Associations Between Pet Ownership, Psychological Health, and Loneliness Among Undergraduate College Students

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ABSTRACT

Background: Animal-assisted interventions (AAI) on college campuses are known to be beneficial for student mental health; however, these benefits are short-term. Owning a pet can produce similar long-term outcomes, yet students living in university-owned housing are often not permitted to own pets.
Aim: This study explored the association between pet ownership and self-reported emotions of depression, anxiety, stress, and loneliness among undergraduate college students.
Methods: This descriptive, quantitative study used convenience sampling to recruit undergraduate students (n = 391) from a public academic institution in the northern Appalachian region of the United States. Data from anonymous, electronic surveys were analyzed to identify sample characteristics and differences in outcome variables based on pet ownership status.
Results: Pet ownership was associated with lower levels of self-reported depression, stress, and loneliness. Greater psychological distress and loneliness were reported among students who identified as non-binary, sophomores, and those living in residence halls.
Conclusions: Findings from this study underscore the importance of ongoing psychological support for undergraduate students and offer meaningful implications for policy change. Academic institutions should consider allowing students to own a pet in university-owned housing as an additional way to support their psychological health and provide companionship when they need it most.

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BACKGROUND

Psychological distress is on the rise across college campuses and is being considered a crisis across institutions of higher education throughout the United States. According to a survey of 103,639 students from the American College Health Association's (ACHA) National College Health Assessment (2024), 50% rated their stress level as moderate, 26.7% had been diagnosed with depression, 35.2% had been diagnosed with anxiety, and 48.5% reported loneliness. Additionally, 60% of college students meet criteria for at least one mental health problem, and nearly 75% report

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moderate to severe psychological distress (Abrams, 2022). Of those students reporting psychological distress, nearly 40% of transgender and gender non-conforming students rate their psychological distress as serious, which is over 20% higher than cisgender students. In addition, 60.7% of these students had positive suicidal screenings, which is nearly 30% higher than their cisgender peers. These students also report lower psychological well-being and resilience (ACHA, 2024). Given the mental health crisis that is prevalent across universities, institutions are implementing initiatives targeted at improving mental health and supporting well-being. One innovative way that institutions are attempting to combat this crisis is using animal-assisted interventions (AAI).

AAI also includes animal-assisted therapy, animal-assisted education, and animal-assisted activities, which are designed to increase health and wellness through structured informal or formal interactions (Pet Partners, n.d.). There is a growing body of literature on the use of AAI to improve mood and social connection for college students. AAI positively influences emotional states and feelings of stress and anxiety (Cantoni et al., 2025; Cooke et al., 2023; Kivlen et al., 2023; Robino et al., 2021). Post-intervention changes have been reflected in physiological markers, such as decreased cortisol levels and overall improvement in vital signs (Andriacchi et al., 2023; Cooke et al., 2023). In addition to psychological and emotional symptoms, AAI have also been found to be enjoyable for students and enhance social connection, self-esteem, confidence, self-regulation, and reduce feelings of homesickness (Cooke et al., 2023; Flynn et al., 2024).

Most AAI are intermittent, isolated interactions in which a trainer brings an animal to a class or other area on campus for a targeted purpose, such as reducing anxiety before an exam (Coren, 2018). In some instances, the animal is present during designated hours in one specific area for students to experience "drop in" interactions. Several studies have shown that drop-in interactions are effective at reducing student stress levels (Binfet et al., 2017; Delgado et al., 2017); however, it is also known that these effects do not last long-term (Ward-Griffen et al., 2018). It would be helpful for students to have convenient, regular access to AAI for a more longitudinal impact (Kivlen et al., 2023). One way to facilitate this type of experience could be for college students living on campus to own a pet themselves.

Similar to AAI, pet ownership has been shown to reduce stress, anxiety, and loneliness, and increase feelings of social support (Human Animal Bond Research Institute, 2024; U.S. Davis Health, 2024; U.S. Department of Health and Human Services, 2024). Among college students, pet ownership has been associated with lower stress, compared to those who do not own a pet. Despite the potential benefits of pet ownership, it is common for institutions of higher education to implement "no-pet" policies, especially in campus-owned housing and residence halls (Daniel, 2024). Given the limited literature on the impact of pet ownership on the psychological and social health of college students, this study aimed to explore the association between pet ownership and self-reported feelings of depression, anxiety, stress, and loneliness among undergraduate college students.

