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Examining the Effects of Emotional Support and Therapy Animals on Anxiety and Depression in University Students: A Literature Review

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Examining the Effects of Emotional Support and Therapy Animals on Anxiety and Depression in University Students: A Literature Review

by

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Dedication

"Animals spend a lot of time being still so when we do they lose their logical mistrust of us."

— Jim Harrison, *Returning to Earth*

The following thesis is dedicated to the two best companions I've had the pleasure of befriending; Tenaya, my oldest friend who has since passed away, and my sweet emotional support animal, Sideways.

Abstract

University students are an especially vulnerable population to anxiety and depression. Simultaneously, they have little access to mental health resources, but emotional support and therapy animals may provide a feasible solution. This literature review explored the ways in which emotional support and therapy animals may be of help to young adults in higher education settings. Specifically, this collection of research aimed to contour the benefits that come with the applied use of emotional support animals (ESAs) and animal-assisted therapy (AAT) as mental health interventions, and how they set themselves apart from alternative treatment options. This synthesis of the evidence found that animals can reduce university students' anxiety and depression through providing roles of companionship, emotional support, therapy, assistance, and service, though the utilization of ESAs and varying methods of AAT remained the primary focus of this review.

Keywords: *Animal-assisted therapy (AAT), emotional support animal (ESA), therapy dog (THD), assistance animal (AA), service animal (SD), animal visitation program (AVP), animal-assisted intervention (AAI)*

Introduction

Among other widespread health issues, mental illness is common in the United States, with approximately one in five adults experiencing it annually (Mental Illness, 2023). Mental illness is a broad overview term for disorders that affect mood, cognition, and behavior (*Mental Illness - Symptoms and Causes*, 2022). Of those, the most common are anxiety and depression (Mental Illness, 2023). The Centers for Disease Control and Prevention (CDC) reports that 12.5% of adults 18 or older experienced "regular feelings of worry, nervousness, or anxiety," and 5% of adults 18 and older experienced "regular feelings of depression," as of 2022, from data provided by the National Health Interview Survey's Early Release Program (*Mental Health*, 2023). In addition, a reported 57.2 million people visited physician offices with primary diagnoses falling under mental health disorders, while 5.8 million visited the emergency room with a primary diagnosis falling under mental, behavioral, and neurodevelopmental disorders (*Mental Health*, 2023). Further, the number of suicide deaths per 100,000 population was 14.5, while the total number of suicide deaths was 48,183 (*Mental Health*, 2023).

There are a number of reasons as to why adults in the United States are experiencing mental health issues at such a high rate, and often, these mental health problems are thought to go underreported (Galea, 2017). Contributors might include environment, genetics, childhood, and income (Galea, 2017), which are inherently circumstantial, and therefore, common. With the addition of external stressors such as pursuing a degree, the mental health status of young adults specifically has been deemed a "crisis" in current research (Gruber, et al., 2023), with student anxiety and depression being associated with lower GPAs and a higher likelihood to drop out of college (Eisenberg, et al., 2009). According to a qualitative analysis published by the Journal of American College Health, a survey by the American College Health Association revealed that in

a sample of U.S. college students, 66.4% of them had “overwhelming anxiety,” while 46.2% reported low-functioning depression (Kirnan, et al., 2022). While students make up a relatively small fraction of national sample surveys for U.S. adults, they are still included in the population with measures such as the Healthy Minds Study (HMS) and the ACHA-National College Health Assessment (NCHA) (Lipson et al., 2022). Even with such alarming prevalence, only 20.3% of U.S. adults had received treatment for their mental health as recently as 2020 (*Mental Health Treatment Among Adults: United States, 2020*, 2021), with the World Health Organization (WHO) stating in 2017 that while rates of depression only continue to climb, many people are unable to receive help from a specialist (Impram & Allahverdi, 2024). As such, what alternative methods are there to current mental health interventions to increase treatment seeking?

Animals as Mental Health Support

Animal-assisted therapy (AAT) is a therapeutic method that aids in the assuagement of psychological and physiological symptomology in clients seeking a “goal-oriented non-drug treatment” facilitated by human specialist(s) and trained animals (Fine, 2010). For historical context, the therapeutic characteristics of pets were first published by Bossard in 1944, while an article published by Levinson in 1962 introduced “pet-therapy,” aptly titled *The Dog as a Co-Therapist* (Kil, 2021). With this came the use of the current term, animal-assisted therapy (Frieson, 2009). Still, AAT remains a relatively new addition to the field of psychology, with the first reported case being in 1972 (Kil, 2021). As for emotional support animals (ESAs), there is no identifiable date in which the first one was formally recognized, but their relevance is becoming increasingly visible (Saunders, 2020). However, ESAs are not the same as therapy animals involved in AAT, despite the notable similarity of a wide species range. For example, “dogs, cats, horses, farm animals, birds, hamsters, fish, and dolphins” historically all have been

used in therapeutic settings (Hawkins, et al., 2019), and ESAs have no species limitations, though they must be legally domesticated ("Companion Animals," 2023).

Since its inception in 1944 (Kil, 2021), there has been a growing body of research on companion animals, or more commonly known as pets. Much of the discourse centers on their contribution to increased wellbeing in those suffering from a variety of mental illnesses, particularly in cases of anxiety and depression. Often, it is difficult to define the role of an emotional support animal (ESA) or therapy animal (AA, THD), as it is first necessary to define the role of a companion animal. This definition is frequently seen when referring specifically to dogs, though companion animals actually may include cats, birds, horses, and other legally domesticated pets ("Companion Animals," 2023). Though terminology may be confused between the three categories due to serving somewhat similar purposes (Pongrácz & Dobos, 2023), a companion animal is largely defined by its relevance in a person's life and requires no formal certification like an emotional support or therapy animal does.

