



16th Annual CSURF

COLORADO SPRINGS UNDERGRADUATE
RESEARCH FORUM

Redefining research with undergraduate
presentations from students attending

Colorado College

Pikes Peak Community College

University of Colorado Colorado Springs

United States Air Force Academy

SATURDAY | APRIL 6, 2019

HOSTED BY UCCS

More info at www.uccs.edu/csurf

Over 290 presentations in the
Arts, Business, Engineering/Math,
Humanities, Natural Sciences, and
Social Sciences!



University of Colorado
Colorado Springs



JAMES C. BERGER HALL



James C. Berger Hall University of Colorado at Colorado Springs

This venue is named in honor of James C. Berger who has been a UCCS champion and benefactor of stellar proportion. Jim's involvement with the university through his vision, counsel, and personal generosity over the span of many years helped form the solid foundation that has enhanced the ability of this campus to progress at an impressive pace. As a long time advisor to the university, Jim's expertise in all aspects of real estate has been invaluable to the acquisition of key property for the campus. In providing scholarship funds, he has ensured educational opportunity for future UCCS students.

Jim Berger has been pivotal to the university's ability to continue and enhance its mission to provide an exceptional educational experience and to broadly serve the Pikes Peak region. The entire University of Colorado at Colorado Springs community extends its everlasting gratitude to Jim Berger for his devotion and partnership.

