

The Effects of Pet Ownership on the Mental Health of North Carolina Wesleyan College

Students

Rebecca Mitchell

Honors Thesis

North Carolina Wesleyan College

April 2022

Abstract

College students are facing a mental health crisis in which they are faced with numerous stressors, with demands from school, work, and social relationships. The current research examines the effects that pets may have on the mental health of college students. Previous research has focused on the benefits of therapy animals and pet interactions on people of the general population, including some college students. However, not much research has been conducted to determine the effect of pet ownership on the mental health of college students. We conducted a survey that assessed the self-reported current psychological discomfort experienced by North Carolina Wesleyan College students, along with their self-reported predicted psychological discomfort if allowed to reside with a pet on campus. For students who owned a pet, our survey also evaluated their attachment to their pet, based on an attachment to pet scale. Our findings indicate that students predict that they would experience less psychological discomfort if allowed to reside with their pet on campus. In response to open-ended questions about the potential benefits of pets on campus and the mental health benefits of pets in general, most students provided responses relating to exercise promotion and the reduction of stress, loneliness, depression, and anxiety. We also discovered a moderate correlation between attachment to pet and self-reported current psychological discomfort for students who do not live with their pet on campus. Directions for future research and a proposal for amending the pet policy at North Carolina Wesleyan College are discussed.

Keywords: mental health, pets, college students

Acknowledgements

First and foremost, I would like to thank God for allowing me to see the completion of my thesis, which was based on an idea that He put in my mind during my freshman year of college. Secondly, I would like to thank my parents and siblings for their support and many words of encouragement that have helped me along the way.

I want to express my gratitude for Dr. Greg Preuss, my Honors Project Director, who has dedicated his time and energy towards assisting me with my thesis. He helped make this dream of mine a reality. I am grateful for my two Readers, Dr. Lee Templeton and Dr. Ami Thompson. Throughout my college career, Dr. Templeton has helped me become a better writer and scholar. I could not have picked a better English Professor to assist me with my thesis. Dr. Thompson showed me that people are not products of their past, but products of their mindset. Her genuine passion for dragonflies taught me that my passion for animals is not limited to a standard, and I am grateful to have had her on my committee.

I also want to thank Dr. Bill and Dr. Sanborn, the advisors of the Honors Program, for their hard work and dedication. Dr. Bill has gone above and beyond to ensure that my graduation requirements are met, for which I am truly grateful. For many years, Dr. Sanborn has encouraged me to always pursue my dreams. His guidance has helped me become a more successful student.

I would like to show appreciation for President Duff, who fully supported my research interests from the beginning. Through his generosity and desire to help students succeed both academically and personally, he embodies the true essence of a college president.

Finally, I would like every person at the college who has helped me in any way, even those who I did not name, to know that I am truly grateful for them. I would not be where I am today without these people in my life.

The Benefits of Pets to Human Mental Health and Well-Being

Students pursuing higher education are facing a mental health crisis. Depression and anxiety levels are seeing a dramatic increase, as the likelihood of students facing anxiety and depression was found to be more than six times higher than the general population (Evans et al., 2018). Students have faced significant psychological impairments due to the COVID-19 pandemic, with negative effects on both emotional and behavioral functioning (Copeland et al., 2020).

The “American Psychological Association” (n.d.) defines ‘stress’ as the body’s physiological or psychological response to stressors, which are difficult or demanding events or conditions. College is stressful for many students. Not only do students have a time-consuming academic workload, but they may also be under relationship (friendship, family, intimate) or work stress.

With the decline in well-being comes a rise in suicidal ideation, as students are struggling to cope with their life stressors as well as balance school and work. In a study conducted by Mortier et al. (2018) that assessed the prevalence of suicidal thoughts and behaviors among 634,662 college students worldwide, it was found that one in six students had experienced suicidal ideation, with 20% of them reporting at least one attempt. These statistics show that mental health is an ongoing concern among college students that must be continually managed.

Schools aim to provide students with access to multiple resources that support their mental health and well-being. Yet, counseling centers cannot be solely responsible for providing assistance to students, due to the high student-to-counselor ratios on college campuses, especially at liberal arts colleges. North Carolina Wesleyan College (NCWC), a liberal arts college in Rocky Mount, NC, had a student population of over 1,800 (North Carolina Wesleyan College

[NCWC], 2021a) with only one counselor in the fall semester of 2020. Due to the number of students that each counselor is responsible for, it is essential that college campuses find alternative methods for enhancing student mental health. It is important for students to have a coping method that allows them to reduce stressful feelings, so exhaustion is either prevented or limited. Students must be able to find a healthy coping mechanism to handle the stresses of everyday life.

One method to aid in the enhancement of student mental health is the implementation of pet-friendly residence halls, in which all students can bring a pet to campus with them. Many people consider their pets as family members that love them unconditionally. What if every student was allowed to bring their pet on campus for psychological support? Are animals capable of providing adequate support? These questions will be discussed for an assessment of the effects of animals on human mental health in order to advocate for the allowance of pets on college campuses.

Animals Can Play a Variety of Roles in Human-Animal Interactions

Human-animal interactions have been found to have psychological, emotional, and physiological benefits, many of which will be discussed in this section. Dogs have been bred for many years to become known as ‘man’s best friend’ (King et al., 2012; McConnell et al., 2011). In more recent generations, dogs, along with other animals, have been acclimated to home environments for the purpose of providing both psychological and physical comfort to their owners and other people who they come into contact with. The human-animal bond is one that has been shown to increase mood (Colombo et al., 2005) and decrease stress (Odendaal, 2000; Yarborough et al., 2018). Animals can play numerous roles, such as a therapy-animal, a service animal, an emotional support animal, or a companion animal. Companion animals and emotional

support animals foster mental health stability and the enhancement of well-being (Yarborough et al., 2018). Therapy and service animals are specially trained to aid in psychological and physical healing processes (Stewart et al., 2014; Yarborough et al., 2018).

Can Animal-Assisted Therapy and Animal-Assisted Activities Impact the Well-Being of College Students?

A few studies have been conducted to assess the impact that Animal-Assisted Therapy and Animal-Assisted Activities have on the well-being of college students (Jarolmen & Patel, 2018; Stewart et al., 2014). Animal-Assisted Therapy is a treatment that involves interacting with trained therapy animals to help manifest and promote recovery (Jarolmen & Patel, 2018). Animal-Assisted Activities do not consist of treatment plans. Instead, they involve informal interactions that allow people to play with and care for animals to promote stress-relief (Jarolmen & Patel, 2018).

Stewart et al. (2014) assessed the effects of an Animal-Assisted Therapy outreach program on 55 undergraduate students at a small liberal arts college in the Southeastern United States. A volunteer brought her therapy dog for students to interact with for as long as they desired. Students completed a survey prior to and after interaction with the therapy dog. It was found that student participants experienced a reduction in both anxiety and loneliness levels during and after completion of the outreach program (Stewart et al., 2014).

In an Animal-Assisted Activities study, performed by Jarolmen and Patel (2018), blood pressure levels, as an indication of anxiety, were examined in 86 college students who were either exposed to therapy dogs or who sat behind a privacy screen with no therapy dog interaction during finals week at Kean University. Blood pressure was measured before and after 15 minutes of participant-dog interaction or sitting behind a privacy screen. The results showed a

significant decrease in the blood pressure levels of the experimental group, indicating that student exposure to therapy dogs led to a decrease in anxiety levels during the week of final examinations (Jarolmen & Patel, 2018).

The studies conducted by Stewart et al. (2014) and Jarolmen and Patel (2018) showed that Animal-Assisted Therapy and Animal-Assisted Activities had a positive impact on the students that participated. Students in both studies experienced reductions in anxiety after animal interaction, which were evaluated by self-report (Stewart et al., 2014) and physiological (Jarolmen & Patel, 2018) measures. The students who participated in the Animal-Assisted Therapy outreach program also reported reduced feelings of loneliness as a result of the program (Stewart et al., 2014). The outcomes of these studies can be used as a foundation for allowing pets to reside on campus.

