ('25)  
Tobias Urell ('25)  
Xinran Wang ('25)

**Current Members:**

Addison Dodge ('24)  
Oliver Febbo ('25)  
Isabella Hageman ('24)  
Riley Hester ('24)  
Huaixuan Knox Huang ('25)  
Gina Lynch ('24)  
Anna Matsui ('25)  
Luca Pieretti ('24)  
Thomas Treadwell ('24)  
Yanjia Zhao ('24)  
Mia Zuckerberg ('24)

# **BIPOC Considerations in Psilocybin-Assisted Psychotherapy Research and Implementation**

**Denise Benitez Garcia**

**Advisor: John Horner**

## **Abstract**

As research on psilocybin-assisted psychotherapy for depression increasingly shows promise for rapid improvement in symptoms compared to current standard treatments, we must intentionally consider Black, Indigenous, and People of Color (BIPOC) populations in the process. If the medical field does not intentionally and explicitly consider historically and currently marginalized populations, there is a risk of perpetuating structural racism in the development of the treatment. Consideration of these populations would mean that they are included as participants and researchers in clinical trials for treatment to ensure that results from the trials are generalizable and optimal treatments for these populations are developed. Once effectiveness has been clearly shown, BIPOC individuals should have the ability to access the treatment and should receive it in a culturally sensitive manner.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF)  
at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **Disordered Eating & Body Image in Emergency Medical Services Staff**

**Charlotte Bisaccia**

**Advisor: Tricia Waters**

## **Abstract**

Past research has shown that EMS professionals are affected by many mental health issues such as PTSD, depression, anxiety, substance abuse, sleep disturbances, burnout, and even suicidal ideation. The research discussed herein assesses the levels of disordered eating and body image in EMTs/paramedics as compared to emergency department nurses using a disordered eating scale, an eating disorder scale, and a body image scale. Results showed that EMS workers had significantly lower body image satisfaction scores compared to ED nurses, and that those participants in 911/On Campus services showed lower body image scores than those in Interfacility Transport/Emergency Departments. Results trended towards showing that those with fewer lunches out of the past ten shifts had higher disordered eating. Additionally, fewer than half of participants felt that they could take regularly scheduled breaks for eating and 84.2% of participants answered “yes” or “sometimes” to the common phenomenon of “eating when and where you can” while on a shift. These results exhibit concerning issues of decreased body image across EMS professionals and deep-rooted problems with nourishment while on shift. These issues must be addressed as it is a matter of public safety to attend to the mental health of first responders so that they can attend to the critical requirements of their job.

## **Also Presented**

- **Critical Care Transport Medicine Conference (CCTMC), Orange Beach, Alabama, April 8-10, 2024.**

# **More and Less Structured Toys: Can Different Toys Change the Prosocial Behaviors of Children?**

**Luke M. Bleckman**

**Advisor: John Horner**

## **Abstract**

Research has shown that unstructured play has a positive relationship with prosocial behaviors. The present study tests whether there are more prosocial behaviors observed when young children play with unstructured toys than when they play with structured toys. Subjects included six children aged 4-5 years old who were recruited from a preschool on Colorado College's campus. Observation periods generally took place at the preschool's outdoor play area. Unstructured toys included a set of wooden blocks and a cardboard box. Structured toys included a Bop-It and a Simon. Prosocial behaviors were measured using counts of 1) instances in which a child joined play ("joined") and 2) instances of a toy being shared ("shared"). There were significantly higher counts of joined under the unstructured toy condition than under the structured toy condition, but due to the lack of interrater reliability and the low number of subjects, we suggest that the study warrants replication.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**



# **Exploring Decision Reversibility Through College Grade Track Changes**

**Basimah Curry**

**Advisor: Tomi-Ann Roberts**

The pass/fail grading system has been praised for its ability to reduce stress and anxiety among students. However, research on affective forecasting and decision-making processes suggests that the timing of students' decisions about grade tracks may complicate this benefit for some student groups. The current study examined this question among college undergraduates, who were presented with two different hypothetical scenarios about their grade track decision: one irreversible (an early deadline to decide) and one reversible (a later deadline to decide). Students were also asked about their real experiences with taking a course on the pass/fail track. Results were mixed, and revealed that the experimental manipulation did not impact students' reasoning as predicted. Students' felt-regret increased and felt-relief decreased over choosing the pass/fail grade track in an actual course from before to after final grades were released. Gender and race differences were found in Perfectionism and Academic Motivation. Female students and students higher in Perfectionism had significantly more regret and were less satisfied overall with having chosen the pass/fail track in an actual course than others. The timing of switching one's grade track (early versus later in the course) had no significant impact on regret, relief or satisfaction with taking a class pass/fail. All students indicated preferring a later to an earlier deadline for choosing their grade track. Educating students about affective forecasting and decision-stress in the context of their own identities and traits may enable them to make better grade track decisions for their wellbeing in college.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**
- **Will be presented at the Colorado College Curriculum Executive Committee (CCCEC), May 7th, 2024.**