In addition, the intended purpose of ownership of an animal, or conversely, lack of ownership as with AAT in clinical settings, is what defines the role of that animal. If the animal's primary purpose is companionship, it is aptly considered a companion animal or pet. However, if the animal's primary purpose extends into a *responsibility* to help alleviate certain mental illness-related symptoms, the animal is likely going a step further and offering emotional support and/or therapeutic help, depending on what setting they are utilized in, and how. Companion animals and ESAs are both live-in, though ESAs are afforded residential access under the Fair Housing Act and Rehabilitation Act (*Service, Emotional Support, and Therapy Animals*, 2024). For therapy animals assisting with AAT, their involvement is limited to clinical settings such as hospitals, schools involved in animal visitation programs (AVPs), outpatient care, and other

mental health facilities (*Service, Emotional Support, and Therapy Animals*, 2024; *Emotional Support Animals*, 2021).

Finally, it is important to be mindful of how ESAs and AAT-involved therapy animals differ from assistance animals (AAs) and service animals (SDs). Assistance animals, like emotional support animals, require a letter denoting necessity from a medical doctor or therapist, but are often more attuned to physiological issues relating to one's disability (*Fair Housing Act and Assistance Animals*, 2024). However, this is not to say AAs do not aid in emotional support as well, as AAs by definition provide a wide range of help to their owners (*Fair Housing Act and Assistance Animals*, 2024). Some real-world examples of assistance animals are provided by the Humane Society (2024), including but not limited to: "a cat who can detect and alerts their companion of oncoming seizures, a dog who alleviates a person's depression or anxiety, a cat who reduces a person's stress-induced pain, and a bird who alerts their hard-of-hearing companion when someone has come to the door" (*Fair Housing Act and Assistance Animals*, 2024). Service animals, however, are limited by species to dogs, and in rare cases, miniature horses (*Service, Emotional Support, and Therapy Animals*, 2024). Further, service animals receive specialized training to assist their owners with physical and/or psychological disabilities in order to be recognized under the American Disabilities Act (ADA), the Fair Housing Act (FHAct), and Air Carrier Access Act (ACAA) (*Service, Emotional Support, and Therapy Animals*, 2024), whereas AAs are usually limited to residential access. In other words, service animals are afforded the most access due to the owners' right to accompaniment at all times. For further clarification, Kirnan and colleagues, authors frequently referenced in this literature review, provide *Table 1. Defining characteristics of differing animal roles* (Kirnan, et al., 2022) to facilitate a specialized understanding of these key distinctions.

Table 1. Defining characteristics of differing animal roles.

	Differing roles of animals			
Characteristic	Service animals	Therapy animals	Emotional support animals	Pets
Species	Dogs or miniature horses	Restrictions placed by certifying organization	Any species	Any species
Beneficiary	Owner	Multiple outside of home	Owner	1 or more in home
Purpose	Perform specific tasks related to an individual's disability	Provide social support or comfort (AAA) or perform specific tasks as part of an individualized treatment plan (AAT)	Provide comfort or promote emotional well-being related to an individual's mental health needs	Provide companionship
Training	Extensive (i.e., guide dog or seizure alert dog)	Basic obedience and sociability	None	None
Access	All public locations	Access to locations defined by organization they serve (i.e., school, senior facility)	Limited to residential dwellings. Access to public locations, such as a college classroom, may be granted on a case-by-case basis	Generally not allowed in public locations
Documentation	None	Testing and certification through therapy organization	Letter from mental health professional attesting that the animal relieves symptoms	None

Note. Information derived from several sources.[2,15,17–21]

In summary, there are five working titles for animals who provide therapeutic help to people in need: companion, emotional support, therapy, assistance, and service. Each role is nuanced in its intended purpose of ownership, level of care provided, type of species, legal accessibility, and training. For the purpose of this literature review, the roles of emotional support animal and therapy animal in various AAT settings will be a primary focus. Given the increasing need for mental health services, the intention of this literature review is to compile evidence in support of the benefits of utilizing ESAs and AAT in college student populations. Due to the frequency and consistency at which emotional support animals and therapy animals interact with their human counterparts, it is possible that the use of ESAs and/or AAT may serve as feasible mental health interventions for young adults in higher education settings with anxiety and depression. There are few other mainstream therapy options that involve treatment exposure in this way, which notably sets the use of ESAs and AAT apart.

Literature Review

Emotional Support Animals and University Students

Kirnan and colleagues suggested that high rates of anxiety and depression in university students may be in part, due to increased stress from big life transitions, time management difficulties, and increased academic rigorousness when they first get to college (Kirnan, et al., 2022). However, some of these symptoms may become more manageable, or even alleviated, with the help of an ESA. Though Kirnan and colleagues primarily focused on the use of ESAs in their qualitative analysis, they also introduced some supporting evidence in favor of AAT and other animal exposure methods as well. The authors referenced research by Binfet and Passmore (2016), writing that AAT, which excludes the use of ESAs but is still a therapeutic example of animal exposure, is particularly beneficial to those experiencing social isolation or social transition periods, such as young adults moving to college for the first time (Binfet & Passmore, 2016).