METHODS

This descriptive, quantitative study used convenience sampling to recruit a sample of undergraduate students (n = 391) from a public academic institution in the northern Appalachian region of the United States. Institutional Review Board acknowledgement was obtained from West Virginia University and participants were provided a cover letter describing the purpose of the study, eligibility criteria, procedures for data collection, and remuneration. Students were informed that participation was voluntary and their class standing or grades would not be affected by their decision to participate or not.

Recruitment and Data Collection

Eligibility criteria included participants who were 18 years of age or older, could read and write in the English language, and were an undergraduate student actively enrolled at the affiliated university. Both full and part-time students were eligible to participate. Using Qualtrics, an anonymous electronic survey containing the cover letter, demographics, and surveys of the dependent variables (Depression, Anxiety, and Stress Scale [DASS-21] and UCLA Loneliness Scale) was developed and distributed to potential participants via student e-mail, learning management systems, social media, flyers in common university areas, and snowball sampling via word of mouth. Students agreed to participate by electing to move forward in the survey after reviewing the cover letter. Data collection occurred over a period of one-month from February 2024 until March 2024, with weekly reminders sent via e-mail.

Measurements

The variables for this study were based on trends in national student data and a review of the literature. The independent variables included student characteristics (age, gender, and academic level), housing type (residence hall, campus-owned apartment, off-campus, and family home), and pet ownership status (full-time ownership of a dog or a cat). The dependent variables included depression, anxiety, stress (DASS-21), and loneliness (UCLA Loneliness Scale).

The DASS-21 is freely available for public use (Lovibond & Lovibond, 1995a). The DASS-21 is a 21-item survey designed to measure three self-report emotional states of depression, anxiety, and stress. Each of the three subscales consist of 7 items, scored on a 4-point Likert scale from 0 (*did not apply to me at all*), to 3 (*applied to me very much or most of the time*). Participants are asked to rate each item based on experiences over the past week. Final scores are calculated by multiplying raw scores by two. Scores for each subscale can range from 0 to 42, with higher scores indicating increasing severity of emotions. The scoring instructions provide recommended cutoff scores for severity of each emotional state (normal, mild, moderate, and severe). Initial psychometrics revealed reliability coefficients ranging from 0.89-0.91 across subscales, with evidence to support strong convergent validity (Lovibond & Lovibond, 1995b).

The UCLA Loneliness Scale is freely available for public use (Russel et al., 1978). The UCLA Loneliness Scale is a 20-item survey designed to measure self-reported feelings of loneliness and social isolation. Participants score each item on a 4-point Likert scale from 3 (*I often feel this way*) to 0 (*I never feel this way*). Scoring is based on overall score, ranging from 0 to 60, with higher scores indicating greater feelings of loneliness and social isolation. Initial psychometrics revealed reliability coefficients ranging from 0.80-0.94 with evidence to support strong construct and convergent validity (Russell, 1996).

Data Analysis

Data were exported from Qualtrics into SPSS and cleaned prior to data analysis. Independent variables including participant characteristics, housing type, and pet ownership status were analyzed using descriptive statistics and reported in means, frequencies, and percentages. Dependent variables were initially tested for normality and were determined to be non-normally distributed and thus were reported in medians and lower and upper quartiles. Differences between independent and dependent variables were analyzed using non-parametric testing based on variable type. Mann-Whitney U was used for the dichotomous variable (pet ownership status), and Kruskal-Wallis for

the other categorical variables. Finally, correlations between dependent variables were analyzed using Spearman correlation testing.

RESULTS

Differences in psychological variables by pet ownership and demographic characteristics can be found in Table 1. The majority of participants (61.4%) did not own a pet, identified as a female (79.8%), and lived off-campus (37.6%) or in a residence hall (31.7%). Academic level (i.e., freshman, sophomore, junior, senior) were evenly distributed throughout. Overall, participants reported normal levels of depression (Md = 9.00), moderate anxiety (Md = 10.00), mild stress (Md = 18.00), and moderate loneliness (Md = 38.00). Although not statistically significant, participants who owned a pet did report lower depression, stress, and loneliness scores. Depression, anxiety, and stress were significantly higher for those who identified as non-binary, with medians of 24.00 ($p = 0.29$), 26.00 ($p < 0.001$), and 22.00 ($p < 0.001$), respectively. Loneliness was significantly higher for those living in a residence hall (Md = 42.00, $p = 0.037$). On average, sophomores reported higher depression, anxiety, stress, and loneliness than those at other academic levels, although not statistically significant. Significant moderate to strong correlations were present among all dependent variables (Table 2).