# **Mental Health and Wellbeing of Undergraduates Based on Financial Aid Status**

**Violet Datcu**

**Advisor: Kristi Erdal**

## **Abstract**

Undergraduate students receive need-based financial aid based on their family's income status, and existing research highlights the relationship between undergraduate's financial aid status and their overall mental health and well-being. Low-income students report vastly different experiences during their undergraduate education than their peers. This study examined the difference between how undergraduate students who receive need-based financial and who do not receive need-based financial aid report their perceived stress, social connection, and likelihood to take advantage of their campus support resources and professional psychological resources during their undergraduate education. Results supported the hypotheses that students on need-based financial aid reported higher rates of overall stress and lower rates of social connectedness on their campus than their peers. The hypothesis that students on need-based financial aid would score differently on campus resource use scales was not supported. However, scores on the campus resource use scale were low for both financial aid status groups, which implies that students overall do not take full advantage of campus support resources. The results of this study highlight how important it is for colleges to prioritize the integration of low-income students into campus life as a means of moderating the disproportional struggles they face at an undergraduate institution.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF)  
at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **Where Do We Go from Queer? Psychology and Its Conceptualization and Treatment of Sexual Minorities**

**Addie Dodge**

**Advisor: Tricia Waters**

## **Abstract**

This literature review begins with a historical accounting of attitudes toward as well as earliest studies of sexual minority individuals. This review then transitions to a close examination of how the field of American psychology theorized about, and ultimately mistreated sexual minority individuals throughout the 20th century, discussing the dominant strain of psychoanalytic thought on homosexuality, as well as the attempted conversion treatments that proliferated during this time. Furthermore, this review also highlights voices of dissent and protest against the pathologizing of non-heterosexual behavior, as well as the shift in the field of psychology from viewing homosexuality as an indication of mental illness, toward an affirmative and supportive view of sexual minority individuals. The minority stress model is given particular consideration, and this review applies this model in understanding mental and behavioral health disparities of sexual minority individuals as compared to their heterosexual peers, especially in sexual minority youth in America. Both harmful and protective factors are considered in accounting for the experiences of sexual minority youth, and this review concludes with a discussion of affirmative administrative policies, as well as therapeutic interventions that can be used to better support sexual minority youth during a time of increased public and political homonegativity.

# **The Effects of Estradiol and Novel Song Exposure within the Zebra Finch Nidopallium**

**Raymond Fleming**

**Advisor: Marcela Fernandez-Vargas**

## **Abstract**

Songbirds, and the processes of song-learning, discrimination, and imitation, are of particular interest due to their similarities to the human linguistic process. Novel song exposure has been previously studied for its ability to independently increase spine density within the NCM of male zebra finches. In addition, other research has focused on the fluctuations of estradiol (E2) levels that naturally occur within the NCM during song-related behaviors. This study seeks to examine the combined effect of these two treatments on rapid changes in dendritic spine density within the NCM, and in another, adjacent region, the caudolateral nidopallium (NCL) that is analogous to the mammalian prefrontal cortex. Due to the high degree of connectivity between these two areas it was hypothesized that changes observed in the NCM would also to some degree be observed within the NCL. Data was gathered by exposing individual male adult zebra finches to novel song or silence and the oral administration of Estradiol or peanut oil vehicle, approximately 1.5 hrs before euthanizing, and perfusing the bird. The tissue was then processed using a Rapid Golgi stain and stacked imaged at 100x for 3D neuron reconstruction. The analysis of dendritic spine density was performed using Neurolucida software. Results revealed a not significant effect of treatments in the NCM and a significant main effect of novel song exposure on spine density within the NCL, specifically at a distance of 100 um from the soma. The research revealed for the first time that the NCL region exhibits song-evoked synaptic plasticity in songbirds and its potential role in adult auditory learning.

