OHIO STATE EQUINE PROGRAM

CFAES CENTER FOR HUMAN-ANIMAL INTERACTIONS RESEARCH & EDUCATION (CHAIRE)

The Effect of Brief Human-Animal Interaction on the Stress, Mood, and Anxiety levels of Undergraduate Students during a Finals Examination Period

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INTRODUCTION

Student mental health is a significant concern on college campuses across the United States with approximately one-third of undergraduate students displaying symptoms of mental health problems [3][5] . Evidence suggests that a person's mental health is related to their social connectedness, academic performance and retention, and overall health and well-being [2]. As transitioning to college life can produce many psychological stresses related to a new environment and academic demands as well as changing social expectations, it is important to find ways that college students can reduce their anxiety and stress. Research has shown that human-animal interactions positively influence people in a variety of ways. The presence of animal may improve a person's behavior, social skills, and emotions [4][6][9].

OBJECTIVE

To determine if briefly interacting with an animal will work to effect the stress, mood, and anxiety levels in undergraduate college students during periods of elevated stress.

PARTICIPANTS

Undergraduate students (n=83) of varying majors and academic interests participated in this study during the Ohio State University's finals examination period of Autumn 2019.
Table 1 below shows several demographic distributions of the participants.

MATERIALS

After consenting to participant in the study, a pre-interaction survey was given to collect demographic information and include the self-reporting measures of stress, anxiety, mood, species attitude.

Anxiety
- 6-item State-Trait Anxiety Inventory (STAI) [7]
- Self-reported rank of bi-polar emotional states
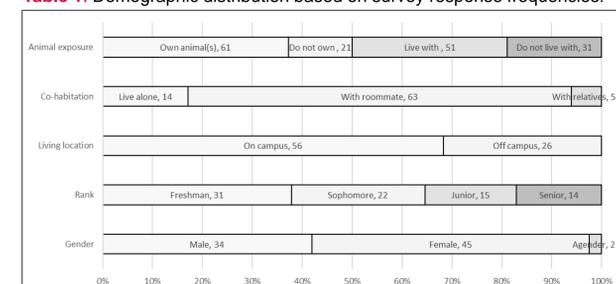- Set to a 5-point Likert scale

Mood
- 21-item Positive and Negative Affect Scale (PANAS) [1]
- Self-reported rank of current bi-polar mood states
- Set to a 5-point Likert scale

Stress
- 21-item Dundee Stress State Questionnaire (DSSQ) [8]
- Two-part self-reported measure of affective and cognitive based stress processes specific to activity and task-based pressure
- Stress Arousal
  - Tension (nervous-relaxed) and energetic (alert-lethargy) arousal
  - Based on the raking of bi-polar mood states
- Stress in task-based thought
  - Based in frequency of the unconscious allocation of thoughts related and unrelated to the activity
  - Representative of a shift in cognitive processes and focus
- Set to a 5-point Likert scale

The pre-survey including both the demographic and mental health scale questions were completed between 10-15 minutes on average.

Table 1. Demographic distribution based on survey response frequencies.

Animal exposure	Own animal(s), 61		Do not own , 21	Live with , 51		Do not live with , 31
Co-habitation	Live alone, 14		With roommate, 63			With relatives, 5
Living location	On campus, 56			Off campus, 26		
Rank	Freshman, 31		Sophomore, 22	Junior, 15		Senior, 14
Gender	Male, 34		Female, 45			Agender, 2

METHODS

After the pre-measures of the anxiety (the STAI), stress (the DSS-Q) and mood (the PANAS) were given, the participants were led into a separated area where there was either…

- A pen with two animals present (dog, goat, or donkey) where they were given 5 minutes to be with the animals.
  - Animal interaction occurred through whatever means the participant felt comfortable (e.g. talking to the animals, sitting with the animals, touching the animals, etc.)
  - Participants were encouraged to interact by tactile means
  - An animal handler was present to monitor interaction safety
- Or a laptop available to watch a 5-minute animal surveillance video pertaining to either the dog, goat, or donkey with sound.

Once the 5-minute time-period ended, the participant was led back into the survey area where the participant completed of three post-interaction surveys, including the identical measures of anxiety (the STAI), stress (the DSS-Q) and mood (the PANAS) to the surveys given in the pre-measures.