Endocrinological and Neurological Benefits of Interactions with Animals

The endocrine system is responsible for communication and regulating the body's biological processes. Hormones are released into the bloodstream by the endocrine system when the body reacts to a stressor or when it needs to relax. In a study conducted by Odendaal (2000), neurochemical levels were assessed in 18 participants before and after interacting with dogs or quietly reading a book. Specifically, β -endorphin, oxytocin, prolactin, phenylacetic acid, dopamine, and cortisol were measured. After interaction with dogs, β -endorphin, oxytocin, prolactin, phenylacetic acid, and dopamine levels increased, while cortisol levels decreased. When compared with the participants who quietly read a book, those who interacted with dogs had significantly higher oxytocin, prolactin, and β -endorphin levels. These results indicate that stress was reduced, and relaxation was induced as a result of dog interactions (Odendaal, 2000).

The results of this study show that interactions with animals, whether one's own or another's, are associated with significant changes in the internal processes involved in stress and relaxation responses (Odendaal, 2000). Studies, such as this, are a good source of quantitative data to support the qualitative data given by self-reported feelings toward animal interactions. Physiological measures as a support for the advocacy for pets on college campuses are beneficial, as they provide evidence of positive human body responses to animal interactions.

Animal Contact Can Reduce State-Anxiety

State-anxiety is a self-reported feeling that is commonly associated with stressors. The effect of animals on reducing state-anxiety is a growing topic of study, as researchers aim to find effective ways to promote calmness (Shiloh et al., 2003). Shiloh et al. (2003) conducted a study in which 58 participants were administered the Companion Animal Semantic Differential and the State-Trait Anxiety Inventory (STAI) and then shown a live tarantula spider. The participants were randomly assigned to one of five groups in which they were asked to hold and pet a rabbit, a turtle, a toy rabbit, a toy turtle, or to simply watch the spider (control). It was found that those who petted a live animal reported a decrease in state-anxiety, but a decrease in state-anxiety was not found among those who petted a toy animal. The fact that state-anxiety was only reduced after petting a live animal indicates that the sole action of petting something may not be entirely responsible for state-anxiety reduction. Instead, reductions in state-anxiety may be most attributed to interaction with a live animal (Shiloh et al., 2003).

The Impact of Animal Interactions on Mood and Quality of Life

Interactions with animals can lead to an improvement of mood. In a study conducted by Colombo et al. (2005), 144 elderly residents from seven nursing homes were randomly assigned to one of three conditions for three months: given a plant to care for, given a canary to care for,

given nothing at all. Participants were given the same self-report assessments before the three-month period and after the three-month period (without the removal of the canary or plant). The results of the study showed that those who received the pet canary reported greater quality of life and a better mood than those who received a plant or nothing at all (Colombo et al., 2005). The fact that this study was conducted for a three-month period showed that the pets had a long-term positive effect on their owner's mental health, which can be useful in relation to the mental health of students residing with pets during the academic year.

Animals Can Serve to Facilitate Social Interactions

Pets play a role in the social-catalyst effect, which is the idea that pets serve as a catalyst for social interactions (Beetz et al., 2012). The social-catalyst effect seen among pet owners may be due to the notion that people with pets present are perceived as friendlier and, thus, more approachable than those who do not have pets present. A study was published by Wells (2004) in which an experimenter participated in six conditions as she walked down a common street: with a Labrador Retriever puppy, an adult Labrador Retriever, an adult Rottweiler, a plant, a teddy bear, and nothing at all. It was found that the experimenter received more interactions from others when she walked with a dog compared to a plant, teddy bear, or nothing at all (Wells, 2004).

The fact that the experimenter was approached more while walking with a dog compared to something else shows that dogs play a significant role in the social-catalyst effect, which may be beneficial to students on campus. According to the social-catalyst effect, if students walk with their pet on campus, they may be approached more, which could lead to the formation of new friendships.

The Foundation of Friendship Formation

Friendship formation and social support can be essential parts of college life, as networking is valuable for study groups and social activity. There is not much research on how pets can facilitate friendship formation for college students. However, one study that focused on pets facilitating friendship formation among people in the general population was conducted by Wood et al. (2015) in which participants from four cities – Perth, Australia; San Diego, California; Portland, Oregon; Nashville, Tennessee - were asked to complete a telephone survey for the researchers to obtain self-report data. Participants were asked questions about their interactions with people in their neighborhood that they met because of their pet. Questions about the depth of the friendships with the people that they met through their pet were also asked to determine if pets played a significant role in acquiring meaningful friendships (Wood et al., 2015).

The results of this study indicate that pets play a role in facilitating new interactions with people, friendship formation, and social support. The study consisted of participants from four different cities, which shows that people living in different areas have similar interactions with people because of their pet's presence (Wood et al., 2015). Therefore, it may be possible that having a pet on campus may lead to the formation of new friendships as well as social support from other students.

The Present Study

Our study aimed to assess the effect of pet ownership on the mental health of college students. Specifically, we focused on a pet's impact on the stress, loneliness, depression, and anxiety levels of North Carolina Wesleyan College Students. Participants were asked to complete a survey that consisted of questions addressing their current psychological discomfort,

henceforth used as a measure of mental health, as well as their predicted psychological discomfort if allowed to have a pet reside with them on campus.

We hypothesized that there would be a decrease in scores from current to predicted psychological discomfort during an average week for all variables measured (stress, loneliness, anxiety, and depression). A decrease in scores suggests that students predict that they would experience a lower level of stress, loneliness, depression, and anxiety during an average week when allowed to reside with their pet on campus. Our hypotheses for psychological discomfort were based on the research by Jarolmen and Patel (2018) and Stewart et al. (2014) in which college students experienced decreases in anxiety and loneliness as a result of animal interactions. The research by Odendaal (2000) and Colombo et al. (2015) in which results showed participants having an improved mood and a reduction in stress after animal interactions influenced our hypotheses as well.

We were also interested in the role attachment to pets plays in their current levels of psychological discomfort. Albert and Bulcroft (1988) used a nine-item scale to assess owners' feelings towards their pets, which gave a total pet attachment score. We used this scale to assess how attached pet-owner participants were to their pet. This score was used to examine a potential relationship between attachment to pets and average current psychological discomfort scores. We hypothesized that for student pet-owners who do not live with their pet while attending school, attachment to one's pet is positively correlated with current psychological discomfort. Also, we hypothesized that for student pet-owners who live with their pet while attending school, attachment to one's pet is negatively correlated with current psychological discomfort. Our hypotheses for attachment were based on the research by Albert and Bulcroft (1988) in which it was found that participants who were never-married and/or who did not have children in the

home were more attached to their pet than those who were married and who did not have children present in the home.

Methods

Participants

The initial participant sample included 104 North Carolina Wesleyan College students. The results from three participants were excluded, due to the submission of an incomplete survey, so the final sample included 101 participants. All participants were informed that they must be 18 years or older before giving consent. Of these participants, 90 reported their age, and 11 did not. The 90 participants who reported their age were between the ages of 18 and 24, with the mean age being approximately 20 (SD = 1.49). Of the 101 participants, 45 were male and 56 were female. The race of the participants included White/Non-Hispanic (37.62%), African American (32.67%), Latino/Hispanic (19.80%), Mixed (2.97%), African (1.98%), Asian American (0.99%), White/Hispanic (0.99%), Italian (0.99%), and Middle Eastern (0.99%).

The sample consisted of 81.19% residential students ($n = 82$), and 18.81% non-residential students ($n = 19$). It included 64 participants who owned pets and 37 participants who did not own pets. Of the pet owners, 10 participants lived with their pet while attending school (nine participants were non-residential students, and one participant was a residential student who had an Emotional Support Animal). Of the 54 participants who did not live with their pet while attending school, 51 were residential students, and three were non-residential students.