In their analysis, Kirnan and colleagues reflected on just how powerful animal exposure can be for students, even in single-event cases involving animal visitation programs (AVPs). They referenced a study in which freshmen who participated in a singular AVP event showed considerable reductions in their experiences of "stress and homesickness" (Binfet & Passmore, 2016). However, in the study's follow-up it was noted that the benefits of AVP largely decreased within the hours following and decreased altogether after a two-week period (Binfet & Passmore, 2016). Therefore, Kirnan and colleagues argue that due to the daily exposure and comfort offered by an ESA, rather than in fixed intervals as with AVPs, they may benefit their owners in a stronger and more sustained way (Kirnan, et al., 2022).

In arguing for the positive impact of ESAs, Kirnan and colleagues offered their own definition of the role: “ESAs provide comfort to or enhance emotional well-being of their owners, are not species restricted, do not require specific training, are afforded residential access, and require documentation from a mental health professional” (Kirnan, et al., 2022). This makes treatment significantly more accessible to people with varying access to psychological resources, illuminating accessibility as another dimension in the ESA definition. As long as there is sufficient access to university-provided counseling services where ESAs may be prescribed, and residential waivers for ESAs in the home (or dorm), they are a feasible treatment option for many students.

Beyond the feasibility aspect of ESAs, there is research that suggests the physiological benefits of animal exposure are fast-acting and extremely effective, particularly for reducing heart rate and blood pressure with touch and petting (Kirnan, et al., 2022), contributing not only to mental, but physical health as well. As such, an action as simple as placing a hand on an ESA may significantly decrease anxiety in those struggling with physical symptoms, and play may be an effective temporary distraction from negative thought cycles.

Further, there are several psychological benefits that may be noted. As referenced above, one of the primary additions to owning an ESA is the facilitation of community through indirect and direct social support (Kirnan, et al., 2022). Kirnan and colleagues noted that pets innately provide support through their “non-judgmental nature,” resulting in a love that is unconditional, dependable, and loyal (Kirnan, et al., 2022), which is characteristic of what one might hope for in a good friend. In addition, the authors referenced research by Wood and colleagues (2015), indicating how pets can act as a “social catalyst,” noting that pet owners, specifically dog owners, meet more people, and tend to form more friendships from those interactions (Kirnan, et

al., 2022). That being said, the unconditional acceptance provided by animals can be beneficial in the face of stigma and misunderstanding in cases where human friendships are affected by one's mental illness (Brooks, et al., 2016), as well as "enduring trust" through relapsing behaviors or failures to meet coping skills (Brooks, et al., 2016).

The emotional benefits of these animals even go as far as reducing feelings of loneliness, especially in populations living alone (Kirnan, et al., 2022). In a reference to research by McNicholas and colleagues (2005), the authors suggested the "emotional bond" between an animal and their owner can be equal to that of a human companion, and therefore may compensate for a lack of consistent, human socialization (Kirnan, et al., 2022). Like the aid that ESAs can provide for their anxious owners, the ability to assuage feelings of loneliness can be beneficial in those struggling with depression, as depressed individuals tend to be more socially isolated (Elmer & Stadtfeld, 2020).

Kirnan and colleagues note some barriers that are worth consideration, though the support offered by ESAs may outweigh them under the stipulation that ownership responsibility and awareness are correctly employed. The authors write that such ownership responsibility must be prioritized in order to maintain the health and safety of the animal, as varying species require respective care (Kirnan, et al., 2022). In addition, the financial aspect of providing for an animal can be a burden (Kirnan, et al., 2022), especially in young adults with newly acquired financial independence. Finally, universities may vary in their residential policies for live-in ESAs, and therefore, the authors implore those seeking the help of an ESA to consider such factors before bringing them to campus (Kirnan, et al., 2022).

To summarize, the authors quoted qualitative data from interviews with clients by Wisdom and colleagues (2009), stating that the four main animal roles discovered were as

follows: "(1) providing empathy or therapy, (2) promoting social connections, … (3) filling the role of family, and (4) fostering empowerment and self-efficacy" (Kirnan, et al., 2022). Such data stands as exemplary of the wide berth of support that animals may provide to their humans. Beyond fostering social community and providing therapeutic relief, number 4, specifically pertaining to self-efficacy, stands out as a major psychological benefit. There is increasing research that explores the relationship between self-efficacy and mental illnesses such as anxiety and depression, some finding multiple associations between self-efficacy, mood, and stress levels. University students in particular demonstrate that increased feelings of self-efficacy contribute to "positive mental health outcomes" (Rohde, et al., 2023). With this in mind, ESAs are a feasible treatment option that thoroughly contribute to these four main quadrants, overall improving one's circle of mental well-being.

In a separate study from the Chicago School of Professional Psychology, qualitative data from seven participants' subjective experiences with their ESAs was collected and analyzed as the author pursued her doctorate (Saunders, 2020). The study utilized a phenomenological method to capture data (Saunders, 2020). Participants were recruited through a snowball sampling technique or voluntarily by means of flyers, blogs, message boards posted online and around the city of Chicago (Saunders, 2020). Four out of the seven total participants (N = 7) were currently seeking a degree in either a graduate or doctorate program. All four of the participants who were in school were in their early twenties and owned dogs as their ESA of choice (Saunders, 2020). To maintain confidentiality, Saunders used pseudonyms for all participants, including the animals (Saunders, 2020). All interview procedures were conducted in accordance with the ethical guidelines of the Institutional Review Board at the Chicago School of Professional Psychology (Saunders, 2020).