Table 1

Difference in Psychological Variables by Pet Ownership and Demographic Characteristics

Characteristics	*N* (%)	*M*	Depression [Median P_{25}, P_{75}]	Anxiety [Median P_{25}, P_{75}]	Stress [Median P_{25}, P_{75}]	Loneliness [Median P_{25}, P_{75}]
Age		20.40				
Pet Ownership						
Yes	151 (38.6)		8.00 (4.00, 14.00)	10.00 (4.00, 16.00)	16.00 (12.00, 24.00)	37.00 (28.00, 47.00)
No	240 (61.4)		10.00 (4.00, 18.00)	10.00 (4.00, 16.00)	18.00 (12.00, 24.00)	39.00 (27.00, 51.00)
U			19499.500	19160.500	18827.000	18231.500
P			0.135	0.269	0.426	0.329
Gender						
Female	312 (79.8)		8.00 (4.00, 18.00)	10.00 (4.00,16.00)	18.00 (12.00, 24.00)	39.00 (28.00, 51.00)
Male	65 (16.6)		10.00 (4.00, 15.50)	6.00 (2.00, 12.00)	12.00 (8.00, 20.00)	34.00 (24.00, 45.25)
Non-Binary	12 (3.1)		24.00 (8.00, 32.00)	26.00 (14.00, 30.00)	22.00 (14.50, 34.00)	41.00 (37.00, 46.00)
H			8.998	30.440	20.213	6.509
P			0.029*	< 0.001*	< 0.001*	0.089
Classification						
Freshman	114 (29.2)		9.00 (4.00, 19.50)	10.00 (4.00, 16.00)	17.00 (10.00, 23.50)	39.50 (28.00, 50.75)
Sophomore	83 (21.2)		12.00 (7.50, 18.00)	12.00 (4.00, 20.00)	20.00 (12.00, 26.00)	41.00 (29.00, 53.25)
Junior	92 (23.5)		8.00 (4.00, 17.50)	10.00 (4.00, 17.50)	16.00 (10.00, 24.00)	36.00 (27.00, 47.00)
Senior	102 (26.1)		8.00 (4.00, 14.50)	8.00 (4.00, 16.00)	16.00 (12.00, 22.50)	35.50 (27.00, 48.75)
H			6.236	2.756	3.374	3.912
P			0.101	0.431	0.337	0.271
Housing						
Dorm	124 (31.7)		10.00 (6.00, 20.00)	12.00 (6.00, 18.00)	18.00 (12.00, 24.00)	42.00 (31.00, 53.75)
University Owned Apartment	31 (7.9)		12.00 (4.00, 22.00)	10.00 (4.00, 18.00)	20.00 (12.00, 28.00)	39.50 (30.25, 47.25)
Non-University Owned (On Campus)	64 (16.4)		8.00 (6.00, 15.5)	8.00 (4.00, 16.00)	16.00 (12.00, 22.00)	35.00 (26.00, 45.75)
Off-Campus	147 (37.6)		8.00 (4.00, 16.00)	10.00 (4.00, 16.00)	16.00 (12.00, 24.00)	36.50 (26.00, 51.00)
Family/Commuter	25 (6.4)		8.00 (4.00, 12.00)	10.00 (1.00, 18.00)	14.00 (10.00, 22.00)	36.00 (26.00, 55.00)
H			7.509	5.543	5.525	10.243
P			0.111	0.236	0.238	0.037*

Note. *U* = Mann-Whitney U test; *H* = Kruskal-Wallis test, $P < 0.05$*

Table 2

Correlations of psychological variables (r)

Variable	Depression	Anxiety	Stress	Loneliness
Depression	1.000	0.588*	0.672*	0.633*
Anxiety	0.588*	1.000	0.697*	0.475*
Stress	0.672*	0.697*	1.000	0.493*
Loneliness	0.633*	0.475*	0.493*	1.000

* Correlation is significant at the 0.01 level

DISCUSSION

The findings from this study support existing evidence related to the mental health crisis experienced by college students nationwide (ACHA, 2024). Participants in this study reported mild stress and moderate levels of anxiety and loneliness. Psychological distress was significantly higher for undergraduate students identifying as non-binary, which is congruent with the literature. In a national survey of college campuses, gender minority students have been shown to be two to four times more likely to experience mental health challenges compared to their peers (Lipson et al., 2019), including increased rates of depression, anxiety, self-harm, and suicidal ideation (Gross et al., 2022; Klinger et al., 2024).