DATA ANALYSIS

Data was analyzed using SAS v. 9.4 using the PROC MIXED function.
- Pre- and post-measure differences between mental health scale scores per participants were the outcome variables set to the effects of group and day of participation in a randomized block design.
- One-way t-tests were performed in the analysis of pre to post score mean differences within the interaction and video groups.
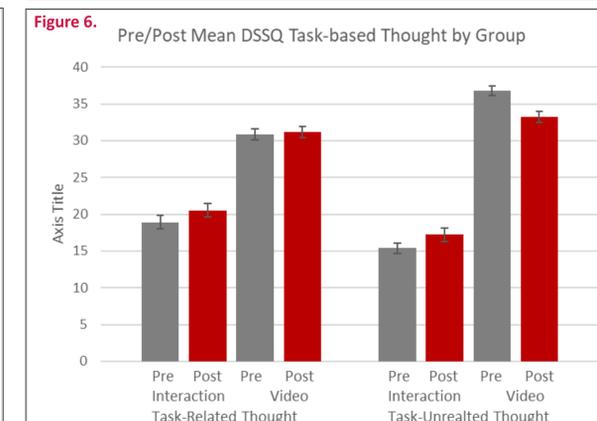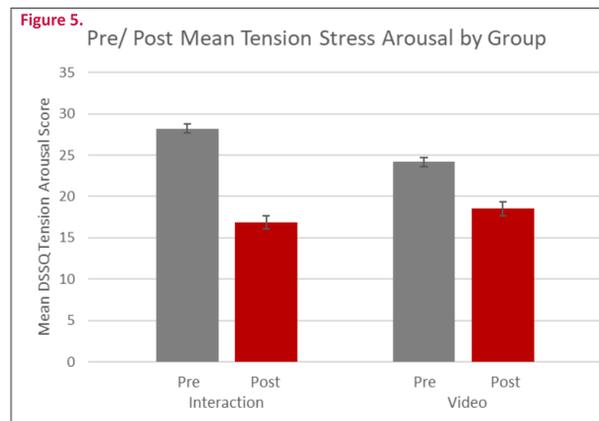- A p-value of ≤ 0.05 was considered statistically significant.
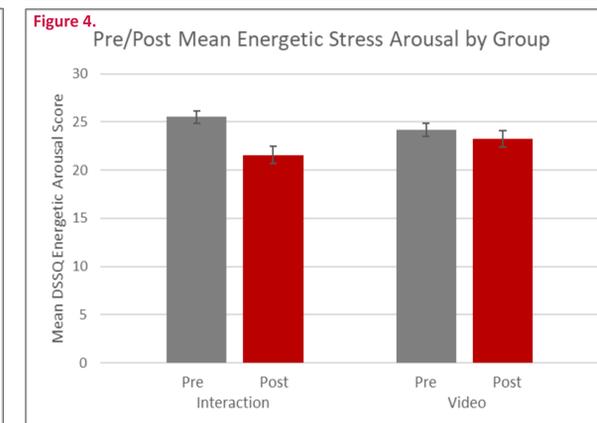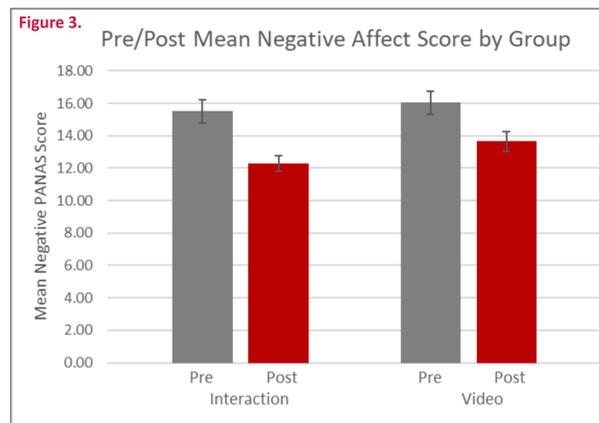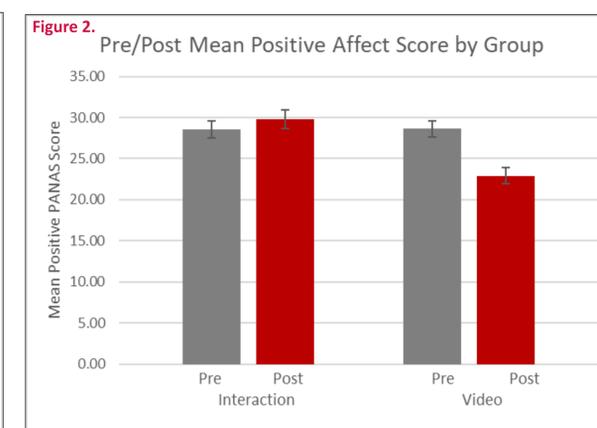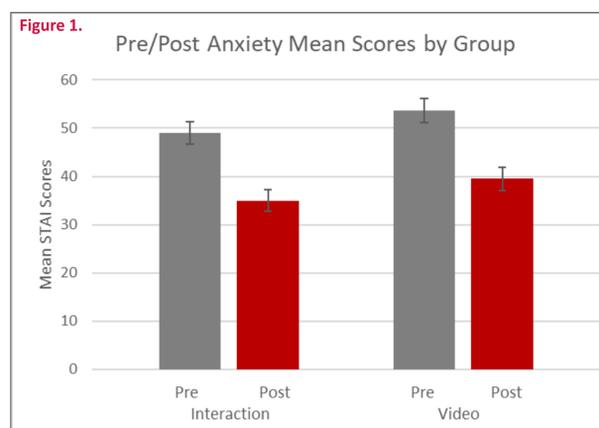
RESULTS AND DISCUSSION