The first participant's name was Jordan, who was pursuing her doctorate. Jordan's ESA was named Mia, an 11-year-old, small mixed breed who assisted Jordan primarily with anxiety. However, Mia had also previously assisted with symptoms of PTSD and disordered eating when she still served as Jordan's service animal (Saunders, 2020). In her interview, Jordan reflected on her strong feelings of attachment towards animals, not unlike the idea of the "emotional bond," theorized to be of equal strength to human companionship by McNicholas and colleagues (2005) (Kirnan, et al., 2022; Saunders, 2020). She recalled that in times throughout her life, she had felt she had more animal companions than human ones, which resulted in strong feelings of closeness (Saunders, 2020). The second participant in the higher education group was named Penelope, who was enrolled in a graduate program. Her ESA, a nine-year-old toy poodle named Muffin, provided her emotional support for symptoms of anxiety and homesickness after moving to school (Saunders, 2020). Penelope described how Muffin triggered positive memories for her and helped serve as a reminder of the good experiences they've had together (Saunders, 2020). The third participant, Cloe, was also seeking a doctorate. Cloe's ESA was a three-year-old pomsky named Toto, who assisted with symptoms of anxiety and generally kept Cloe company (Saunders, 2020). Cloe spent her interview time reflecting on her history with dogs, reminiscing on how she associated them with her family (Saunders, 2020). Finally, the fourth participant in the group was named Madison, who was enrolled in a graduate program at the time. Like the other participants in the group, Madison's three-year-old shepherd, Bella, aided in relieving Madison's anxiety symptoms by coming to her in times of distress (Saunders, 2020). Madison recalled Bella's faithful accompaniment with her on public outings, as well as the quality time spent together at home (Saunders, 2020).

Saunders noted several similarities gathered from all seven of the participants' interviews. One was the use of labels that might be reserved for close friends or family, a few of them deeming their ESA "a best friend," or something akin to "a child," (Saunders, 2020), implying a deeper relationship. Jordan described her ESA as a 24/7 companion who assuaged feelings of loneliness. She explained that her ESA was very innately attuned to her, fostering a connection between them that Jordan was accepting and appreciative of (Saunders, 2020). Cloe reflected on how her ESA soothed the discomfort of living alone, inferencing that her depression and social isolation would be worse without him (Saunders, 2020). Penelope recalled times when it felt like she and Muffin grew and learned from each other, not unlike a parent and child (Saunders, 2020). Penelope also noted that her perspective of her ESA as her child allowed her to perceive herself as someone who is relied upon (Saunders, 2020), giving her a greater sense of purpose. She and another participant who was not in school recognized that the ability to provide care contributed to an improved sense of self-efficacy, which in turn, helped alleviate symptoms of their anxiety and depression (Saunders, 2020). The participants' ability to conceptualize their self-efficacy supports the research by Rohde and colleagues (2023), signaling it as an important factor in managing anxiety and depression effectively.

Given the similarities between the participants' experiences with their ESAs, Saunders sectioned her findings into a list of major themes. The first theme was titled "thereness," which she defined as "a condition of being present" (Saunders, 2020). Cloe echoed a few of her earlier statements by expressing her relief that she didn't have to cope alone, as Toto's response to her distress was coming to sit with her (Saunders, 2020). The built-in physical and emotional presence these animals provide for their humans is extremely grounding, and can also serve as an alternative focus, or even a positive distraction in difficult moments. For example, Madison

recalled that often when Bella would come to her when she was upset, she would notice how cute Bella's eyes are (Saunders, 2020), in a way, drawing her back into the present moment. She also noted the help that Bella offered her during online exams was invaluable. When Madison would begin to feel anxious, Bella would put her head in her lap, which de-escalated Madison's test anxiety symptoms (Saunders, 2020). For one of the participants who was not in school, being able to talk to her ESA in times of distress was both comforting and reassuring. She recalled that it wasn't the way her ESA responded to the talking that was helpful, it was simply that she was there to listen (Saunders, 2020).

The second major theme was titled "sharing moments," (Saunders, 2020), which may be understood as the participants' abilities to experience quality time with their ESAs. Jordan admitted that having a constant, engaging relationship with a companion made "a huge difference" (Saunders, 2020). In addition, she spoke about the validation she felt when Mia would "reflect" her emotions back at her, as Mia could be both quiet and melancholy with Jordan, or be excited with her about an accomplishment, such as getting into graduate school (Saunders, 2020). Though she may not have understood the situations to the extent a human companion would, Mia nonetheless showed Jordan support through her emotional solidarity.

The third theme, which also has associations with improved mental health (Komase, et al., 2021), was "gratitude" (Saunders, 2020). Jordan said she considered herself "blessed" that she had a companion like Mia, as she served as a constant reminder of the good during Jordan's darker times, Jordan even going as far as to call Mia "a reason to keep living" (Saunders, 2020). Another participant who was not in school explained that she often thanked her ESA for helping her to remember to be grateful, saying she reminded herself that no matter what, she had a dog who she loved very much (Saunders, 2020).

