

2016

The Effects of Pet Ownership on Anxiety and Depression Among Trauma-Exposed College Students

Dung N. Nguyentran

Virginia Commonwealth University, nguyentrandn@vcu.edu

Marlene A. Michniak

Virginia Commonwealth University, michniakma@mymail.vcu.edu


James J. Jung

Virginia Commonwealth University, jungjj@mymail.vcu.edu

Christine Q. Do

Virginia Commonwealth University, docq@vcu.edu

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Nguyentran, Dung N.; Michniak, Marlene A.; Jung, James J.; and Do, Christine Q, "The Effects of Pet Ownership on Anxiety and Depression Among Trauma-Exposed College Students" (2016). *Undergraduate Research Posters*. Poster 227.

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Marlene Michniak¹, Dung Nguyentran^{2,3}, James Jung², Christine Do², Amy Adkins, Ph.D.³, Danielle Dick, Ph.D.^{3,4}, Sandra Barker, Ph.D.⁵, Megan Cooke⁶, Jeanne Savage⁶

¹Department of Chemistry, ²Department of Biology, ³Department of Psychology, ⁴Department of African American Studies, ⁵Center for Human-Animal Interaction (CHAI), ⁶Center for Clinical & Translational Research

Introduction

There are various benefits to owning a pet, including improved physical and mental health, aiding the recovery process, support, and comfort⁴.

- In one particular study, veterans reported feeling calmer, less lonely, less depressed, and less worried, as well as having exercised more compared to non pet owners⁵.
- In different settings such as hospitals, pets have been reported to decrease distress in children who have been operated on².
- Additionally, when evaluating college students in pet therapy settings, studies report that pets provide support and comfort during stressful times¹.

Research question: How does pet ownership affect levels of anxiety and depression among those who have experienced a traumatic event?

Hypothesis: We hypothesize that among students who have experienced a traumatic event, pet owners will have lower levels of anxiety and depression.

Methods

Spit for Science: VCU-wide, longitudinal research initiative that wants to better understand how genetic and environmental factors come together to influence a variety of health-related outcomes in the VCU undergraduate population.

Total Sample (N)= 547; 392 pet-owners and 155 non-owners

- Restricted to students exposed to a *traumatic event*: Since beginning college, have they experienced a physical/sexual assault (or other unwanted sexual experiences) or transportation accident
 - Survey was taken during the **2011 cohort's junior (third) year**

Independent variable: ownership of a pet (or not)

- "Did you grow up with a dog/cat/other pet?"
- Restricted to pet owners that were highly attached to their pets; >60 on a scale from 0-100

Dependent variable: levels of anxiety or depression

- Using the Symptom Checklist (SCL-90) (Derogatis & Cleary, 1977)
 - *Anxiety/depression*: Symptoms like "nervousness or shakiness inside," "spells of terror or panic," "feeling blue," and "feeling no interest in things" in the past 30 days
 - Sum score was used

Statistical test used: Linear Regression

	Pet Owners	Non-owners
Gender		
Male	121 (31%)	45 (29%)
Female	271 (69%)	108 (71%)
Ethnicity		
American Indian/Native Alaskan	1 (0.3%)	2 (1%)
Asian	34 (9%)	51 (33%)
Black/African American	53 (14%)	62 (41%)
Hispanic/Latino	18 (5%)	9 (6%)
More than one race	27 (7%)	6 (4%)
Native Hawaiian/Pacific Islander	4 (1%)	0 (0%)
White	252 (65%)	23 (15%)

Table 1. Demographic statistics summarizing sample.