Procedure

Participants were asked to complete a survey between February 25, 2022 and March 4, 2022 via Qualtrics. The majority of the participants completed the survey at the beginning of their class after the researcher received permission from the professor to conduct it. Participation

was voluntary, and potential participants were advised not to participate if they had previously completed the survey. Participants were given a consent form to read and accept or decline prior to beginning the survey. The study was described as a survey on adjustment to college life, and participants were not informed of the exact purpose of the study prior to completion.¹

The survey included items that asked participants to rate their current levels of stress, anxiety, loneliness, and depression as well as their predicted levels of those variables if allowed to bring a pet on campus. Participants were also asked whether they would benefit from having a pet on campus and whether they were pet owners. Participants who were pet owners were asked to complete a nine-item attachment to pet scale (Albert & Bulcroft, 1988), along with additional questions about their pet, including their pet's name, their pet's personality, and whether their pet benefited their mental health.

Measures

Demographics

Gender and race of participants were measured using multiple-choice questions, with an open-ended response choice for answers that were not listed. Residential status was also measured using a multiple-choice question. Participant age was measured using an open-ended response.

Mental Health Status

Current mental health status was measured using a four-item, four-point Likert scale (1 = *Not at all*, 4 = *More than half the days*) in which participants rated how often they felt stressed, lonely, down or depressed, and anxious during an average week.

¹ With the exception of one professor who mentioned the purpose of the study when introducing the researcher to 14 students.

Predicted mental health status was measured using a 4-item, 4-point Likert scale (*1 = Not at all, 4 = More than half the days*) in which participants were asked to imagine that they were allowed to bring a pet to live with them on campus, and then rate how often they would feel stressed, lonely, down or depressed, and anxious during an average week.

Pets on Campus

Participants were given a multiple-choice question that asked what species of pet they would bring if given the opportunity to bring a pet to live with them on campus. An open-ended response choice was included for participants who would bring a pet species that was not listed. Participants were also given an option that indicated they would not bring a pet to campus.

Benefit of pets on campus was measured with a multiple-choice question, asking whether participants would benefit from having a pet on campus, and an open-ended response question, asking participants to describe why they would or would not benefit.

Pet Ownership

Pet ownership was assessed with a multiple-choice question about whether participants owned a pet. Participants who answered “No” were informed that it was the end of the survey and were given a debriefing statement. Participants who answered “Yes” were given additional questions assessing their pet’s location while they attend school, pet attachment, pet description, and whether their pet benefits their mental health.

Location of Pet

Participants were asked a multiple-choice question to determine whether their pet lives with them while they attend school. The only options for participants who did have pets living with them while attending school related to service/emotional support animals or commuters,

due to North Carolina Wesleyan College not allowing traditional pets, other than fish, in campus residence halls (NCWC, 2021b).

Pet Attachment

Pet attachment was measured using the nine-item, five-point Likert scale (*1 = Strongly Disagree, 5 = Strongly Agree*), adapted by Albert and Bulcroft (1988). Participants were asked to indicate their level of agreement with items, such as, “I feel closer to my pet than to many of my friends,” and, “There are times when my pet is my closest companion.”

Pet Description

Participants were asked to identify the number of pets they have and their species type with a multiple-choice question, allowing multiple answers and open-ended response options for each answer (example question: I have ___ dog(s)). Participants were also given an open-ended response question that asked them to mention the names of their pet(s) and describe the personality of their closest pet.

Benefit of Pets to Mental Health

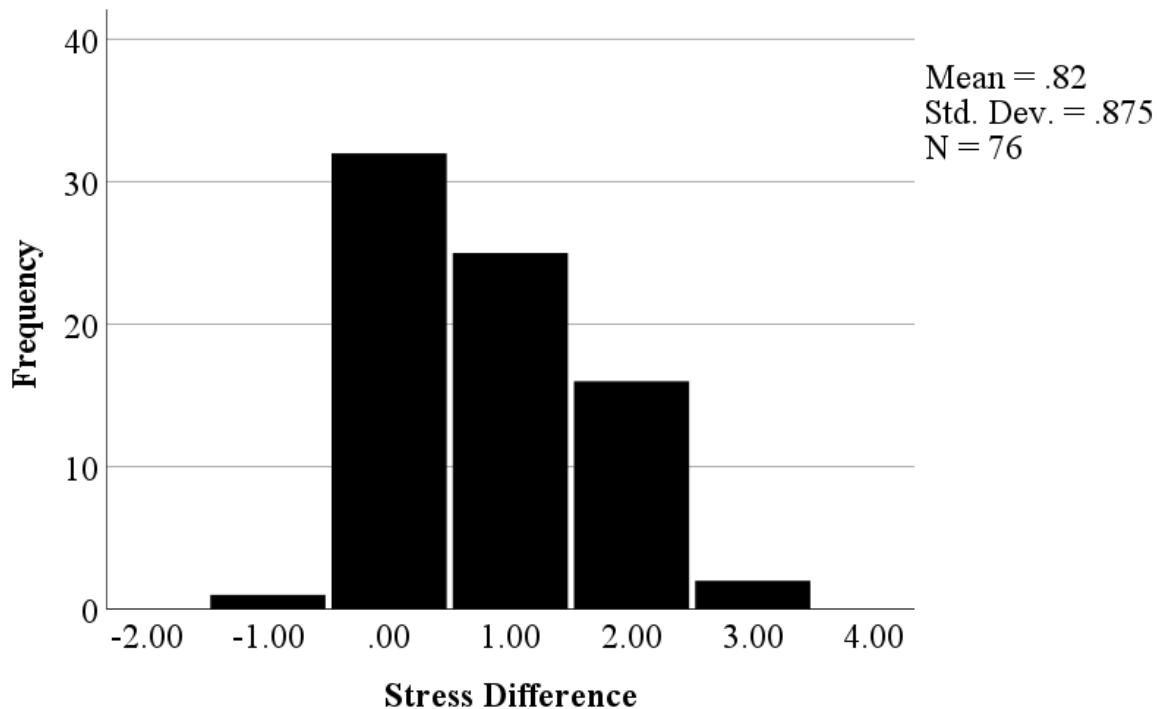
Participants were asked whether they feel their pet has an effect on their mental health. Those who answered “Yes” were additionally asked to explain how their pet affects their mental health, while participants who answered “No” were asked why they feel their pet does not affect their mental health.