Following “gratitude” came “trust and safety,” (Saunders, 2020), a section that contained some powerful anecdotes from the participants. When Jordan was young, she had to testify against a family member in court. She was allowed to have Mia there with her, and bringing back the idea of “thereness,” Mia was present when Jordan needed to look to someone she trusted (Saunders, 2020). Mia had also helped Jordan practice coping skills in a way that felt safe and secure, which in turn, allowed her to apply them in her human relationships. Jordan said that Mia’s unconditional positive regard for her helped her let go of her fear of judgement (Saunders, 2020). For Penelope, having Muffin was crucial to her transition from home to college for the first time, applying some of the research presented by Kirnan and colleagues (2022) from Binfet and Passmore (2016). She said that Muffin remained a source of familiarity in a time when everything was changing, allowing her to better adjust to her new environment (Saunders, 2020).

Saunders’ additional themes consisted of “sense of self,” “physical behaviors,” “grounding,” “routine,” “treatment,” “emotional regulation,” and “dogs as tools” (Saunders, 2020). In the “sense of self” section, Saunders stated that owning an ESA improved participants’ “self-efficacy, self-esteem, and feelings of competency” (Saunders, 2020), helping to affirm their identities as strong and capable individuals. Cloe said that she felt great satisfaction in her competence and ability to care for her ESA, and how being responsible for someone else improved her sense of purpose (Saunders, 2020). To draw on self-efficacy again, Jordan described feeling as though she could “handle anything” when Mia was there. She reflected on feeling her “emotional intensity” deescalate with Mia’s “thereness” (Saunders, 2020). Another participant who was not in school reported that she felt a sense of empowerment from taking charge of her mental health in an alternative way (Saunders, 2020).

In the "physical behaviors" section, Saunders echoed research presented by Kirnan and colleagues (2022), stating that specific physical behaviors can provide much-needed relief for their owners (Saunders, 2020). For example, when Madison was distressed, Bella would come to her and "ask" to be petted, often pushing Madison's hand against her (Saunders, 2020). Similarly, Mia would push her head underneath Jordan's arm when she was crying, usually forcing her way into Jordan's lap somehow (Saunders, 2020). Within the growing body of anxiety research, the concept of "pressure" as a tool to improve physiological symptoms is considered a method "to achieve calmer behavior" (Krauss, 1987). As such, it is sensical that ESAs' instinctual touch responses might be alleviating in high-stress situations.

Alternatively, the ESAs would sometimes indirectly use humor to cheer up their humans. Jordan recalled that when she was stressed, Mia would often "break the tension" by grabbing a squeaky toy and ask to play (Saunders, 2020). Cloe also had a similar thought, reflecting on Toto's funny behaviors that provided her emotional relief. She said sometimes he would run so quickly through the apartment that he would slip and make the carpet bunch up, interrupting her stress by making her laugh (Saunders, 2020).

While the themes of "thereness" and "grounding" are similar, Saunders defined "grounding" as a way of detaching from one's internal conflict to instead notice what might be soothing in the present. This could be redirecting one's focus to physical sensations or changing a thought pattern to something unrelated (Saunders, 2020). With this in mind, physical behaviors provided by ESAs can contribute to a narrowed focus on physical sensations (Saunders, 2020). Jordan reflected on feeling soothed by Mia's physical weight, as well as the gentle pressure from Mia's previous service animal training to place a paw on Jordan when she would dissociate (Saunders, 2020). Both examples support research by Krauss (1987). Penelope recalled that

petting Muffin allowed her to focus on the present, noting that she would feel herself calm down when she picked him up (Saunders, 2020). The physiological relief Penelope experienced was likely a reduction of blood pressure and heart rate, as stated by Kirnan and colleagues (2022). Beyond the sensation of physical weight, another participant noted that the feeling of warmth was also helpful (Saunders, 2020). Cloe reported strong feelings of social anxiety in large crowds, which could be soothed by shifting her focus towards Toto. She said that having an alternative point of concentration "blurred" everything else out (Saunders, 2020). In addition, Cloe described feeling as though she had more activities she could do, such as taking Toto to the park, to save her from spending time ruminating in depressive thoughts (Saunders, 2020).

Following the "grounding" theme, "routine" was also a common element of most of the participants' interviews. Like gratitude and physical touch, engaging in healthy routines has multiple associations with improved mental health (Haines, et al., 2013). Having a sense of structure was what helped Jordan implement care for Mia, and simultaneously, care for herself (Saunders, 2020). Daily habits such as their morning walk and feeding times acted as small breaks throughout the day, also reminding Jordan to take care of her own needs (Saunders, 2020). "Treatment" was a brief section, but it still illuminated an important theme from the interviews. All of the participants described how their respective ESAs fit into their mental health treatment plan, with some of them identifying their ESA as an adjunctive tool, and others a more passive, but still beneficial role (Saunders, 2020). With "emotional regulation," many of the previous themes were echoed. Jordan reflected again on Mia's ability to sympathize with her, which to Jordan, felt like Mia paying attention to her needs and fine-tuning the "emotional intensity" in the room (Saunders, 2020). Cloe explained that after a stressful day, seeing Toto being happy would inspire her to step back from her anxiety for a moment (Saunders, 2020).