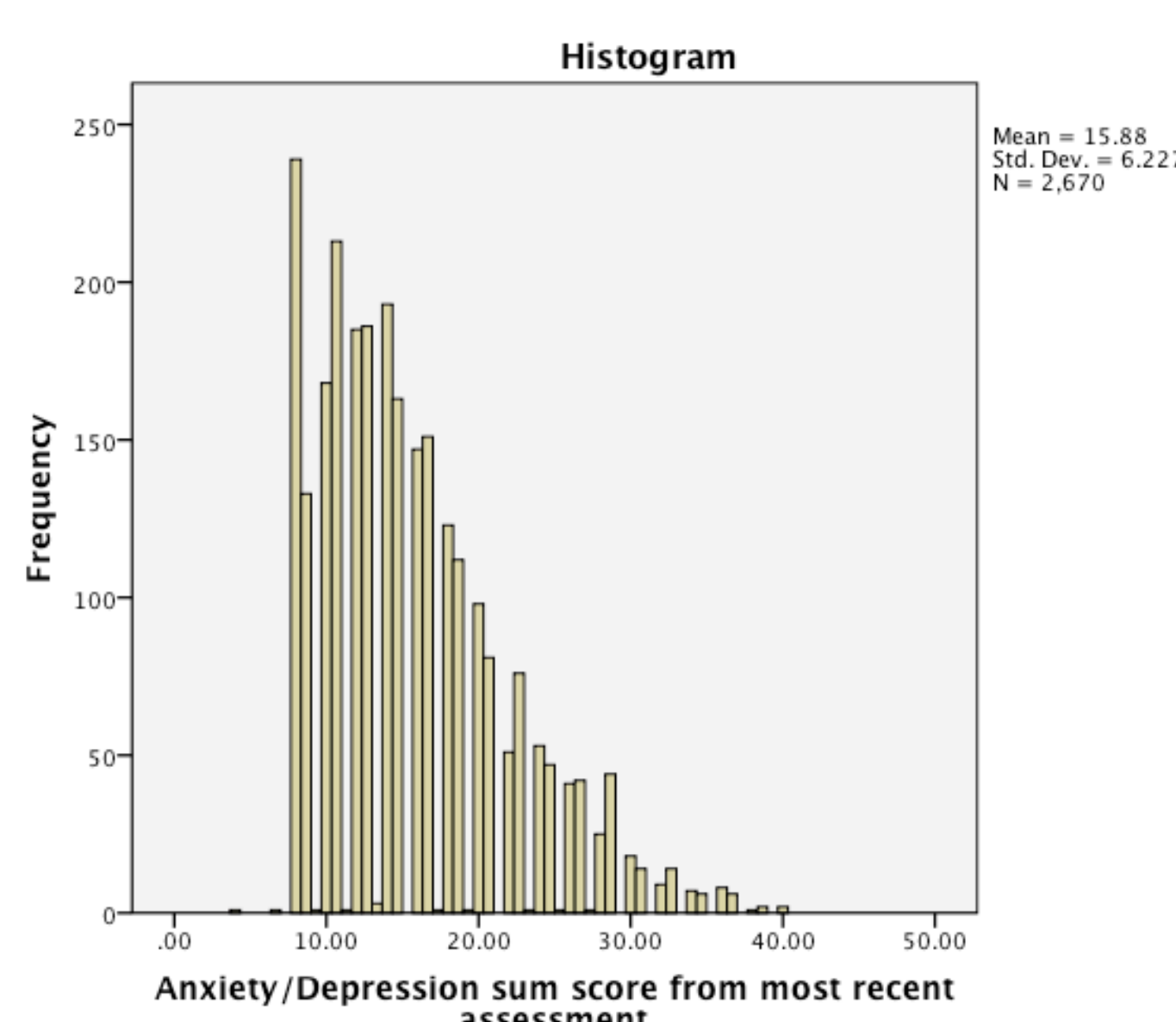


Figure 1. Histogram representing frequency of anxiety/depression sum scores in sample. Highest score: All of these symptoms of anxiety and depression have caused great distress. Lowest score: None of these symptoms of anxiety and depression have caused great distress