Results

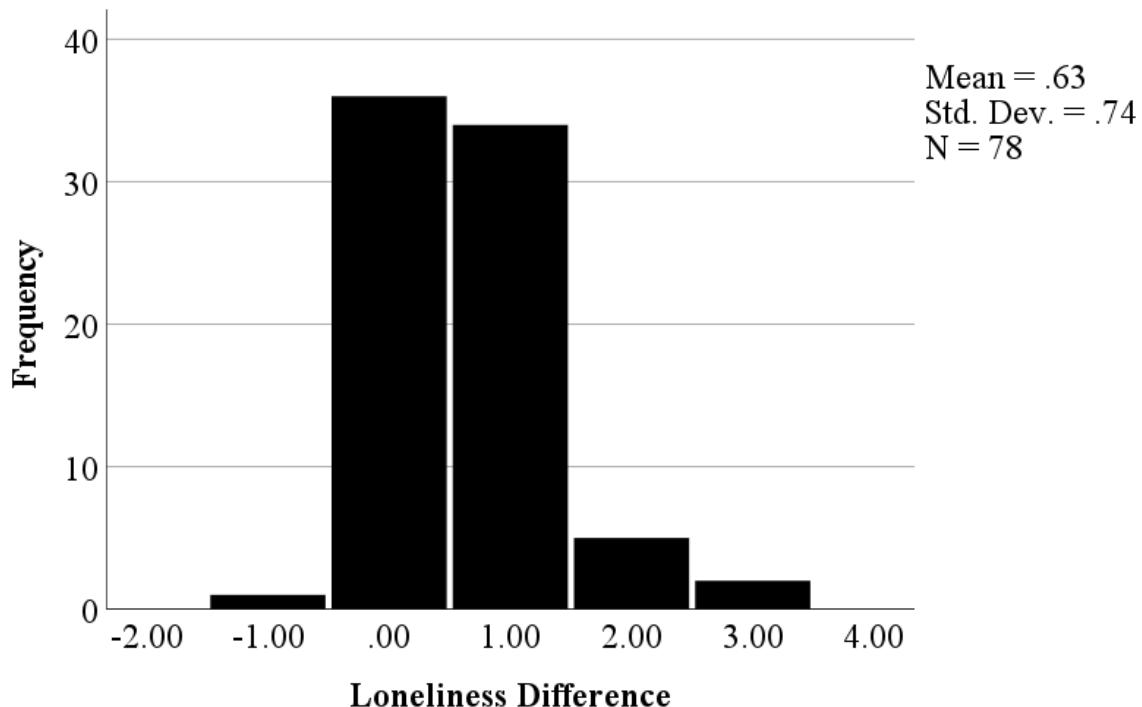
Mental Health Status

Psychological discomfort, a term we used as a measure of mental health, consisted of self-reported current levels of stress, loneliness, depression, and anxiety. The results of our frequency analysis (see Figures 1 - 4) showed that participants predicted a decrease in stress

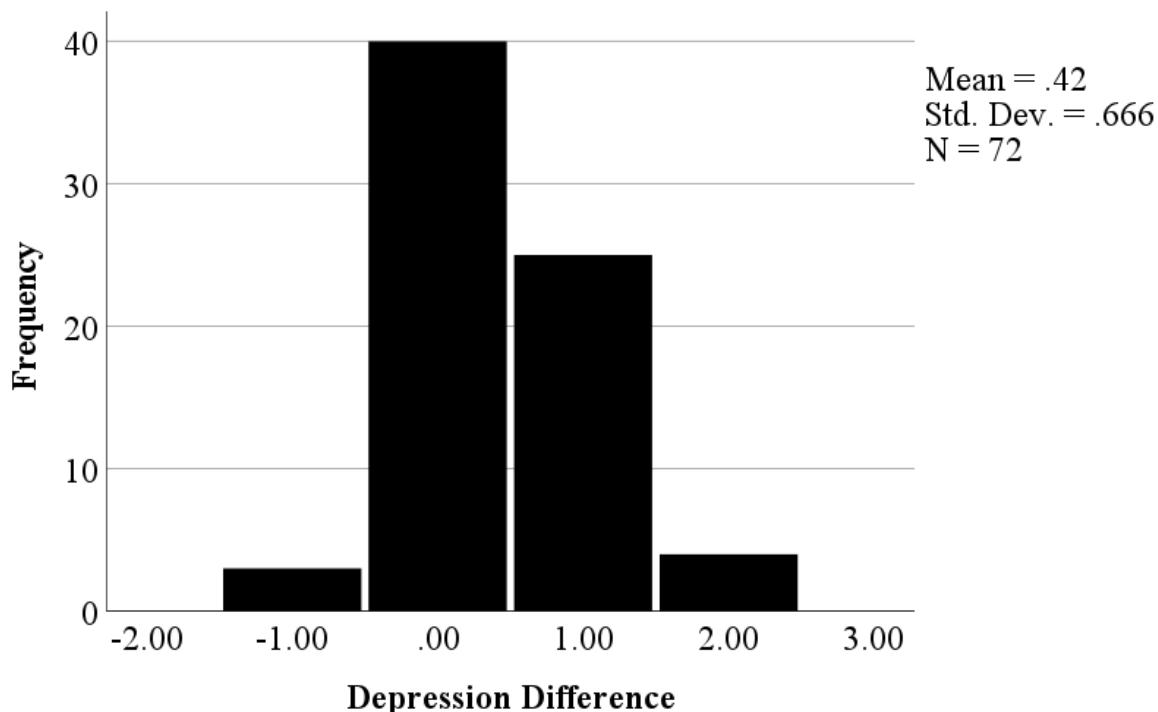
(56.6%), loneliness (52.6%), depression (40.3%), and anxiety (57.7%) if allowed to reside with a pet on campus. Some participants predicted an increase in stress (1.3%), depression (4.2%), and loneliness (1.3%) if allowed to reside with a pet on campus. There were also participants who predicted that there would be no difference in their levels of stress (42.1%), loneliness (46.2%), depression (55.6%), and anxiety (42.3%) if allowed to reside with a pet on campus. Compared to the percentage of participants who felt that their stress, loneliness, and anxiety levels would not change if allowed to reside with a pet on campus, a greater percentage of participants felt that their stress, loneliness, and anxiety levels would decrease if allowed to have a pet reside with them on campus.

Figure 1*Differences Between Current and Predicted Stress Levels*

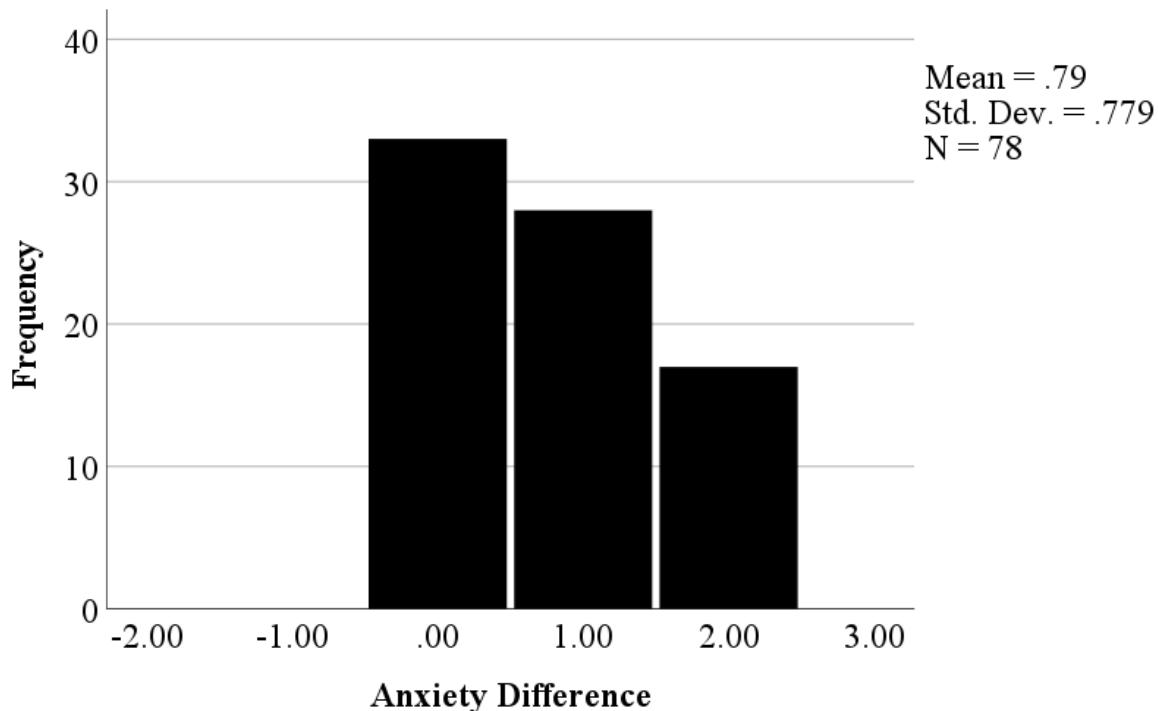
Note. Positive numbers on the x-axis indicate a decrease in scores, thus indicating that participants predicted lower levels of stress if allowed to reside with a pet on campus. Negative numbers on the x-axis indicate an increase in scores, thus indicating that participants predicted higher levels of stress if allowed to reside with a pet on campus. A difference of .00 indicates no change in current versus predicted stress levels.