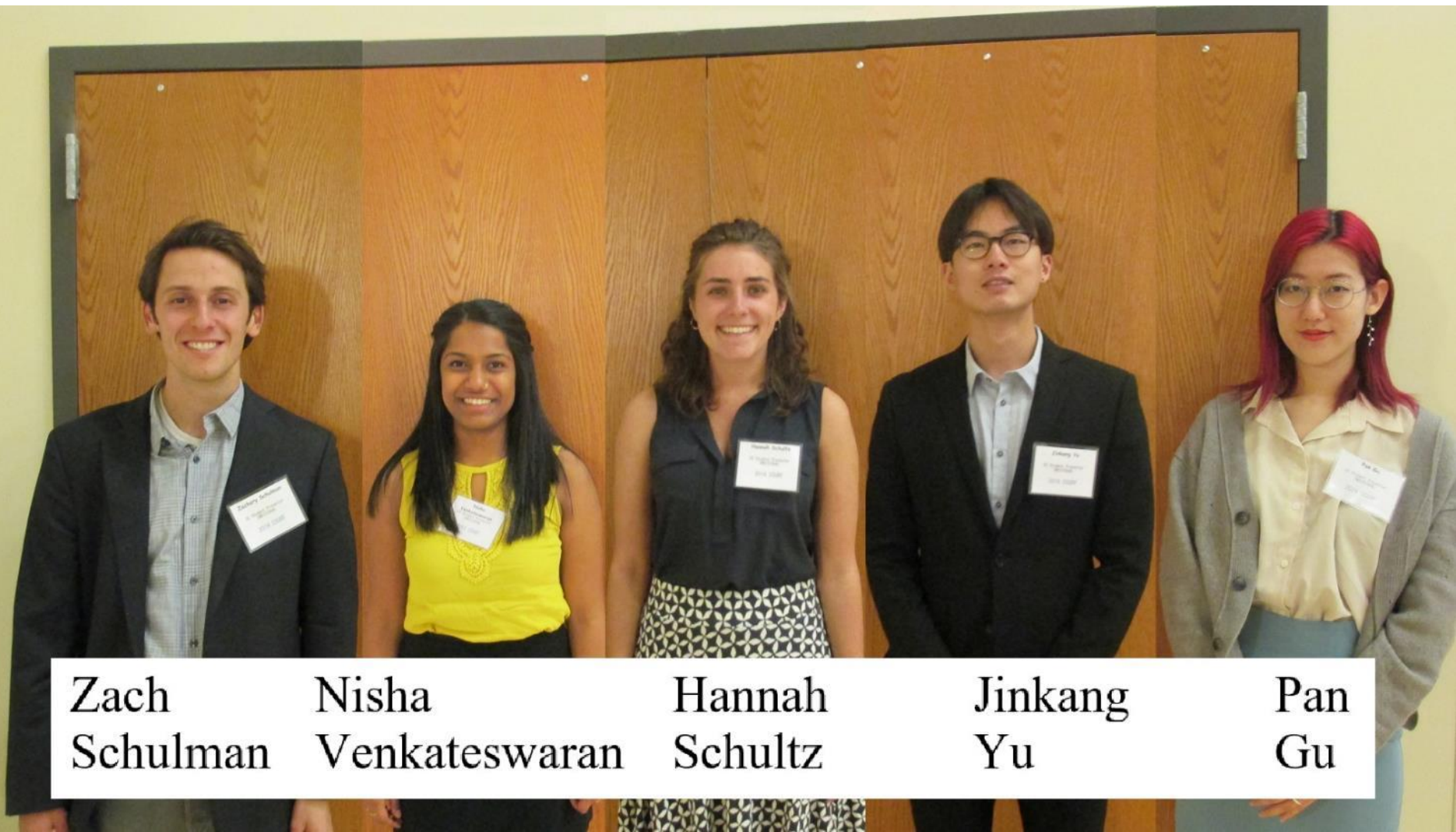
James C. Berger

As a second generation Colorado native, Jim Berger was born in Denver, Colorado. His family later moved to Cheyenne, Wyoming, where he lived through his high school years. He graduated from the University of Colorado at Boulder College of Business and Administration in 1956 with a Bachelor of Science degree in Business Management. Shortly thereafter he moved with his family to Colorado Springs and formed his real estate brokerage firm Berger & Berger, Inc. He later joined with two associates and formed Col-Terra Investments, Inc., a real estate company that developed significant land, office, retail, multi-family residential and special use properties. In addition to his professional endeavors, including ownership positions in a variety of other businesses, Jim has held leadership positions in numerous professional, civic, and non-profit organizations, including the University of Colorado at Colorado Springs and other University of Colorado-related entities. He is married to Winnette, and they have five children and eleven grandchildren.





COLORADO COLLEGE



Zach
Schulman

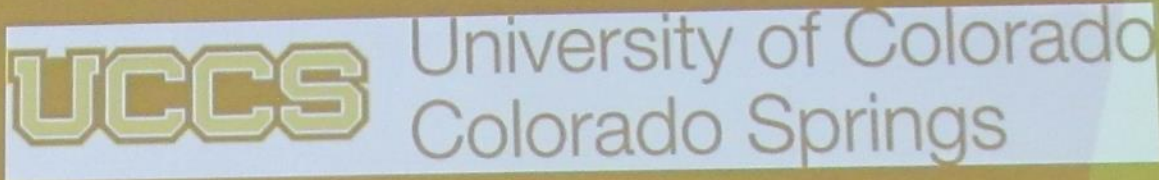
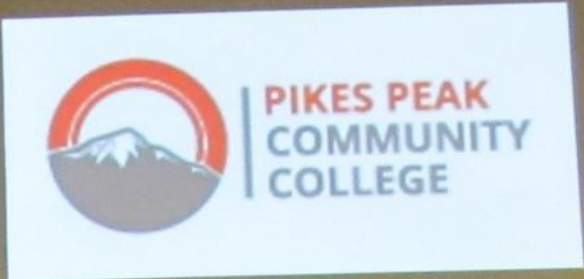
Nisha
Venkateswaran

Hannah
Schultz

Jinkang
Yu

Pan
Gu

Welcome to the
16th Annual
Colorado Springs
Undergraduate
Research Forum
(CSURF)



110 poster presentations -
3 poster sessions offered
throughout the day.

104 oral presentations - ignite talks,
films, visual and performing arts,
traditional talks/Q&A sessions.

A true celebration of undergraduate research and creative
works - the Arts, Business, Engineering, Health Sciences,
the Humanities, Natural Sciences, and Social Sciences.