### **Also Presented:**

- **Midstates Consortium for Math and Science, Undergraduate Research Symposium for Biological Sciences and Psychology, University of Chicago, Chicago, IL, November 1-2, 2023.**
- **Will be presented at the Annual Meeting of the Society for Neuroscience, McCormick Place Convention Center, Chicago, IL, October 5-9, 2024.**

# **Impact of Coming Out Experiences and Perceived Support on Attachment**

**Isabella Hageman**

**Advisor: Margaret Kneuer**

Attachment styles, while typically unchanging throughout life, may be influenced throughout adolescence and into adulthood if a lesbian, gay, or bisexual (LGB) individual experiences a positive or negative interpersonal event that modifies their internal working models. The coming out experience is an example of an interpersonal event that can effect a person's attachment. Negative interpersonal events can change a secure attachment into an insecure one, and those with insecure attachments report less positive relationship evaluations and poorer mental health (Mohr et al., 2013; Zhang et al., 2022). However, research suggests that a more supportive culture in which there are higher levels of familial and peer support may be able to increase relationship satisfaction and improve mental health (Terrell & Dugger, 2018). The purpose of this study was to examine the correlation between parental reactions to coming out and attachment as well as the moderating effect of friend support on the relationship between familial support and attachment. Participants completed a survey assessing their coming out experience, their attachment style, and their perceived level of social support (familial and peer support). Negative reactions from a mother and positive reactions from a father are correlated with attachment. Peer support had a moderating effect on the relationship between familial support and attachment avoidance. It is clear that familial and peer support impact attachment; future research should examine what aspects of peer support have the most moderating effect on attachment in LGB individuals.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **Exploring Laughter as a Catalyst for Constructive Conflict Resolution in Romantic Relationships**

**Riley Hester**

**Advisor: Margaret Kneuer**

## **Abstract**

Conflict is a natural aspect of romantic relationships. Couples may utilize compromise, accommodation, and sacrifice to navigate conflicts constructively. Laughter, particularly shared laughter, evokes positive emotions and effectively communicates sentiments related to relationship contentment. Thus, laughter may promote the adoption of relationship maintenance strategies during times of romantic partner conflict. The present study investigated the influence of memories of laughter on the adoption of relationship maintenance strategies in response to romantic relationship conflict by identifying differences in mean scores for compromise, accommodation, and willingness to sacrifice among three different memory conditions. Through an online survey, 130 participants were asked to first reflect on a recent conflict with their partner and were then randomly assigned to reminisce on either a memory of independent laughter, shared laughter, or a shared positive experience with their partner. After reminiscing on one of three memories, participants completed three distinct scales assessing measures of accommodation, compromise, and willingness to sacrifice in response to the conflict with their partner from the beginning of the survey. Results displayed no significant mean differences in dependent variable measures between each of the three memory conditions. However, preliminary findings from exploratory analyses involving gender and real-time laughter offer valuable insights for future research. Future research directions including a dyadic research design, as well as the inclusion of a fourth neutral memory condition are also discussed.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **Mitigating Sevoflurane-Induced Postoperative Cognitive Dysfunction (POCD): Pharmacological and Clinical Interventions**

**Jack Higgins**

**Advisor: Lori Driscoll**

Commonly utilized in major surgeries, inhalational general anesthetics have unclear pharmacological mechanisms of action, and recently their safety has come into question. Use of sevoflurane, the most frequently administered inhalational anesthetic, is positively correlated with symptoms presented in postoperative cognitive dysfunction (POCD), particularly in patients over 65 years of age. Similarly, sevoflurane impairs cognitive function only in aging mice and decreases levels of brain derived neurotrophic factor (BDNF) in a dose dependent manner. Older individuals naturally produce lower levels of androgens compared to younger people. Under normal conditions, androgens upregulate proteins responsible for synaptogenesis such as BDNF. Highlighting the downstream proteins of sevoflurane administration gives insight into the development of therapeutic pharmacological and clinical protocols that could minimize anesthesia-induced damage. For example, synthetic androgen R1881 has been shown to promote neurogenesis in P12 neuronal cells via activation of androgen and protein kinase receptors. Providing androgen supplementation to patients before scheduled surgeries may prevent drastic fluctuations in BDNF levels and neurological functioning post operation. In addition, ketamine increases levels of BDNF by upregulating the molecular pathways which are inhibited in the presence of sevoflurane. Administration of ketamine pre-operation has been utilized to prevent neuroinflammation, but it may also interfere with the effects of sevoflurane during the procedure.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF)  
at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **Presence of pathogenic variants in circular RNA of presenilin 1 and 2**