Figure 2*Differences Between Current and Predicted Loneliness Levels*

Note. Positive numbers on the x-axis indicate a decrease in scores, thus indicating that participants predicted lower levels of loneliness if allowed to reside with a pet on campus. Negative numbers on the x-axis indicate an increase in scores, thus indicating that participants predicted higher levels of loneliness if allowed to reside with a pet on campus. A difference of .00 indicates no change in current versus predicted loneliness levels.

Figure 3*Differences Between Current and Predicted Depression Levels*

Note. Positive numbers on the x-axis indicate a decrease in scores, thus indicating that participants predicted lower levels of depression if allowed to reside with a pet on campus. Negative numbers on the x-axis indicate an increase in scores, thus indicating that participants predicted higher levels of depression if allowed to reside with a pet on campus. A difference of .00 indicates no change in current versus predicted depression levels.

Figure 4*Differences Between Current and Predicted Anxiety Levels*

Note. Positive numbers on the x-axis indicate a decrease in scores, thus indicating that participants predicted lower levels of anxiety if allowed to reside with a pet on campus. Negative numbers on the x-axis indicate an increase in scores, thus indicating that participants predicted higher levels of anxiety if allowed to reside with a pet on campus. A difference of .00 indicates no change in current versus predicted anxiety levels.

Current and predicted stress, loneliness, depression, and anxiety variables were analyzed using a two-tailed paired samples t-test (e.g., “How often do you feel stressed?” was paired with “How often would you feel stressed?”). Higher scores indicate greater psychological discomfort, and lower scores indicate lower levels of psychological discomfort. We hypothesized a significant decrease in scores from the current to the predicted variable in each pair. As predicted, a significant difference was found for each pair: stress ($M = .816$, $SD = .875$), $t(75) =$

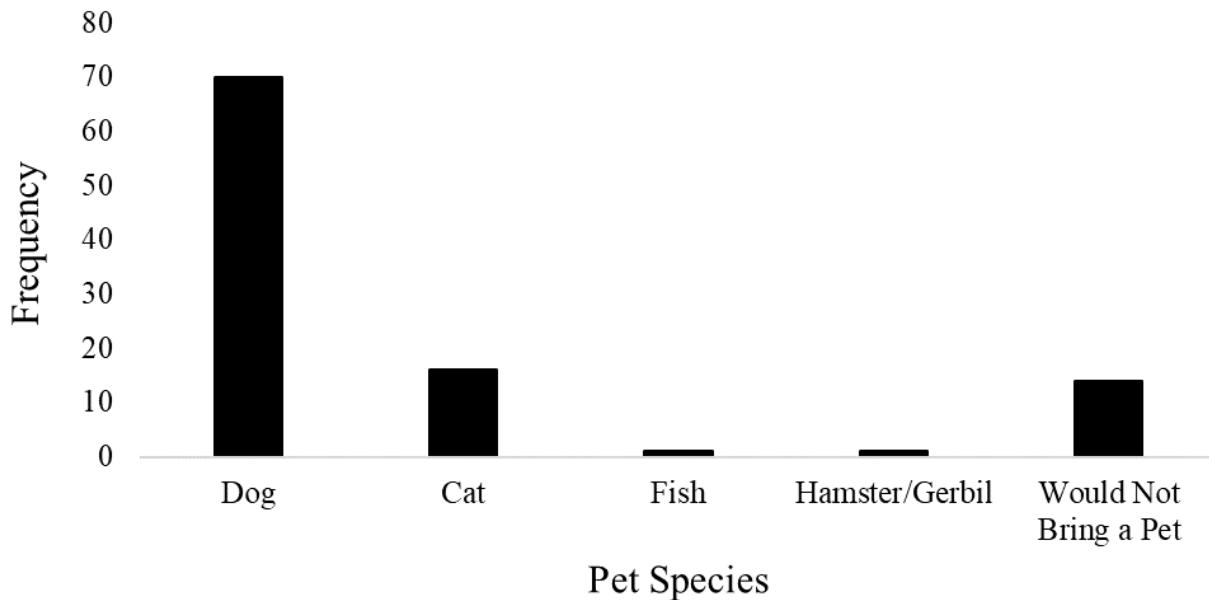
$8.128, p < .001$; loneliness ($M = .628, SD = .740$), $t(77) = 7.493, p < .001$; depression ($M = .417, SD = .666$), $t(71) = 5.308, p < .001$; and anxiety ($M = .795, SD = .779$), $t(77) = 9.013, p < .001$.

Pets on Campus

When participants ($N = 101$) were asked to state the species of pet they would bring to campus, 86 participants stated that they would either bring a dog ($n = 69$), cat ($n = 16$), or a fish ($n = 1$). Participants were asked to choose one pet they would bring to live with them on campus. However, one participant stated that they would bring both a dog and a hamster. In contrast, 14 participants stated that they would not bring a pet to campus (Figure 5).

Figure 5

Type of Pet Species Participants Would Bring as a Pet to Campus



For the benefit of pets on campus measure, 78.22% of participants ($n = 79$) felt that they would benefit from having a pet on campus, while 21.78% of participants ($n = 22$) felt that they

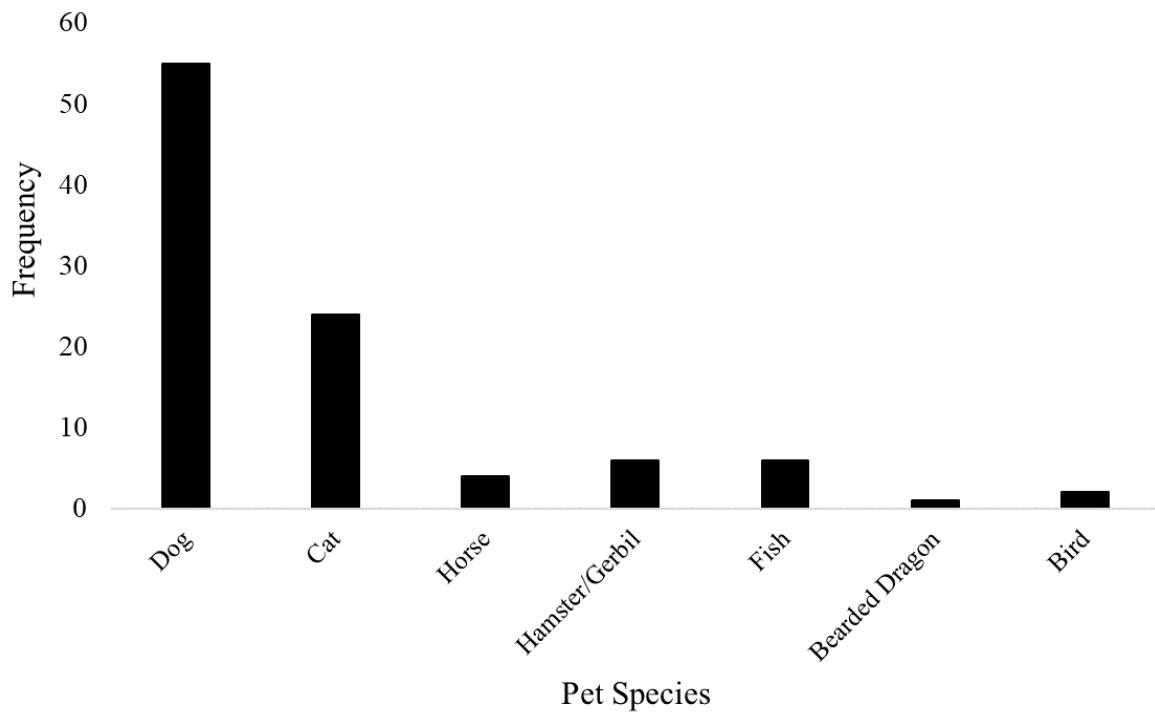
would not benefit from having a pet on campus. Also, 93.75% of pet owners felt that their pet has an effect on their mental health, while 6.25% of pet owners did not feel that their pet has an effect on their mental health.