Study participants who lived in a college residence hall also reported significantly higher loneliness than those living in other types of housing. Loneliness is highly prevalent in young adults between the ages of 18 and 25 years and moving away from home has been found to be a trigger for loneliness (Lim et al., 2020). Residence halls are typically reserved for first-year college students, and for most students, it is the first time living on their own. Transitioning to college is a critical point of development for young adults, where they are forced to assume responsibility for day-to-day activities, while their brains are undergoing accelerated development and increased sensitivity to stress (Duffy et al., 2020).

The transition from freshman to sophomore year was significant, as evidenced by self-reported higher levels of depression, anxiety, stress, and loneliness compared to other academic level participants. Barbayannis et al. (2022) found that second-year students reported lowest psychological well-being and highest academic-related stress Although there is little evidence supporting this, it often coincides with a period when students transition from prerequisite courses to major specific coursework, assuming greater academic responsibilities, and move out of residence halls into other types of housing.

Although not statistically significant, pet ownership was associated with lower levels of depression, stress, and loneliness. These findings are clinically significant as it relates to the cutoff scores for depression and loneliness based on the scoring interpretation for each measurement (Deckx et al., 2014; Lovibond & Lovibond, 1995a). Participants who owned a pet reported normal levels of depression and mild loneliness, compared to mild depression and moderate loneliness in their peers without pets. These findings are consistent with the literature on pet ownership and positive psychological outcomes (Human Animal Bond Research Institute, 2024; U.S. Davis Health, 2024; U.S. Department of Health and Human Services, 2024).

Implications

Pet ownership should not only be considered a mental health intervention, but also as a potential risk factor for negatively affecting the psychological health of undergraduate college students (Carr & Pendry, 2021). Although there is ample evidence to support the use of AAI to improve college student mental health and well-being, many institutions still restrict pet ownership in university-owned housing and residence halls (Lederhouse, 2024). Findings from this study support that this demographic of students are among those with the greatest need for mental health support. Institutions of higher education should consider revising current policies and procedures to allow pet ownership within university-owned housing environments. An example of a potential policy change would be to designate one residence hall as animal friendly, which would give students an opportunity to own a pet on campus,

which could subsequently improve student mental health and wellbeing. The researchers have met with university housing administration to discuss the findings of this study and to advocate for policy change at our home institution.

Faculty, staff, and administrators should also be aware of the increased mental health needs for underrepresented minority students, such as those who identify as non-binary, and students who are transitioning between freshman and sophomore year. Institutions should implement targeted training focused on associated risk factors for those who frequently interact with these students, including academic and faculty advisors, coaches, student organization leaders, and course coordinators.

Some additional considerations when owning a pet is the financial responsibility related to food, veterinary costs, and any unexpected costs that may arise. These items can cause an increase in stress for students (Myers, 2023). Before bringing pet to campus, students should consider if their lifestyle, size of living space, and extracurricular time commitments fit the needs of the pet (Vetster, 2024). Additionally, finding pet-friendly housing can be difficult and can lead to an increase in the number of surrendered pets (Myers, 2023). To help prevent animals from being kept indoors for long-periods of time, a student-run program could be created where pet owners could "drop off" their pet and allow them to be supervised while the owner is in class or attending other activities (Silva, 2024). Even with the large commitment and responsibility that accompany pets, they can provide significant mental health support to students.

No-pet policies are usually in place due to the fear of damaged property, safety of other tenants, and other liability issues (Lederhouse, 2024). To help remediate some of these issues, a policy recommendation would be to have designated floors or buildings that are pet friendly (Silva, 2024). This would then allow a separate space for those that have an allergy or prefer to not be around pets. Additionally, tenants are usually charged for any damages left from their pet (Lederhouse, 2024). This prevents the housing complex from losing money due to damaged property due to pets.

Limitations

Despite the large sample size, participants were recruited from a single, public institution in the Northern Appalachian Region of the United States which limits generalizability of the findings. Survey measures were collected via self-report, which poses the risk for response bias. Although the definition of pets was limited to dogs or cats for the purpose of this study, authors recognize that other types of animals can also be therapeutic, and some participants who own different pets may have been missed.

CONCLUSION

The integration of AAI on college campuses contribute to improved mental, emotional, and social health; however, these benefits are often temporary due to the isolated nature of most interactions. Pet ownership has been shown to improve depression, anxiety, and stress and reduce feelings of loneliness, yet students living in campus-owned housing and residence halls are typically not permitted to own a pet (Cantoni et al., 2025; Cooke et al., 2023; Kivlen et al., 2023; Robino et al., 2021). Due to the continued rise of psychological distress on college campuses, particularly for minority and underrepresented students, institutions of higher education should consider policy change related to pet ownership as an additional way of supporting student health and well-being.

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