Finally, the "dogs as tools" section described some of the more technical aspects of utilizing ESAs as a form of treatment. One participant who was not in school shared that she had an anxious habit of picking her nails, which is a common side effect of anxiety (*Dermatillomania (Skin Picking)*, 2022). For her, it felt like her ESA was a part of her mental health "toolbelt," and having him there helped her replace such behaviors with petting (Saunders, 2020). In some cases, certain aspects of caring for ESAs can be similar to practicing exposure (Saunders, 2020), which is a therapeutic technique that allows individuals to safely address things they fear (*What Is Exposure Therapy?*, 2017). For example, during Jordan's treatment for her eating disorder, she had to interact with some of her triggers in order to feed Mia. She recalled touching the fridge, freezer, and food in general becoming easier as she began to associate it with feeding her dog (Saunders, 2020). Another example might be how Penelope's ESA, Muffin, could act as a social barrier that assuaged her anxiety when she would talk to new people or stand in large crowds (Saunders, 2020). Though she would often feel uncomfortable, having Muffin there helped her to feel more confident (Saunders, 2020).

The key takeaways of this study were multi-faceted and indicative of the range of help an ESA can provide. The participants all noted that their animals were able to effectively present positive distractions from negative thought cycles, which allowed them to resume being present and mindful (Saunders, 2020). Anxious and depressive thoughts can be difficult to break, especially in cases of rumination (Law, 2010). Saunders stated that while this distraction alone may not be a long-term solution to someone's condition, it provides a pause that can encourage one to stop and think about their next steps (Saunders, 2020). In times of crisis, such pauses can make all the difference. In addition, the participants felt they had a "physical and emotional space" between themselves and their ESAs, which felt "safe, unconditional, and constant"

(Saunders, 2020). There were multiple reflections on gratitude, as well as the competency to care for themselves and their ESAs, usually through socialization, exercise, and quality time spent together (Saunders, 2020). Pertaining specifically to the student participants, symptoms of exam stress and anxiety could be helped through physical touch, and long days of school felt more manageable with the knowledge that a companion was waiting at home (Saunders, 2020). Further, the capacity to emotionally regulate extended to multiple scenarios that were not school-related, such as being in a large crowd or feeding oneself, which some participants felt they couldn't do on their own (Saunders, 2020). Much of the help their ESAs provided was recognized as admirably "innate" and were reinforced through their close relationships with their humans (Saunders, 2020). To extend a hand back to the earlier conversation about companion animals versus emotional support animals, the participants felt their ESAs were "sources of support far beyond simply pets" (Saunders, 2020).

Animal-Assisted Therapy and University Students

In a study from the Open Journal of Occupational Therapy, Kivlen and colleagues stated that due to the little research that has been done outside of brief AVP interventions, they aimed to compile evidence of the effects of consistent and *recurring* therapy animal exposure in college classroom settings (Kivlen, et al., 2022). The authors argued that animal-assisted interventions (AAIs) have the potential to break student barriers to receiving mental health services such as lack of awareness, stigma, cost, scheduling conflicts, and wait time, and should therefore be considered for implementation (Kivlen, et al., 2022). The term AAI is frequently used as an umbrella term for multiple subcategories, as it may include animal-assisted activities, animal-assisted education, and animal-assisted therapy (Kivlen, et al., 2022). For the purpose of this literature review, the animal-assisted education (CAE) subcategory included in the study will

remain a primary focus, which may be used as a point of comparison to the other explored methods of AAT interventions.

According to the Association for University and College Counseling Center Directors, the average wait time for an intake appointment with a university-provided counselor in 2018 was 17.7 days (Kivlen, et al., 2022). Such wait times are not universal and can vary depending on the school's budget and access to counseling staff, often leaving students with fewer resources than necessary. Kivlen and colleagues theorized that wait time, amongst other factors, can contribute to additional "attitudinal" barriers, such as embarrassment, avoidance, and defeat (Kivlen, et al., 2022). As such, Kivlen and colleagues suggested that AAIs may be more feasible mental health solutions for college students, "allowing greater ease of access" (Kivlen, et al., 2022). As a point of comparison, campuses with large student populations can easily overwhelm counseling programs that are one on one, and the associated costs with hiring additional staff can be prohibitive (Kivlen, et al., 2022). The authors argued that AAI is low-cost, with reputable therapy dog training and registration ranging from $10 to $100 in the first year, with the following annual renewal costs ranging from $30 to $70 (*Therapy Dogs International*, 2020). When juxtaposed with salaried counseling positions, the implementation of AAIs is financially amicable (Kivlen, et al., 2022). The authors also echoed research by Kirnan and colleagues (2022) and Binfet and Passmore (2016), stating that the transitory period young adults experience when moving to college can be jarring due to the unfamiliarity in their new physical and social environments (Kivlen, et al., 2022). In fact, part of students' comfortable, pre-established social circles might include their companion animals they had to leave at home (Kivlen, et al., 2022). Therefore, the authors implore colleges to consider utilizing AAIs to decrease student anxiety and stress, in

turn, better supporting school performance during an important transition period (Kivlen, et al., 2022).

Kivlen and colleagues applied the person-environment-occupation (PEO) model as their theoretical framework, investigating factors that affect student occupational performance (Kivlen, et al., 2022). The variables examined in this study included anxiety, stress, distractibility, and participation (Kivlen, et al., 2022). The design employed was quasi-experimental, with a one-group pre-test/post-test method in a five-week study period in ethical accordance with the Northeast College's Institutional Review Board (Kivlen, et al., 2022). Students studying occupational therapy in an introductory occupational science course were used in a non-probability convenience sample (N = 27) (Kivlen, et al., 2022). Three-year-old Stella was utilized as the therapy dog (THD) for this study (Kivlen, et al., 2022). To control for confounding variables, students were screened for animal allergies and phobias and had the option to disclose concerns to the lab P.I. prior to participating (Kivlen, et al., 2023). However, none of these factors were reported (Kivlen, et al., 2022). The study was conducted in a classroom in the Center for Health Sciences on campus, with a managed space that allowed one professor to lecture as usual, all students to be regularly seated, and Stella to walk throughout the classroom (Kivlen, et al., 2022).