The following associations were shown as a result of the analysis:

- While anxiety levels decreased in both interaction (p = 0.0008) and video (p < 0.0001) groups from pre- to post-measures, changes were not shown in the mean difference in pre/post anxiety level between groups (p = 0.9224), as in Figure 1.

- Positive affect decreased in the video group from pre to post measures (p < 0.0001) and did not change in the interaction group (p = 0.1965), showing change in scores between groups, as in Figure 2.

- While negative affect decreased in both interaction (p < 0.0001) and video (p=0.0036) groups from pre to post measures, changes were not shown between pre/post negative affect level between treatment groups (p = 0.2928), as in Figure 3.

- Energetic arousal mean score decreased from pre- to post-measures in the interaction group (p = 0.0003) and did not present differences in the mean pre/post in the video group (p = 0.9717), as in Figure 4.

- While tension levels decreased in both interaction (p = 0.0002) and video (p < 0.0001) groups from pre- to post-measures, changes were not shown in the mean difference in pre/post between the animal interaction and video control groups (p = 0.5719), as in Figure 5.

- While task-related thought did not significantly change in either the interaction or video groups from pre- to post-measures, and changes were not shown in the mean difference in pre/post between the interaction and video control groups (p = 0.3635), as in Figure 6.

- The task-unrelated thought between pre- and post-measures did not change within the interaction group (p = 0.3288) but did present a decrease in the video group (p = 0.0217), showing a difference in pre/post measures between groups (p = 0.0093), as in Figure 6.

CONCLUSIONS

This model of brief human-animal interaction was shown to be associated with a decrease in stress arousal based in energy, an increasing trend in positive affect, and was shown to effect cognitive stress in task-based thought overall, indicating that physical animal interaction may have an effect on both the mood and overall stress when compared to indirect animal viewing.

Figure 1. Pre/Post Anxiety Mean Scores by Group

Figure 2. Pre/Post Mean Positive Affect Score by Group

Figure 3. Pre/Post Mean Negative Affect Score by Group

Figure 4. Pre/Post Mean Energetic Stress Arousal by Group

Figure 5. Pre/ Post Mean Tension Stress Arousal by Group

Figure 6. Pre/Post Mean DSSQ Task-based Thought by Group

Figures 1-6. Comparison of interaction and video control groups for the anxiety, stress, and mood level means as pre- and post-measure evaluations between groups , α = 0.05.

FUTURE DIRECTIONS

Through this study, several new questions can be assessed, such as as…

- Is there a significant difference in pre/post mental health scale scores between physical interaction with the diverse species?
- How may prior animal exposure and frequency of contact within animals in a student's daily life effect the difference outcomes?
- How may a student's general attitude and specific attitude toward the given species effect the difference outcomes?
- Will there be a change in these results compared to a different time point in the semester (the semester start vs. the semester end)?

… to further assess the mental zoetic effects possible for our students.

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