Results

Initial Results

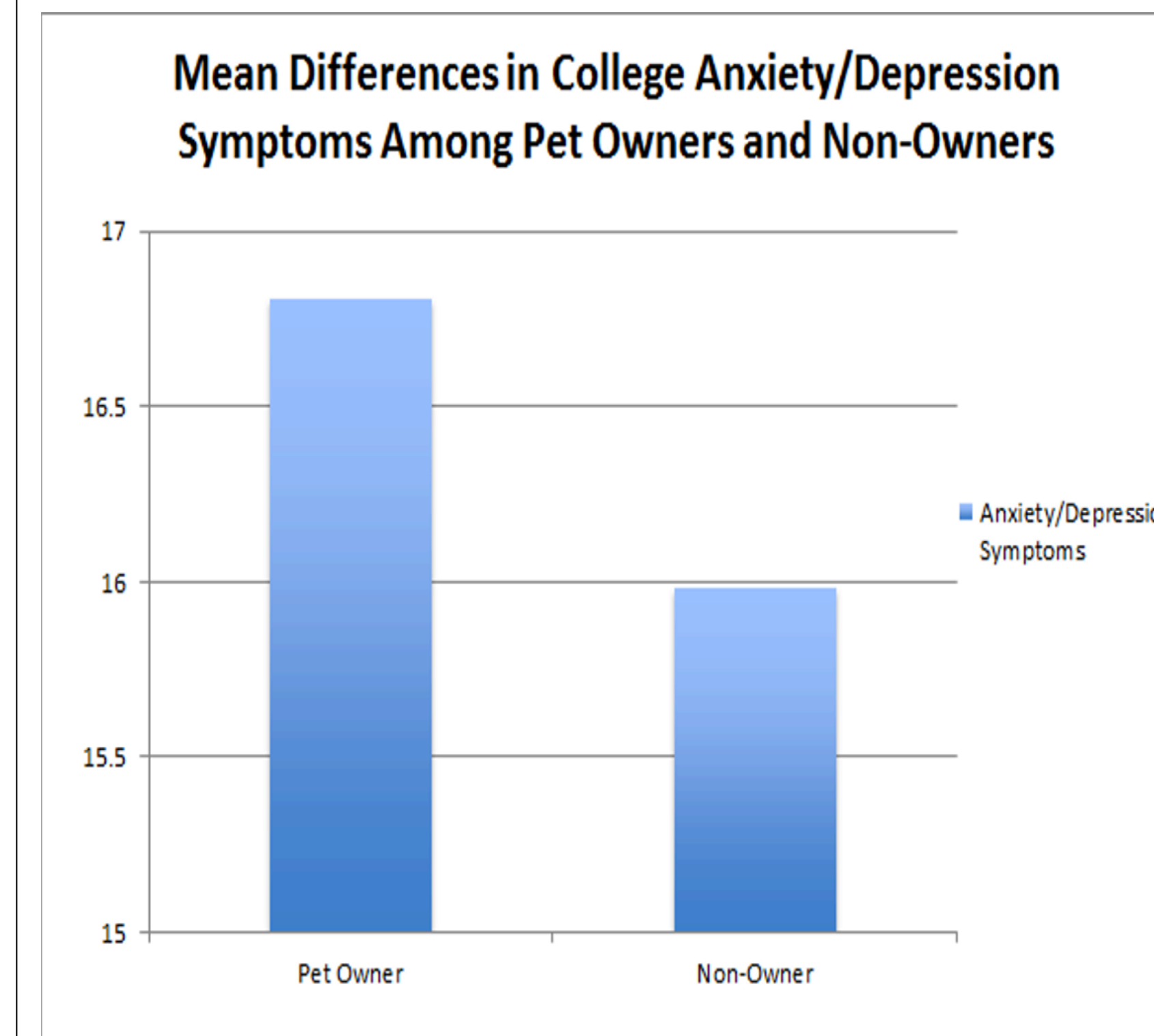


Figure 2. Preliminary graph of mean differences in college anxiety/depression symptoms among pet-owners and non-pet owners

Model	Coefficients		Sig.
Pet owner	B	.824	.176

Table 2. Preliminary linear regression output for pet ownership on anxiety/depression symptoms

After controlling for confounding factors such as gender, ethnicity, the big five personality traits, social support and resilience, the direction of relationship changed from positive to negative as pet owners had 2.224 fewer symptoms of anxiety/depression symptoms. These results were significant ($p=0.004$, $R^2=0.033$). R^2 for when all covariates were considered was 0.304. The partial R^2 for all significant covariates were gender ($R^2=0.026$), ethnicity ($R^2=0.057$), neuroticism ($R^2=0.141$) and openness ($R^2=0.058$) (See table below)