False Beliefs about Symptoms, Causes, and Treatments of Depression



Pan Gu¹, Krist J. Erdal¹
Colorado College¹

Introduction

Depression is defined by the World Health Organization as one of the leading leading causes of disability. It is similar to the intensity of symptoms leading to a diagnosis of depression. It is a complex condition with biological, psychological, and social causes. It is a leading cause of disability and is a major public health and social problem. It is a leading cause of disability and is a major public health and social problem.

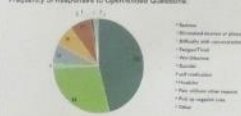
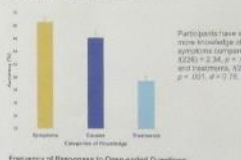
Methods

Participants
Undergraduate students at Colorado College, N = 200
Gender: 100 female, 100 male
Age: 17-22 years old
Ethnicity: 100 White, 100 Black, 100 Hispanic, 100 Asian, 100 Other
Socioeconomic status: 100 low, 100 middle, 100 high
100% female, 100% male

Materials and Procedures
The questionnaire is divided into three parts: symptoms, causes, and treatments. Each section contains 10 questions. The questionnaire is divided into three parts: symptoms, causes, and treatments. Each section contains 10 questions. The questionnaire is divided into three parts: symptoms, causes, and treatments. Each section contains 10 questions.

Results

Hypothesis 1: Knowledge of Different Categories of Information



Hypothesis 2: Treatment Choices → Level of Knowledge

Treatment Choice	Level of Knowledge
Medication	High
Psychotherapy	Medium
Herbal/Alternative	Low
None	Low

Hypothesis 3: Higher Level of Knowledge → General Causes

Participants with higher knowledge of depression symptoms, causes, and treatments also had a higher level of knowledge about general causes of depression.

Discussion

Results indicated that participants with a greater opinion on depression symptoms, causes, and treatments. In addition, more than 50% of participants responded to the questionnaire about symptoms and treatments for a depression diagnosis. However, participants with a higher level of knowledge about depression symptoms, causes, and treatments also had a higher level of knowledge about general causes of depression.

Limitations

The study had several limitations. First, the sample was limited to undergraduate students at Colorado College. Second, the questionnaire was self-administered and may not have been completed by all participants. Third, the questionnaire did not include questions about the severity of depression or the duration of symptoms.

Future Directions

Future research should focus on the relationship between knowledge of depression symptoms, causes, and treatments and the severity of depression. It should also focus on the relationship between knowledge of depression symptoms, causes, and treatments and the duration of symptoms.

Select

1. Depress
2. Causes
3. Treatments
4. Knowledge

Bifidobacterium infantis 35624 Supplementation in Eubiotic Adolescents Increases Social Preference and Reduces Anxious Behavior

Nisha Venkateswaran & Lori Driscoll
Laboratory of Behavioral Neurotoxicology, Colorado College



Introduction

- Dysregulation of the gut-brain axis is associated with anxiety and depression.
- *Bifidobacterium infantis* 35624 is a probiotic strain that has been shown to improve gut health and reduce anxiety and depression in animal models.

Method

• 20 eubiotic adolescents (ages 16-18) were recruited for the study.

• Participants were randomized to either receive *Bifidobacterium infantis* 35624 supplementation (n=10) or a placebo (n=10) for 4 weeks.

• Social preference and anxious behavior were measured using validated behavioral tasks.



Results

• Adolescents in the *Bifidobacterium infantis* 35624 group showed significantly higher social preference (p < 0.05) and significantly lower anxious behavior (p < 0.05) compared to the placebo group.

Discussion

• These findings suggest that *Bifidobacterium infantis* 35624 supplementation may be a promising intervention for improving social preference and reducing anxious behavior in eubiotic adolescents.





Relationships Between... and Mental Health in Northern Chile: Mental Health

CO

Psychology

Abstract

Introduction

Methods

Results, conc

Discussion

Conclusion

References

Hi, my name is [Name] and I am a [Year] student at Colorado College. I am currently working on my research project about the relationships between [Topic] and mental health in Northern Chile. I would love to hear your thoughts on this topic.