The researchers utilized the College Student Engagement Survey as their measure, containing 32 survey questions pertaining to demographic, individual class performance, learning style, distractibility, participation, and anxiety and stress (Kivlen, et al., 2022). The distractibility section of the survey contained two Likert scales with four and five points; (1 = strongly disagree to 5 = strongly agree) and (1 = never to 4 = always). Alternatively, the participation section of the survey used a Likert scale opposite to that of distractibility (1 =

strongly agree to 5 = strongly disagree), while anxiety and stress was measured (1 = never to 5 = very often) and (1 = no anxiety or stress to 10 = maximum level of anxiety or stress) (Kivlen, et al., 2022). The College Student Engagement Survey was administered pre-test; immediately before treatment, and post-test; immediately following treatment (Kivlen, et al., 2023).

From November 1st to December 8th of 2021, Stella attended the scheduled biweekly classes while normal instruction was carried out (Kivlen, et al., 2022). During class time, Stella voluntarily made walking rounds at her leisure, playing into her role of "thereness" (Kivlen, et al., 2023; Saunders, 2020). Following the procedures of the study, the researchers analyzed the data using the Statistical Package for the Social Sciences (SPSS) software (Kivlen, et al., 2022). A nonparametric, Wilcoxon signed-rank test, a standard equivalent procedure to a dependent t-test, was utilized without the assumption of a normal data distribution (Kivlen, et al., 2022). Further, a significance level of $p < 0.05$ was applied (Kivlen, et al., 2022). As the authors had hypothesized that the post-test results would demonstrate a significant decrease in student anxiety and stress as compared to the pre-test, the hypothesis was accepted ($p = 0.033$) (Kivlen, et al., 2022). They also hypothesized that distractibility between the pre-test and post-test would decrease. However, there were no statistically significant differences found in distractibility between the pre-test and the post-test ($p = 0.295$), indicating students did not show decreases in distractibility, though the authors concluded that therapy dogs are "not perceived as a distractor in the classroom" (Kivlen, et al., 2022). While distractibility remained nearly the same, there was evidence in support of the hypothesis that student participation would significantly increase ($p = 0.009$) (Kivlen, et al., 2022). Such data demonstrates the positive effects of recurring CAE within naturalistic settings such as college classrooms, with 69% of participants reporting a decrease in their perceived anxiety and stress (Kivlen, et al., 2022). Further, 78% reported that direct

interaction such as petting, sitting next to, and playing with Stella also decreased their perceived anxiety and stress (Kivlen, et al., 2022). These findings are promising for higher education institutions struggling to meet the mental health demands of their students, as AAIs can address intimidating access barriers, such as cost, for both students and schools (Kivlen, et al., 2022). The study's findings also contributed to a continually evolving body of research, providing new variability and dimension to the discourse (Kivlen, et al., 2022). The authors encouraged future researchers to aim for larger sample sizes to increase validity, as well as to replicate design models similar to the PEO framework within different demographic contexts. This might include students in graduate and doctoral programs (Kivlen, et al., 2022).

Similarly in 2021, a study published by the Journal of Animal Science and Technology on the effects of an AAT intervention program for depression in university students discovered promising findings for young adults struggling with depression. The study utilized a four-week trial period of combined animal-assisted therapy (AAT) and integrated play therapy (IPT) and found statistically significant results in lowering their sampled participants' depression symptoms and improving self-esteem (Kil, 2021). As the intervention was multimodal, a total of eight sessions were performed during the study period.

Undergraduate students (N = 40) were randomly selected for the sample, "attending animal-related and social welfare departments of universities" within a metropolitan area in the same city (Kil, 2021). The participants did not have previous experience with group interventions and were divided into an experimental group and a control group (Kil, 2021). There were no targeted demographic criteria other than the attendance to local universities, although the mean age of participants was 22.7 years in the experimental group, and 22.9 years in the control group (Kil, 2021). In addition, the experimental group was comprised of eight males and twelve

females, while the control group contained seven males and thirteen females (Kil, 2021). Other demographic data was provided in a comprehensive chart titled *Table 1. Basic properties comparison between intervention and control groups,* identifying variables such as religion, residential type, and family relationship that may have been confounding (Kil, 2021).

The experimental group received the multimodal intervention in eight sessions twice a week for 60 minutes each, involving both AAT and IPT in each session in activities that differed throughout the weeks (Kil, 2021). The study extended from March to April of 2020 and was led by two graduate students under the supervision of two professors who taught social welfare and veterinary medicine, respectively (Kil, 2021). A pre-test and a post-test were conducted to measure differences between the control group and treatment group, the pre-test occurring on the day of the intervention, and the post-test occurring at the treatment's termination (Kil, 2021). Therapy dogs were utilized for this study, varying in breed and age at the stipulation that they were at least three-years-old and vaccinated. The therapy dogs' rest time and stress levels were also carefully monitored to ensure their safety and well-being (Kil, 2021).