	Pet Owners (Mean)	Non-owners (Mean)	P value from t-test comparison
Gender	--	--	.74 (chi-square test)
Ethnicity	--	--	<.001 (chi-square test)
CD-RISC Resilience Score	6.1	6.0	.65
Social support sum score	6.1	5.9	.53
BFI Extroversion	10.5	10.8	.27
BFI Agreeableness	11.8	11.9	.64
BFI Conscientiousness	13.2	13.3	.64
BFI Neuroticism	9.0	8.4	.04
BFI Openness	12.8	12.4	.02

Table 5. Confounding variables used in final analyses.

After the initial linear regression, the results indicated that pet owners had on average 0.824 more symptoms of anxiety/depression than that of non-pet owners. These results were not statistically significant ($P=0.176$, $R^2=0.003$) and contradict literature.

Final Results

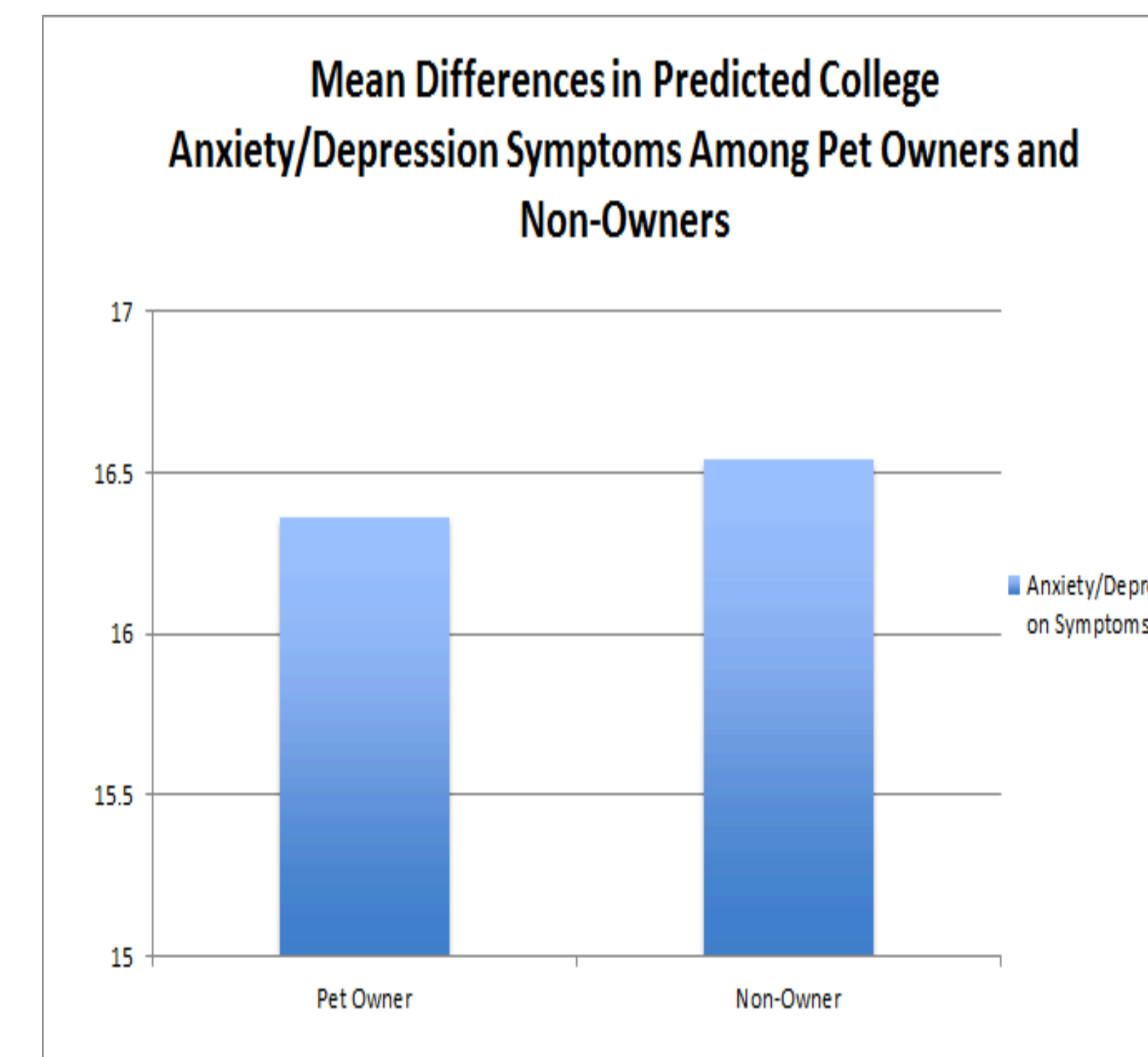


Figure 3. Final graph of mean differences in college anxiety/depression symptoms among pet-owners and non-pet owners.

Model	Coefficients		Sig.
Pet owner	B	-2.224	.004

Table 4. Final linear regression output for pet ownership accounting for covariates on anxiety/depression symptoms

Discussion

Using pet-ownership as the sole criteria for discerning anxiety/depression levels can be misleading. There are confounding variables that went unaccounted for in the initial linear regression and were more realistically accounted for in the second linear regression. Further confounding factors may exist, but the ones most likely to affect our population were selected: gender, race/ethnicity, personality, social support and resilience. Only gender, ethnicity and personality traits openness and neuroticism, was found to be significant ($p=0.000$, $p<0.001$, $p=0.02$, $p=0.04$). Neuroticism is known to predict anxiety/depression³. When these selected confounding factors were analyzed in relation to our research question, it was shown that pet owners experienced a lower mean difference in anxiety and depression symptoms.

Weaknesses

- Only targeted VCU college students
- Only used surveys
- Duration of Pet ownership is not known

Strengths

- Large population
 - 547 of people who answered the survey and experienced trauma
- Diverse Sample
 - Wide range of ethnic groups, men and women
- Participants indicated that they were STRONGLY attached to the pets
 - Most likely relationship will show that there is an effect on mental health
- Order of events - pet ownership preceded trauma, trauma preceded symptoms