[Name]
[Year] Student
Colorado College

Keynote Speaker

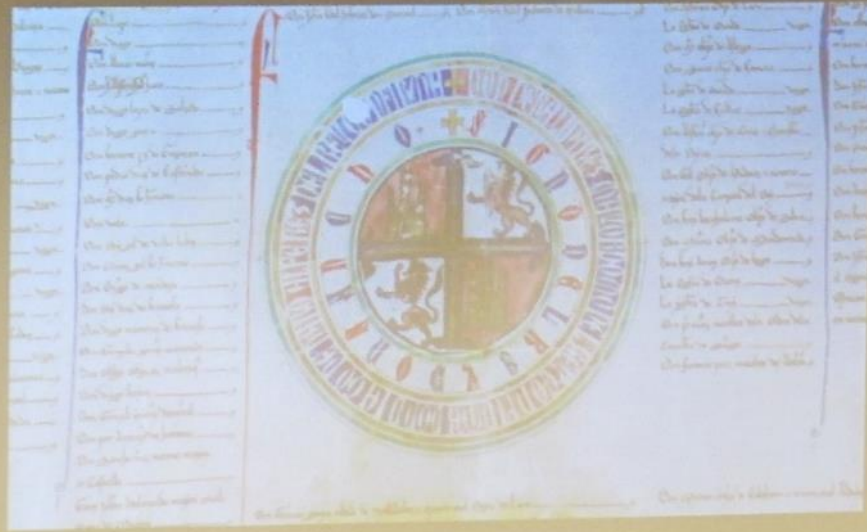
**Roger L. Martínez-Dávila,
Ph.D.**

*Medieval Manuscripts, Citizen
Science, and Virtual Reality:
Deciphering the Secrets of Medieval
Jews, Christians, and Muslims*

**12:00 - 1:00 pm
Centennial Auditorium**



MEDIEVAL MANUSCRIPTS, CITIZEN SCIENCE, AND VIRTUAL REALITY



Deciphering the Secrets of Medieval Jews,
Christians, and Muslims

MEDIEVAL MANUSCRIPTS, CITIZEN SCIENCE, AND VIRTUAL REALITY

Deciphering the Secrets of Medieval Jews,
Christians, and Muslims

PERIODIC TABLE OF THE ELEMENTS



Music Room

Water

Native & Mexican
American
Experiences

POSTER
NO. 2023-0009

A Comparative Study of Depression, Voice and Shame in Chinese International Students and Domestic Students



Jinkang Yu, Tricia Waters
The Colorado College, Colorado Springs, CO

Introduction

Major Chinese cities have experienced a dramatic increase in depression and anxiety disorders in recent years. This study aims to explore the prevalence of depression, voice, and shame in Chinese international students and domestic students at The Colorado College.

The study was conducted in two phases. The first phase involved a survey of 100 Chinese international students and 100 domestic students. The second phase involved a series of focus groups with 10 participants from each group.

The results of the survey indicated that the prevalence of depression, voice, and shame was significantly higher among Chinese international students compared to domestic students. The focus groups revealed that Chinese international students experience a sense of isolation and loneliness, which may contribute to their higher rates of depression, voice, and shame.

The findings of this study have important implications for mental health care providers working with Chinese international students. It is essential to recognize the unique cultural and social challenges that these students face and to provide them with appropriate support and resources.

Method

Participants

- 100 Chinese international students
- 100 domestic students

- 10 focus group participants from each group

The study was approved by the Institutional Review Boards at The Colorado College and the University of Colorado Springs. All participants provided informed consent before participating in the study.

The data were analyzed using SPSS 28.0 for Windows. Descriptive statistics were used to summarize the data, and chi-square tests were used to compare the prevalence of depression, voice, and shame between the two groups.

Results

Prevalence of Depression, Voice, and Shame

The prevalence of depression, voice, and shame was significantly higher among Chinese international students compared to domestic students. The prevalence of depression was 35% among Chinese international students and 15% among domestic students. The prevalence of voice was 25% among Chinese international students and 10% among domestic students. The prevalence of shame was 30% among Chinese international students and 12% among domestic students.