Pet Ownership

Participants who owned a pet ($n = 64$) specified the number and species of pet(s) they own, and the total number of each pet species was calculated: dogs ($n = 55$), cats ($n = 24$), horses ($n = 4$), hamsters/gerbils ($n = 6$), fish ($n = 6$), bearded dragons ($n = 1$), and birds ($n = 2$) (Figure 6).

Figure 6

Species of Pets Owned by Participants



Pet Attachment

An internal consistency analysis was conducted using four variables: current levels of stress, loneliness, depression, and anxiety. Because Cronbach's alpha was calculated to be greater than .7 for this measure ($\alpha = .741$), these variables were averaged to form a composite current psychological discomfort variable. An internal consistency analysis was also conducted for the nine-item pet attachment scale (Albert & Bulcroft, 1988) that pet-owner participants completed, with Cronbach's alpha calculated as $\alpha = .861$, allowing us to compute a composite attachment to pet score. These composite scores were used to evaluate the correlation between attachment to pet and current psychological discomfort. For participants who reported not living with their pet while attending school ($n = 44$), a significant moderate correlation was found ($r = .431, p = .004$). For participants who reported living with their pet while attending school ($n = 9$), a significant correlation was not found ($r = .077, p = .844$).

Pet Description

Participants ($n = 64$) gave the names of their pets and described the personality of their closest pet in a variety of ways, ranging from a few words to a few sentences. Some participants described multiple pets, even though we did not inquire. An example of a participant's response containing a short description is:

Clumsy, happy, energetic.

An example of a longer response² given by a participant is:

Lazy for the most part of the day, loves to eat food at any time, follows me around the house and always wants to sit with me, loves to nap, excited to go on walks or

² Response has been edited for clarity and grammatical correctness.

go to the park, grumpy when near other dogs, curious when sniffing around outside.

A sample response³ from a participant who described multiple pets is:

Tom is my cat. He is very vocal and likes attention from everyone. He is a lot more aggressive than my other cat, Jelly. She is very docile and loving, especially towards my dog, Tony. Tony is playful and likes to be babied. He gets very jealous with us when we give our cats more attention than he is receiving, which is understandable, because he was our first family pet.

Thematic Analysis of Open-Ended Survey Responses

There were four open-ended questions on the survey, and participants were shown two of the four, depending on their response to the 'yes or no' question preceding them. The following themes describe the benefits and drawbacks that participants mentioned in regard to owning a pet⁴. If participants indicated that they would benefit from having a pet on campus, they were asked to describe how. If participants indicated that they would not benefit from having a pet on campus, they were asked to describe why. Further, if pet owner participants stated that their pet does affect their mental health, they were asked to describe how. If pet owner participants stated that their pet does not affect their mental health, they were asked to describe why.

Benefits

Theme: Reduces stress, while promoting calmness and relaxation. Many participants mentioned a potential change in their stress level if they were permitted to have a pet on campus. Pet owners also described a difference in their stress level when they are with their pets. Overall,

³ Response has been edited for clarity and grammatical correctness.

⁴ Responses have been edited for clarity and grammatical correctness.

50 participants described a decrease in stress and/or an increase in calmness because of a pet.

One participant stated:

I would benefit from having a pet on campus, because whenever I was stressed at home from either a sport and/or school, I could cuddle up with my dog and seek comfort from it and/or talk through my problems with the dog. Even though it cannot understand, it allows me to vent without being judged. I also think that dogs are great pets to have on campus, because they can sometimes pick up on certain human emotions like stress...

Theme: Lessens feelings of loneliness and increases social interactions. Many participants stated that they would feel less lonely ($n = 20$) and would interact more with others ($n = 3$) if permitted to have a pet on campus. Some participants stated that their current pet reduces their feelings of loneliness. One participant shared that their emotional support animal was helpful in increasing their social interactions:

I actually did have my emotional support dog on campus with me due to having an emotional disability. Having her on campus with me made me feel like I always had companionship and a reason to get out of my dorm and walk around the campus. She was also a conversation starter, and it allowed me to engage more with other students.

Theme: Relieves symptoms of depression and increases happiness. When asked to describe the potential benefits of having a pet on campus and the benefit of pets to their mental health, 41 participants mentioned that they would feel happier and less down or depressed. One person stated:

Having a pet with me on campus would allow me to have some extra joy in my life. Sometimes I get alone and bored or depressed, and a dog just brings a spark that you need in a time like that. They really are “man’s best friend,” because they’re always there for you whenever you need them.

Another participant described pets as having a unique ability to affect a person’s mental health:

Pets are a human’s best friend. I think pets bring a different kind of peace and happiness that no one else can give.

Theme: Decreases anxious feelings. There were 22 participants who stated that their anxiety *would be* reduced if allowed to have a pet on campus or that their anxiety *is* reduced due to having a pet. One participant mentioned:

I have anxiety and I feel that having my cats, or just one of them from home, with me would be an extreme boost and distraction from my anxious habits.

Theme: Provides emotional support and comfort. There were 24 responses that involved pets having or fulfilling the potential to provide emotional support when undergoing difficult circumstances relating to school, family, and other life pressures. In reference to the potential benefits of having a pet on campus, one participant stated:

Emotional support and something to look forward to greeting each day, especially since I’ve always been close with my family. Being away takes an emotional toll.

Regarding the same benefits, another participant mentioned:

It will help with emotionally supporting you when you have minor downfalls throughout college.

Theme: Promotes exercise. Ten participants mentioned that because certain pets require walking, a benefit of having a pet on campus is the newly established requirement to exercise. One participant mentioned that their pet inadvertently benefits their mental health when requiring them to go outside:

He always wants to play and go outside, so whenever I don't feel like it, I know that I have to, so I do it for him, and it makes me feel better that I'm up and moving.

Theme: Gives a sense of responsibility and something to take care of. Seven participants mentioned that having a pet on campus would give them the opportunity to learn how to be more responsible and to take care of something other than themselves. A common response was similar to that of the participant who wrote the following statement:

Pets make me happier, and having an animal means I won't be laying around all day, and it gives me a sense of responsibility to take care of someone other than myself.

Theme: Provides a distraction from life stressors. Six participants described pets as a healthy distraction from negative thoughts and stressors. Some reported an uplifted mood after interacting with their pet, especially after a long day. One participant stated:

My dog and my two cats always improve my mental health, because no matter how my day went at school or work, I can go home and immediately they are coming to get loved on and attention. This distraction can make me forget the things I am worried or anxious about, which also helps my mental health.

Drawbacks

Theme: Too much of a responsibility. Eight participants felt that having a pet on campus would require too much time and too many resources that they cannot provide as a student. One participant stated:

I feel that a pet is a big responsibility, especially to have on campus.

Although there are benefits, ultimately, pets such as dogs are time consuming.

Theme: A source of distraction that hinders focus. Three participants stated that having a pet on campus would be too distracting, as it would hinder their ability to focus on schoolwork. In particular, one participant compared owning a pet to parenting a child:

I believe having a pet on campus would probably be distracting, because caring for a pet is kind of the same as having a child, which is a responsibility on top of having to do schoolwork and attend class.

Discussion

Animals can aid in enhancing the mental health and well-being of people from different backgrounds, including college students (Jarolmen & Patel, 2018; Stewart et al., 2014) and those who are in assisted-living facilities (Colombo et al., 2005). Animal-Assisted Therapy and Animal-Assisted Activities can provide an avenue for those who do not have pets (as well as for those who do) to interact with animals and receive positive benefits (Jarolmen & Patel, 2018; Stewart et al., 2014). Benefits may include reduced physiological stress responses (Odendaal, 2000), improved mood (Colombo et al., 2005), and new friendship formation (Wood et al., 2015). Pets and Emotional Support Animals can fulfill this role by being a support during stressful circumstances as well as understanding and meeting their owner's needs (Service Dog

Certifications, 2021). They can foster friendship formation by way of facilitating the social-catalyst effect (Wells, 2004), and they can serve as a social support themselves (Wood et al., 2015). Schools should consider these benefits when determining whether they will institute pet policies for residential students.