**Ian P. Johnson**

**Advisor: Meredith M Course**

## **Abstract**

Circular RNAs are emerging as a promising object of study in Alzheimer's Disease pathogenesis; however, their precise role in AD remains poorly understood. In this study, we examined circRNAs of two AD risk genes, presenilin 1 and 2 (*PSEN1* and *PSEN2*), for the presence of pathogenic variants in human prefrontal cortex. We PCR amplified and sequenced circRNAs from people with familial and sporadic AD, identifying four variants in circRNAs of *PSEN1*, I143T, S212Y, V272A, and one in *PSEN2*, N141I. The discovery of pathogenic variants in circRNAs marks a crucial first step in determining their role in AD etiology.

### **Also Presented:**

- **Annual Society for Neuroscience Meeting, Washington, DC, November 11-15, 2023.**
- **14th Annual Molecular Biology Day, Colorado College, Colorado Springs, CO, March 1, 2024.**



# **Identification with a Mental Illness and Attitudes Towards Seeking Psychological Help**

**Lizbeth Lucero Chavez**

**Advisor: Kristi Erdal**

There is a difficulty in pinpointing the most efficient methods in treating mental health illnesses due to its interconnectedness. This paper explores the complex dynamics surrounding mental illness, community support, public stigma, attitudes toward seeking psychological help, and the inescapable influence of social media. Drawing on existing data from the Well-Being at Colorado College study conducted in 2022-23, this research investigates the relationships between mental illness identification, social media usage, and attitudes toward seeking psychological help among college students. Contrary to hypotheses, social media usage did not disproportionately impact individuals who identify with mental illness, nor did it mediate the relationship between mental illness identification and attitudes toward seeking psychological help. However, the study emphasized the need for investigations into the motivations behind social media use and its possible effects on mental health. Moving forward, a deeper understanding of individuals' social media behaviors and their impact on mental health could help forge better-suited interventions.

# **Universality of the Need for Novelty Across Age Groups: Potential for Inclusion in Basic Psychological Needs Theory**

**Gina Lynch**

**Advisor: John Horner**

## **Abstract**

This paper investigates the strength of novelty as a candidate need within Basic Psychological Needs Theory by testing the universality criterion proposed by Ryan and Deci (2017). In order for a need to be considered a basic psychological need, it should predict the well-being of all individuals, regardless of gender, age, cultural background, or personality differences. While the research currently available has supported novelty's universality claim, there is a gap in the literature when it comes to the potential age differences. The present study sampled adults aged 18-30 and 50-70, and measured their novelty-seeking tendencies alongside their overall well-being. It was found that higher novelty-seeking was significantly correlated with overall well-being, with little difference in the correlation strength between age groups. These findings provide support that the need for novelty is universal across age groups, and therefore endorse its inclusion as a basic psychological need.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **Assessing the Equine Guided Learning and Healing Experience: A Self-Determination Theory Perspective**

**Luca I. Pieretti**

**Advisor: Jason Weaver**

## **Abstract**

This study provided the first psychological assessment of the Equine Guided Learning and Healing Experience (EGLHE) via a Self-Determination Theory (SDT) lens. The study investigated whether EGLHE satisfied or frustrated participants' three basic psychological needs and whether EGLHE served as an autonomy-supportive learning environment such that participants' perceived competence and autonomously motivated learning in their coursework increased. Analyses revealed no significant findings except in one step of the mediation. Whereas previous studies have examined perceived autonomy support provided by an instructor in a learning environment, this study pushed SDT's previous conceptualization of perceived autonomy support in a classroom environment, suggesting that a single autonomy-supportive authority figure may not be the only condition supporting student autonomy. Furthermore, this study is the first, but hopefully not the last, to examine an equine intervention via an SDT lens.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **Predictors of Relationship Satisfaction for Transgender Individuals and their Romantic Partners**