The chi-square tests indicated that the differences between the two groups were statistically significant ($p < .05$).

The focus groups revealed that Chinese international students experience a sense of isolation and loneliness, which may contribute to their higher rates of depression, voice, and shame. They also reported feeling a sense of shame and embarrassment, particularly in social situations.

The findings of this study have important implications for mental health care providers working with Chinese international students. It is essential to recognize the unique cultural and social challenges that these students face and to provide them with appropriate support and resources.

Table 1: Prevalence of Depression, Voice, and Shame

Group	Depression	Voice	Shame
Chinese International Students	35%	25%	30%
Domestic Students	15%	10%	12%

Figure 1: Line graph showing the prevalence of depression, voice, and shame among Chinese international students and domestic students. The x-axis represents the prevalence percentage, and the y-axis represents the number of students. The graph shows that the prevalence of depression, voice, and shame is significantly higher among Chinese international students compared to domestic students.

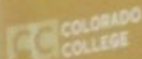


Welcome to the
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CSURF

False Beliefs about Symptoms, Causes, and Treatments of Depression

Pan Gu*, Krist J. Erstad
Colorado College



Abstract

Depression is a leading cause of disability and death worldwide. However, many people hold false beliefs about depression, which can hinder their ability to seek and receive appropriate treatment. This study examined the prevalence of false beliefs about depression among college students and explored factors associated with these beliefs.

Methods

Participants: 100 college students (50% female, 50% male) from a large university in the United States.
Measures: A survey assessing knowledge of depression symptoms, causes, and treatments, and a measure of false beliefs about depression.

Results

Participants held significantly more false beliefs about depression symptoms, causes, and treatments than correct information. False beliefs were more prevalent among students with lower levels of knowledge about depression.

Introduction

Depression is a leading cause of disability and death worldwide. However, many people hold false beliefs about depression, which can hinder their ability to seek and receive appropriate treatment. This study examined the prevalence of false beliefs about depression among college students and explored factors associated with these beliefs.

Conclusion

Participants held significantly more false beliefs about depression symptoms, causes, and treatments than correct information. False beliefs were more prevalent among students with lower levels of knowledge about depression.

References

- 1. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- 2. Erstad, K. J., & Erstad, K. J. (2014). *Depression: A guide for students*. Colorado College Press.
- 3. Gu, P., & Erstad, K. J. (2015). *False beliefs about depression: A survey of college students*. *Journal of Undergraduate Research*, 16(1), 1-10.

Figure 1

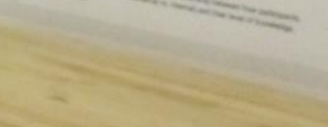


Figure 2



Table 1

Level of Knowledge	Correct Choice (%)	Incorrect Choice (%)
High	~85%	~15%
Medium	~65%	~35%
Low	~45%	~55%

Discussion

Results indicated that participants had general knowledge about depression symptoms, but with a greater amount of incorrect information. More than 50% of participants responded to the 175 items, which were correct. In addition, participants correctly identified symptoms and treatments for a depression diagnosis. However, participants were less likely to identify causes of depression. Participants who endorsed distorted beliefs and self-medication for depression were more likely to hold false beliefs about depression symptoms, causes, and treatments. These and other findings in this study have implications for future research on depression and its treatment.

Data supported the hypothesis 1 that people have a level of knowledge of depression symptoms, causes, and treatments of depression. Hypothesis 2 is also supported, which showed that people with higher knowledge about depression symptoms and causes, who endorsed antidepressants as the most effective treatment, also endorsed antidepressants as the most effective treatment. Hypothesis 3 was supported by the data. However, it is not statistically significant and the power was too small.

Limitations

Weak questionnaires might be inattentive and composed of many items. Lack of attention in sample will impact the reliability. Small sample size. Unequal number of answer choices in each question.