The Present Study

Our study aimed to assess the effects of pets on the mental health of North Carolina Wesleyan College students. Participants completed a survey that assessed their self-reported current levels of stress, loneliness, depression, and anxiety as well as their self-reported predicted levels of those variables if they were allowed to bring a pet to reside with them on campus. Overall, approximately 78% of participants felt that they would benefit from having a pet on campus. The results indicated that participants predicted lower levels of stress, loneliness, depression, and anxiety during an average week when asked to imagine if they were allowed to bring a pet on campus. There were, however, some instances in which no difference was found between self-reported current and predicted levels of stress, loneliness, depression, and anxiety. One reason is the fact that three participants reported no feelings of stress, loneliness, depression, and anxiety (by selecting “Not at all”) for both the current and predicted psychological discomfort measures. Therefore, it is not mathematically possible for those participants to show a decrease in predicted stress, loneliness, depression, and anxiety levels as a result of residing with a pet on campus. Also, five participants did not answer all four of the questions that assessed current psychological discomfort, and seven participants did not answer all four of the questions that assessed predicted psychological discomfort. Therefore, we were unable to determine a difference between current and predicted psychological discomfort for those participants.

To explain the results of the quantitative questions, in response to open-ended questions, participants stated that a pet would provide emotional support and comfort, increase their frequency of social interactions, and provide a distraction from the pressures of life. Consistent with the studies by Stewart et al. (2014) and Jarolmen and Patel (2018), the quantitative and qualitative data collected in our study suggest that student mental health would improve if pets were allowed to reside on campus. Some of these results may be explained by the release of stress-relieving and mood-enhancing hormones released by the nervous and endocrine systems when interacting with animals (Odendaal, 2000). However, we did not assess physiological measures, so we cannot be certain of the hormonal responses of participants towards pets. Future research should be conducted to assess the physiological effects of pets on college students.

Pet owner participants completed a nine-item scale, adapted by Albert and Bulcroft (1988), assessing their attachment to their pet. We used the results of the attachment to pet scale to produce an average attachment score that we compared to their average current psychological discomfort score, determined by averaging the scores for the current stress, loneliness, depression, and anxiety variables. The results showed a moderate positive correlation between average current psychological discomfort and average pet attachment scores for participants who did not live with their pet while attending school. This correlation may be due to participants, while away at school, missing the psychological comfort and support their pet gives them.

A significant relationship was not found for students who live with their pet while attending school. This was due to a relatively small sample of participants who live with their pet while attending school. Therefore, we were unable to make conclusions about the correlation between average current psychological discomfort and average pet attachment scores.

Directions for Future Research

Most of the research conducted on human-animal interactions focuses on dogs as the animal of choice. However, there are other popular companion animal species, such as cats, birds, and horses. According to the American Veterinary Medical Association (AVMA), 38.4% (over 48 million) of Americans own dogs, 25.4% (nearly 32 million) own cats, 2.8% (3.5 million) own birds, and 0.7% (over 893,000) own horses as of 2018. Even though millions of Americans have other household pets besides dogs, there is not much research on the benefits of other species to human mental health and well-being (American Veterinary Medical Association [AVMA], n.d.). Future research should be conducted in which other companion animal species are the focus, since dogs are not the only species of animals that people prefer to interact with.

One limitation of our study is that participants were asked to complete a Likert scale about their current level of stress, loneliness, depression, and anxiety prior to their completion of open-ended questions referencing the benefits of pets. The sequence of these questions may have inadvertently influenced participant responses, as many participants mentioned stress, loneliness, depression, and anxiety in their responses. Another limitation of our study was that we were unable to assess whether pets on campus actually have an effect on the mental health of North Carolina Wesleyan College students, due to the fact that NCWC does not allow pets (with the exception of fish and service animals) to reside on campus (NCWC, 2021b).

Due to the unanswered question of the actual effect of pets on the mental health of North Carolina Wesleyan College students, a future study would aim to evaluate this question by way of a within-subjects design in which the same psychological discomfort variables (stress, loneliness, depression, and anxiety) were measured. An experimental group, consisting of residential student pet-owners, would be compared to a control group, consisting of residential

students who did not own a pet. At multiple points throughout the semester, participants would be asked a series of questions to evaluate psychological discomfort during an average week, similar to the present study (e.g., “How often do you feel stressed?”). It is commonly assumed that student stress levels, along with other variables of psychological discomfort, rise as the semester progresses. Therefore, we would hypothesize that although there may be an increase in each psychological discomfort variable measured as the semester continues, pet owners will see a smaller increase than those who do not own a pet.

Proposal to Amend the Pet Policy at North Carolina Wesleyan College

It is a school’s responsibility to ensure the safety and health of students on campus if it has the means to do so. The results of this study indicate that students believe that pets on campus would be beneficial to their mental health in a variety of ways, including an increase in productivity and physical activity, along with a decrease in stress, loneliness, depression, and anxiety. Using both the quantitative and qualitative results of this study, that describe the predicted and actual benefits of pets to students, North Carolina Wesleyan College should strongly consider the adoption of a policy that would allow residential students to have a pet (other than a fish) reside with them on campus during the academic year.

NCWC allows fish and registered service animals to reside with students on campus (NCWC, 2021b). Although the allowance of Emotional Support Animals (ESAs) to reside on campus is not explicitly stated in the North Carolina Wesleyan College 2021-2022 Student Handbook, it is required by law (Gibeault, 2021). An ESA is an animal that is authorized by a licensed mental health professional to provide their owner with emotional comfort due to a disabling medical illness. Such illnesses include, but are not limited to, Attention Deficit Disorder (ADD), learning disorders, Autism, General Anxiety Disorder, Bipolar Disorder,

cognitive disorders, depression, and Post Traumatic Stress Disorder (PTSD). ESAs are protected under the Fair Housing Act, so they are permitted to stay in most residential areas without the requirement of a pet fee paid by the owner. ESAs are not required to be registered under the Americans with Disabilities Act, but it is an option for owners to do so (Service Dog Certifications, 2021).

Unlike service animals, ESAs are not required to be professionally trained, because they are not required to perform specific tasks. However, ESAs must be well-behaved and non-threatening to the health and safety of others (Service Dog Certifications, 2021). ESAs are not allowed in places in which food is sold (Service Dog Certifications, 2021), and they are not allowed on airlines as of January 11, 2021 (Gibeault, 2021).

The only distinction between an ESA and a pet is that an ESA is prescribed by a licensed mental health professional. A person who has a mental illness or emotionally disabling condition could speak with a therapist and receive an ESA letter within one to three business days (ESA Doctors, n.d.), which means that a pet could potentially become an ESA one day after their owner meets with a therapist.

The purpose of this section is not to undermine the severity of mental illness, but to shine light on the subtle difference between a pet and an ESA. This legality could be the one thing separating a student in need of psychological and emotional comfort from an enhanced quality of life. Students may live with undiagnosed mental illnesses because of the lack of resources to obtain a therapist or due to them not wanting to have a “mental illness” label on their record.

North Carolina Wesleyan College should take this subtle distinction between a pet and an ESA into account when making the decision on the allowance of pets on campus. Animals have been shown to benefit both their owners and those around them. The presence of pets on college

campuses could lead to enhanced well-being for many people on campus, including faculty, staff, and students, as research has shown that one does not need to be an animal-lover to benefit from human-animal interactions (Shiloh et al., 2003). Pets should be allowed in college residence halls not only because of the physiological benefits research has shown they provide (Odendaal, 2000), but also because of the psychological benefits they provide for their owners, demonstrated by previous research (Colombo et al., 2005; Jarolmen & Patel, 2018; Stewart et al., 2014; Wood et al., 2015; Yarborough et al., 2018) and the present study.