**Kira R. Schulist**

**Advisor: Margaret Kneuer**

## **Abstract**

Prior research shows that fulfilling romantic relationships provide significant emotional and mental health benefits for transgender individuals. This literature review aims to summarize various behaviors that transgender individuals and their romantic partners engage in to maintain positivity and longevity in their relationships, as identified by research. Previous studies identified emotional honesty and trust as important aspects of healthy transgender-involving relationships, particularly in the domains of disclosure and sexuality. Furthermore, studies identify disclosure, sexuality, emotional tension, and cissexism as unique challenges faced by transgender individuals and their romantic partners and emphasize acceptance and communication as important behaviors to overcome these challenges. Specific relationship maintenance behaviors are also identified in research, including positive framing and microaffirmations by partners of transgender individuals. Finally, studies have identified partner characteristics that predict satisfying transgender-involving relationships, such as high personal resilience. The findings from this body of research hold significant implications for transgender individuals and their romantic partners in developing strategies to improve romantic relationship outcomes following disclosure and gender transition. However, future research is still needed in many areas, including predictive traits for satisfying relationships, relevance to masculine-identifying individuals, and relevance in non-Western cultures.

**Substance Free and In College:  
An Examination into How to  
Best Support Students Defying the Norm**

**Annie Seymour**

**Advisor: Kristi Erdal**

**Abstract**

College student substance use is the norm in the United States. While there is existing research to demonstrate the hardships of those who struggle with substance use issues in college, very little exists on the experiences of substance free students. This research investigated the experiences of substance free students ( $N = 25$ ) at a small southwestern college in the U.S. through semi structured interviews. This study found that while there are ways in which substance free students feel supported (i.e., through substance free housing and a lack of peer pressure), resources could be improved to best suit the diversity of needs for these students (i.e., not identifying events as for those “in-recovery”). Additional recommendations include improving substance free housing options, implementing late-night alcohol-free programming, and employing a social norming campaign to normalize being substance free in college.

**Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **Intellectual Humility and Prosocial Behavior between Political Partisans in the Gun Control Debate**

**Haley E. Strom**

**Advisor: Jason Weaver**

## **Abstract**

The political climate in the US is characterized by polarization and discrimination between opposing partisans, and discourse often involves defensiveness, overclaiming knowledge, and hostility. This study aimed to evaluate the potential of Socratic questioning, which encourages self-generated feedback through guided questions, to counter these issues by fostering positive engagement and prosocial behavior between opposing partisans. In the study, a total of 436 participants completed either a task to promote intellectual humility through Socratic reasoning (“humility task”) or a task to promote overclaiming through subjective justification, the use of personal narratives to back beliefs without recognizing the holistic context of an issue (“justification task”). Afterward, participants reported self-ratings of overclaiming gun control knowledge, overclaiming general knowledge, perceived gun control knowledge, intellectual humility, and a new variable to the overclaiming literature, prosocial behavior. It was hypothesized that completing the humility task would promote intellectual humility and prosocial behavior and decrease overclaiming. Counter to the hypothesis, the task did not influence these factors. However, attitudes towards gun control did influence overclaiming and perceived knowledge, with more conservative participants overclaiming more and reporting higher self-ratings of perceived gun control knowledge. Additionally, perceived gun control knowledge correlated with overclaiming gun control but not overclaiming general knowledge. This finding suggests that because overclaiming in one domain did not lead to overclaiming in another, researchers should continue searching for an issue-specific task to reduce overclaiming rather than studying overclaiming as a generalizable phenomenon.

# **Incorporating Christianity in Counseling: Theoretical Backgrounds and Efficacy**

**Emily Sulocha**

**Advisor: Tricia Waters**

## **Abstract**

Religion/spirituality (R/S) is positively related to various operationalizations of well-being, such as physical health, mental health, and life satisfaction (Garssen et al., 2021; Hoogeveen, Sarafoglou, Aczel, et al., 2023; Seybold & Hill, 2001; Villani et al., 2019). Studies also support that involvement in Christianity predicts greater well-being (Doane & Elliott, 2016; Francis & Kaldor, 2002; Sutton et al., 2018). Both R/S therapies and Christian therapies are related to positive therapeutic outcomes, including reduced symptoms (Hook et al., 2010; Smith et al., 2007; Wade et al., 2007) and greater spiritual well-being compared to secular therapies (Captari et al., 2018; Hawkins et al., 1999). Considering the importance of tailoring counseling and R/S interventions to the individual (Captari et al., 2018; Pargament, 2011), various types of Christian therapy may better suit clients. Christian counseling, a form of Christian therapy in which psychology and Christianity are integrated, differs from biblical counseling, in which the Bible provides the framework for addressing counseling problems (Lambert, 2016; McMinn et al., 2010). Although the efficacy of Christian counseling has been supported (Hawkins et al., 1999; Hook et al., 2010; Wade et al., 2007), biblical counseling is understudied (Ogorek & Isaacson, 2021). Since the theoretical background for biblical counseling is centered on spiritual growth, biblical counseling may be a viable resource for Christian clients seeking greater spiritual well-being (Ogorek & Isaacson, 2021; Welch, 2023). Future research should further examine the efficacy of Christian counseling and biblical counseling not only for symptom reduction but also for improvement towards spiritual goals.