Future Direction

More most of the people have a basic level of knowledge about depression symptoms, causes, and treatments. More research about depression treatments is needed to help people with depression. More research is needed to help people with depression. More research is needed to help people with depression.

Selected References

- 1. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- 2. Erstad, K. J., & Erstad, K. J. (2014). *Depression: A guide for students*. Colorado College Press.
- 3. Gu, P., & Erstad, K. J. (2015). *False beliefs about depression: A survey of college students*. *Journal of Undergraduate Research*, 16(1), 1-10.



Biotin Promotes BDNF Synthesis in Eubiotic Adolescent Preference and Reduces Anxious Behaviors
Nisha Venkateswaran & Lori Driscoll
University of Denver, Department of Psychology, Colorado College, Colorado State





A Comparative Study of Depression, Voice and Shame in Chinese International Students

Department of Psychology, University of Colorado Boulder, Boulder, CO

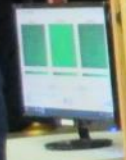
Introduction

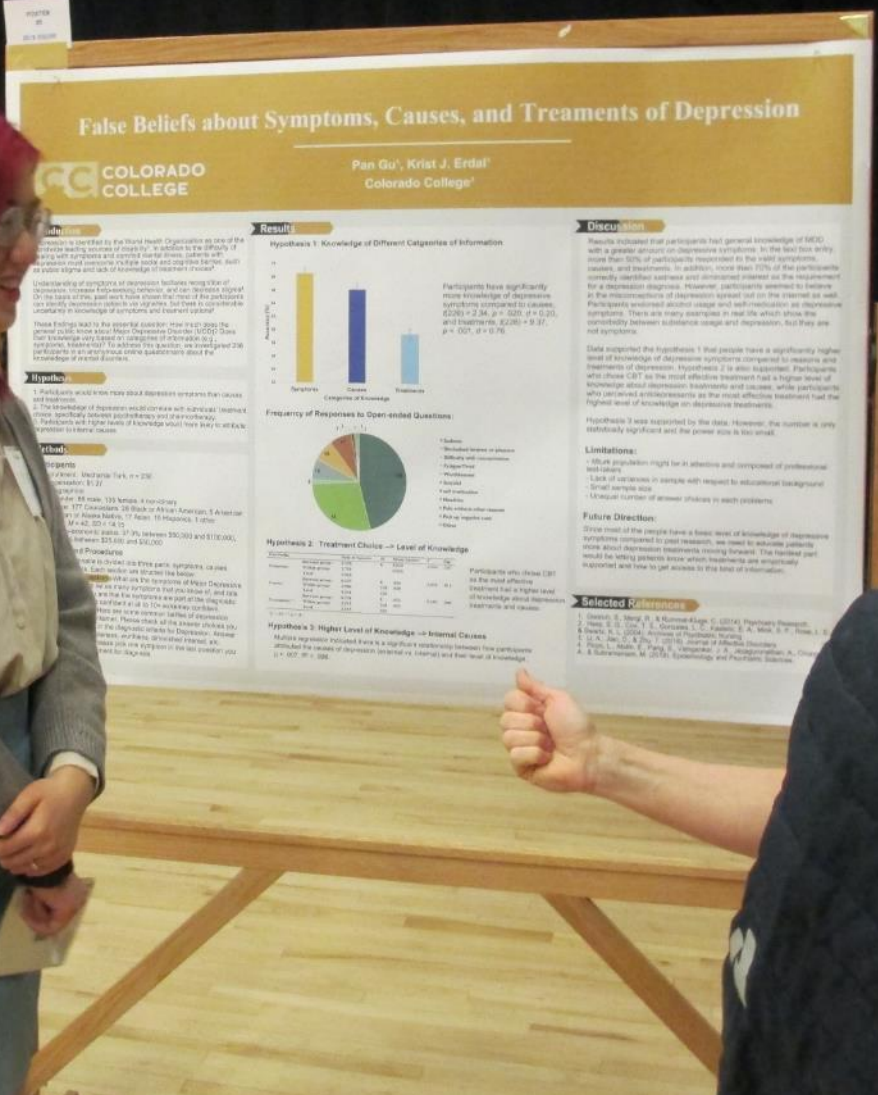
Depression is a leading cause of disability worldwide. It is a complex disorder with multiple etiologies, including genetic, neurobiological, and environmental factors. This study aims to explore the prevalence and risk factors of depression among Chinese international students in the United States. The study compares the prevalence of depression between Chinese international students and domestic students. The results show that the prevalence of depression is significantly higher among Chinese international students compared to domestic students. The study also identifies several risk factors for depression, including acculturation stress, social support, and personality traits. The findings suggest that Chinese international students are at a higher risk of developing depression, and interventions should be tailored to address their unique needs.