References

Albert, A., & Bulcroft, K. (1988). Pets, families, and the life course. *Journal of Marriage and Family*, 50(2), 543–552. <https://doi.org/10.2307/352019>

American Psychological Association. (n.d.). *Stress*. APA Dictionary of Psychology. Retrieved November 13, 2021, from <https://dictionary.apa.org/stressor>.

American Veterinary Medical Association. (n.d.). *U.S. pet ownership statistics*. Retrieved November 12, 2021, from <https://www.avma.org/resources-tools/reports-statistics/us-pet-ownership-statistics>.

Beetz, A., Uvnäs-Moberg, K., Julius, H., & Kotrschal, K. (2012). Psychosocial and psychophysiological effects of human-animal interactions: The possible role of Oxytocin. *Frontiers in Psychology*, 3, 1–15. <https://doi.org/10.3389/fpsyg.2012.00234>

Colombo, G., Buono, M. D., Smania, K., Raviola, R., & De Leo, D. (2005). Pet therapy and institutionalized elderly: A study on 144 cognitively unimpaired subjects. *Archives of Gerontology and Geriatrics*, 42, 207–216. <https://doi.org/10.1016/j.archger.2005.06.011>

Copeland, W. E., McGinnis, E., Bai, Y., Adams, Z., Nardone, H., Devadanam, V., Rettew, J., & Hudziak, J. J. (2020). Impact of covid-19 pandemic on college student mental health and wellness. *Journal of the American Academy of Child & Adolescent Psychiatry*, 60(1), 134–141. <https://doi.org/10.1016/j.jaac.2020.08.466>

ESA Doctors. (n.d.). *How to get an emotional support animal letter*. Retrieved November 13, 2021, from <https://esadoctors.com/how-to-get-emotional-support-animal-letters/#:~:text=ESA%20Doctors%20will%20send%20your,depending%20on%20your%20specific%20needs>.

Evans, T. M., Bira, L., Gastelum, J. B., Weiss, L. T., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature Biotechnology*, 36(3), 282–284.
<https://doi.org/10.1038/nbt.4089>

Gibeault, S. (2021). *Everything you need to know about emotional support animals*. American Kennel Club. Retrieved November 13, 2021, from <https://www.akc.org/expert-advice/news/everything-about-emotional-support-animals/>.

Jarolmen, J. A., & Patel, G. (2018). The effects of animal-assisted activities on college students before and after a final exam. *Journal of Creativity in Mental Health*, 13(3), 264–274.
<https://doi.org/10.1080/15401383.2018.1425941>

King, T., Marston, L. C., & Bennett, P. C. (2012). Breeding dogs for beauty and behaviour: Why scientists need to do more to develop valid and reliable behaviour assessments for dogs kept as companions. *Applied Animal Behaviour Science*, 137(1-2), 1–12.
<https://doi.org/10.1016/j.applanim.2011.11.016>

McConnell, A. R., Brown, C. M., Shoda, T. M., Stayton, L. E., & Martin, C. E. (2011). Friends with benefits: On the positive consequences of pet ownership. *Journal of Personality and Social Psychology*, 101(6), 1239–1252. <https://doi.org/10.1037/a0024506>

Mortier, P., Cuijpers, P., Kiekens, G., Auerbach, R. P., Demyttenaere, K., Green, J. G., Kessler, R. C., Nock, M. K., & Bruffaerts, R. (2018). The prevalence of suicidal thoughts and behaviours among college students: A meta-analysis. *Psychological Medicine*, 48(4), 554–565. <https://doi.org/10.1017/s0033291717002215>

North Carolina Wesleyan College. (2021a). “Fast facts 2021.” Retrieved from <https://ncwc.edu/admissions/>.

North Carolina Wesleyan College. (2021b). *North Carolina Wesleyan College 2021 - 2022 Student Handbook*. Retrieved from https://ncwc.edu/wp-content/uploads/2021/07/2021-2022-STUDENT-HANDBOOK_082021.pdf.

Odendaal, J. S. J. (2000). Animal-assisted therapy — magic or medicine? *Journal of Psychosomatic Research*, 49, 275–280. [https://doi.org/10.1016/s0022-3999\(00\)00183-5](https://doi.org/10.1016/s0022-3999(00)00183-5)

Service Dog Certifications. (2021). *Emotional support dog requirements*. Retrieved November 13, 2021, from <https://www.servicedogcertifications.org/emotional-support-dog-requirements/>.

Shiloh, S., Sorek, G., & Terkel, J. (2003). Reduction of state-anxiety by petting animals in a controlled laboratory experiment. *Anxiety, Stress & Coping*, 16(4), 387–395. <https://doi.org/10.1080/1061580031000091582>

Stewart, L. A., Dispenza, F., Parker, L., Chang, C. Y., & Cunnien, T. (2014). A pilot study assessing the effectiveness of an animal-assisted outreach program. *Journal of Creativity in Mental Health*, 9(3), 332–345. <https://doi.org/10.1080/15401383.2014.892862>

Wells, D. L. (2004). The facilitation of social interactions by domestic dogs. *Anthrozoös*, 17(4), 340–352. <https://doi.org/10.2752/089279304785643203>

Wood, L., Martin, K., Christian, H., Nathan, A., Lauritsen, C., Houghton, S., Kawachi, I., & McCune, S. (2015). The pet factor - companion animals as a conduit for getting to know people, friendship formation and social support. *PLOS ONE*, 10(4). <https://doi.org/10.1371/journal.pone.0122085>

Yarborough, B. J., Stumbo, S. P., Yarborough, M. T., Owen-Smith, A., & Green, C. A. (2018).

Benefits and challenges of using service dogs for veterans with posttraumatic stress

disorder. *Psychiatric Rehabilitation Journal*, 41(2), 118–124.

<https://doi.org/10.1037/prj0000294>

All Survey Items

Question

Please select the category that best describes your feelings during an average week:

Not at all Several days More than half the days Nearly every day

How often do you feel stressed?

How often do you feel lonely?

How often do you feel down or depressed?

How often do you feel anxious?

If you had an opportunity to bring one pet on campus to live with you, what pet species would you bring?

- Dog
- Cat
- Hamster/Gerbil
- Fish
- Other (specify)
- I would not bring a pet to campus

Do you feel that you would benefit from having a pet on campus?

Yes No

How do you feel that you would benefit from having a pet on campus?

Why do you feel that you would not benefit from having a pet on campus?

Imagine that you are allowed to bring a pet to live with you while you attend school. Then, answer the following questions about how you would feel during an average week:

Not at all Several days More than half the days Nearly every day

How often would you
feel stressed?

How often would you
feel lonely?

How often would you
feel down or
depressed?

How often would you
feel anxious?

Do you have a pet?

Yes No

Does your pet live with you while you attend school?

Yes, I have a documented Service Animal who lives with me on campus.

Yes, I have a documented Emotional Support Animal who lives with me on campus.

Yes, I commute to school, so my pet lives with me at home.

No, I live on campus, but my pet lives at home with someone else.

No, I commute to school, but my pet lives with someone else.

Please indicate your level of agreement with the following items:

1 =	2 =	3 =	4 =	5 =
Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree

I feel closer to my pet than to many of my friends.

I like my pet because he/she accepts me no matter what I do.

My pet makes me feel loved.

My pet gives me something to talk about with others.

I feel closer to my pet than to my other family members.

My pet keeps me from being lonely.

I like my pet because he/she is more loyal than other people in my life.

My pet gives me something to take care of.

There are times when my pet is my closest companion.

Please select the species of pet you have and specify the number of each in the textbox.

- I have __ dog(s).
- I have __ cat(s).
- I have __ horse(s).
- I have __ hamster(s)/gerbil(s).
- I have __ fish.
- I have another pet species. (Specify species type and number of each.)

What is/are the name(s) of your pet(s)?

Describe the personality of your closest pet.

Do you feel that your pet has an effect on your mental health?

Yes No

How does your pet affect your mental health?

Why do you feel that your pet does not affect your mental health?