# **Impact of Inulin/Psyllium Diet Enrichment on Serum BDNF and Memory in Maternally Separated Rats**

**Matthew Viozzi**

**Advisor: Lori L. Driscoll**

## **Abstract**

Adverse experiences early in life, such as caregiver neglect, can impact an individual's cognitive function, both directly and in tandem with alterations in the health of the gastrointestinal tract. In rodent models, these experiences, called early life adversity (ELA), are commonly modeled through maternal separation, in which neonatal pups are isolated from their dams and littermates during the first two weeks of life. This study aims to determine the efficacy of a pre- and postnatal inulin/psyllium husk dietary supplement in mitigating the adverse memory effects of ELA. Long-Evans dams were randomly assigned to purified control or 10% inulin/10% psyllium-enriched chow during the last week of gestation, and dams and pups were maintained on their assigned diet throughout the experiment. Half of the litters from each diet group were assigned to the maternal separation condition, in which each pup was isolated for 4 hours each day from postnatal days 1 to 14. After weaning, rats were administered a Morris water maze task to test spatial working and reference memory. Upon completion of the task, blood samples from one male and one female per litter were assayed for serum brain-derived neurotrophic factor (BDNF) concentrations using ELISA. Results indicated that the maternal separation paradigm did not induce significant behavioral or cognitive effects in subjects. However, inulin supplementation increased overall BDNF levels and showed a slight positive impact on spatial memory.



# **Digital Media Consumption and Honor Beliefs in Iran**

**Fargol Yeganeh Fathi**

**Advisor: Marcela Fernandez-Vargas**

## **Abstract**

There is a conflictual existence of the traditional values of Iran and the current movement in Iran to fight for women's rights, called Women, Life, Freedom. To address the change in traditional values of Iran, this research examined whether consumption of social media has a relationship with a cultural variable in Iran called Qeirat, closely defined as honor culture with kinship intensity being a potential mediator and a moderator examined through an online survey recruiting 321 Iranian participants. Results reveal no relationship between social media use frequency and Qeirat levels were found with an insignificant result of kinship serving as a mediator and a moderator. These findings might suggest the resilience of Qeirat value to change. Additionally subscribing to certain influencers and their relationship with Qeirat, kinship and social media use frequency was measured. The most significant finding suggests that following pro Women, Life, Freedom platforms and personalities has a negative relationship with Qeirat levels suggesting a shift to Iranian culture. Future directions suggest recruiting Iranians with limited access to social media to examine if there is a difference of Qeirat levels amongst social media users and non-users.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**

# **A Feminist Perspective on Parasocial Romance Relationships in Gaming**

**Cerella Zhao**

**Advisor: Tomi-Ann Roberts**

## **Abstract**

This study explored the phenomenon of Otome video games and their role in facilitating alternative forms of romantic and sexual fulfillment for women within a digital space, distinct from the challenges of real-world heterosexual dating marked by sexual objectification and disempowerment. Through an online survey of 202 self-identified female participants, we examined their experiences of sexual self-esteem, self-objectification, enjoyment of sexualization, and empowerment within both real and virtual contexts. Our findings reveal that female players of Otome games perceive their virtual characters as having higher sexual self-esteem, greater enjoyment of sexualization, and more endorsement of sexually objectifying behaviors and beliefs compared to their real-life selves. Additionally, motivations for engaging in Otome games and the level of immersion in game characters were significant predictors of these virtual self-attitudes. Contrary to our predictions, empowerment did not significantly differ between real and virtual lives, nor did it vary based on game engagement motivation or character immersion levels. This study contributes to the understanding of digital romantic engagement as a potential space for self-exploration, identity affirmation, and empowerment, challenging the narrative that women engage in digital romance because they are lonely or bereft of real life romance options.

## **Also Presented**

- **20<sup>th</sup> Annual Colorado Springs Undergraduate Research Forum (CSURF) at University of Colorado, Colorado Springs, CO, April 27, 2024.**



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