Results

Group	Prevalence (%)	OR (95% CI)
Chinese International Students	15.2	2.1 (1.2, 3.7)
Domestic Students	7.1	1.0

Digital Holography Demonstration





POSTER
55
BIO-0010

Bifidobacterium infantis 35624 Supplementation in Eubiotic Adolescent Rats Promotes Social Preference and Reduces Anxious Behaviors

Nisha Venkateswaran & Lori Driscoll

Laboratory of Behavioral Neurotoxicology, Colorado College, Colorado Springs, CO



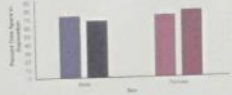
Subdiaphragmatic vagotomies were conducted on rats under ketamine/xylazine anesthesia followed using tyrotoxin. The inferior vagotomies and sham were created and all major branches of the vagus nerve were severed. **B. infantis** supplementation began after a 2-day rest period.



Spontaneous Social Behavior: Social Preference



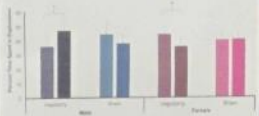
- Intermittent (intermittent) supplementation
- Preference period for large arena
- Preference period for small arena
- 4 trials per session



- Females that received *B. infantis* probiotic supplementation demonstrated significantly more social exploration than females supplemented with vehicle ($p < 0.05$)
- *B. infantis* probiotic supplementation did not significantly affect social exploration in males.
- Effect did not differ by the type of surgery the rats received.

Anxious Behavior: Social Interaction

- Performed day after social preference
- Chamber not marked with large black X
- 10 minute session
- Measure the social exploring (stranger rat, ignoring stranger rat, total time hovering over rat, retreats, aggression)



- Vagotomized males that received *B. infantis* supplementation explored significantly more than Sham vehicle counterparts ($p < 0.05$)
- Intermittent (intermittent) supplementation with *B. infantis* showed decreased social exploration time that was marginally significant compared to vehicle for females ($p < 0.05$)

Discussion

- *B. infantis* supplementation significantly increased social exploration in female rats, but not males, of the social preference test.
- Intermittent (intermittent) supplementation with *B. infantis* significantly increased social exploration in the social interaction test.
- Vagotomized females showed decreased social exploration after *B. infantis* supplementation in the social interaction test.
- The results suggest that the probiotic supplementing reduces behaviors in male rats.
- *B. infantis* may potentially be used to improve quality of life in rats.
- *B. infantis* supplementation may promote motivation to engage in social context.
- *B. infantis* supplementation may increase social interaction in female rats.

Depicting Strife:
Past, Future, &
Fantasy

10:00-1

A Comparative Study of Depression, Voice and Shame in Chinese International Domestic Students

Jinkang Yu, Tricia Waters
The Colorado College, Colorado Springs, CO

Introduction

Method

Results

	Yes	No	Yes	No	Yes	No
Q1	10	10	10	10	10	10
Q2	10	10	10	10	10	10
Q3	10	10	10	10	10	10
Q4	10	10	10	10	10	10
Q5	10	10	10	10	10	10
Q6	10	10	10	10	10	10
Q7	10	10	10	10	10	10
Q8	10	10	10	10	10	10
Q9	10	10	10	10	10	10
Q10	10	10	10	10	10	10



Conclusion



Digital Pedagogy Overview



CSURF 2019