Conclusions

The main intention of this research was to determine how pet ownership affects anxiety/depression and in doing so, support the potential therapeutic benefits pet-ownership may offer in the clinics/hospitals sector to mental health as well as the workplace. It was hypothesized that pet ownership would be associated with fewer symptoms of anxiety and depression. The VCU student population who participated in Spit for Science questionnaire in their junior year provided a representative dataset.

- **Findings:** The initial linear regression indicated that pet-ownership had a higher mean difference in anxiety/depression (contrary to the literature). However, a second linear regression which considered confounding factors such as gender, race/ethnicity, personality, social support and resilience showed that pet-ownership had a significantly lower mean difference in anxiety/depression. The confounding factors found to significantly impact our results being neuroticism, a known predictor of anxiety and depression, and openness.

- **Implications:** Pet ownership is associated with fewer symptoms of anxiety and depression among trauma-exposed students, but can this relationship be confounded by many variables.

- **Future Directions:** To determine the extent to which neuroticism and openness contribute to anxiety/depression or to explore confounding factors such as pet attachment and duration of pet ownership that were not addressed.

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Acknowledgements

We would like to thank Amy Adkins and our amazing group leaders, Megan Cooke and Jeanne Savage, for their mentorship. Thank you to CHAI for being our community partner with the COBE/Spit for Science program. Spit for Science: The VCU Student Survey has been supported by Virginia Commonwealth University, P20 AA107828, R37AA011408, K02AA018755, and P50 AA022537 from the National Institute on Alcohol Abuse and Alcoholism, and UL1RR031990 from the National Center for Research Resources and National Institutes of Health Roadmap for Medical Research. We would like to thank the VCU students for making this study a success, as well as the many VCU faculty, students, and staff who contributed to the design and implementation of the project. Finally, thank you to UROP for allowing us to present our project.