The researchers used the Beck Depression Inventory (BDI) as their chosen measure, consisting of 15 questions that indicate severity of depression in relation to a higher score on a Likert scale. In addition, they used a separate, ten question Likert scale to measure the participants' perceived self-esteem from one to five, one being "not at all" and five being "very yes" (Kil, 2021). The study was multimodal and interdisciplinary in that it incorporated both play therapy and animal-assisted therapy, accounting for "cognitive, physical, emotional, and social interaction activities" (Kil, 2021). The sessions varied in such activities, from trust-building with the therapy dogs in the first week, to making memory albums and doing goodbyes and snack feeding in the final week (Kil, 2021). According to the study, the THDs were used as "catalysts"

by therapy dog specialists (Kil, 2021), the "catalyst role" specifically contributing to the self-esteem and confidence of the subjects, as well as the reduction of stress and increased tension relaxation with passive animal interaction (Graham, 2000). The study found that the experimental group's depression before and after the intervention decreased by 0.81 ± 0.06 and 0.57 ± 0.07, respectively, while self-esteem increased by 3.48 ± 0.07 and 3.81 ± 0.05, respectively (Kil, 2021). Both measures had a significance level of 0.05 ($p < 0.05$) (Kil, 2021). Such results indicate that, in Kil's words, a combined method of IPT and AAT strengthens "…the vitality of life" (Kil, 2021).

Table 4. Effects of the multimodal intervention program on depression in university students and *Table 5. Effects of the multimodal intervention program on self-esteem in university students* demonstrate the exact results of this study.

Table 4. Effects of the multimodal intervention program on depression in university students

Variables	Group (n=20, each group)	Pre-test (Mean ± SD)	Post-test (Mean ± SD)
Depression	Experiment	0.81 ± 0.06^{a}	0.57 ± 0.07^{b}
	Control	0.83 ± 0.05^{a}	0.81 ± 0.06^{a}

[a,b] Within rows, values with different superscripts are significantly different ($p < 0.05$).

Table 5. Effects of the multimodal intervention program on self-esteem in university students

Variables	Group (n=20, each group)	Pre-test (Mean ± SD)	Post-test (Mean ± SD)
Self-esteem	Experiment	3.48 ± 0.07^{a}	3.81 ± 0.05^{b}
	Control	3.32 ± 0.06^{a}	3.41 ± 0.04^{a}

[a,b] Within rows, values with different superscripts are significantly different ($p < 0.05$).

To briefly call back to research by Binfet and Passmore (2016), a study by Pendry and colleagues in 2019 examined college students' emotional responses to therapy animals provided

by animal visitation programs. Due to limited research on mood disorders within this treatment model, the authors sought to better understand how methodologies commonly used in AVPS interact with mood states and other diagnostic criteria for clinical depression, and what causal effects may be isolated (Pendry, et al., 2019). As such, their two main objectives were to examine "moment-to-moment" emotional states, as well as to "capture the differential effects" of waiting in line while observing others interacting with therapy animals (Pendry, et al., 2019).

The study was conducted throughout three consecutive semesters at an American research university (Pendry, et al., 2019). This study is particularly relevant to this literature review as the university was located in the Pacific Northwest (Pendry, et al., 2019), allowing the findings to be better generalized to a local population such as PSU. Their sample was comprised of student participants (N = 129) who were recruited through presentations given in their classrooms. Students were screened for demographic information, availability, and diagnostic status, and then were randomly assigned to one of three conditions commonly found within "universal," collegiate AVPs (Pendry, et al., 2019). The conditions included a hands-on approach involving voluntary petting with the therapy cats and dogs in small groups; an observation-based approach where participants observed the hands-on group while they waited to interact with the animals themselves, and a control group where participants looked at photos of the animals and did not socialize (Pendry, et al., 2019). Participants were given a label identifying their condition to the researchers, with the sample divided into N = 73 in the hands-on condition, N = 62 in the observation condition, and N = 57 in the control condition. Four or five participants in the hands-on condition interacted with therapy dogs (N = 10; N_{female} = 6) under supervision of a specialist, while individual participants interacted with therapy cats (N = 12; N_{female} = 7) in a large gym (Pendry, et al., 2019). The dogs sat on blankets while the cats sat in condos to facilitate

comfortable interactions for both the animals and the students (Pendry, et al., 2019). Participants in the observation condition were placed in a roped-off area that allowed separation and visibility for observations (Pendry, et al., 2019). Participants in the control condition were placed in a separate room to view photos of the program animals in the form of a slideshow presentation, using a checklist to indicate their favorites privately (Pendry, et al., 2019). All methods were administered ethically, in accordance with the Institutional Research Committee (IRB), the 1964 Helsinki declaration, and the Institutional Animal Care and Use Committee (Pendry, et al., 2019).

The purpose of the control group was to isolate the effects of visually interacting with the therapy animals without the additional confounding variables of socializing first-hand with them or peers (Pendry, et al., 2019). Each condition was administered for ten minutes, and following the observation and control conditions, participants who were not included in the hands-on group were also allowed to interact with the therapy animals in ten-minute intervals (Pendry, et al., 2019). Depression was specifically measured with the Beck Depression Inventory (BDI), identical to the primary measure used in the study by Kil (2021). The BDI consisted of 21 questions, utilizing a four-point Likert scale (Pendry, et al., 2019). 8.7 % of students reported a clinical depression diagnosis (Pendry, et al., 2019). All participants were given a checklist at pre-test and post-test to determine the effects of engaging in their respective conditions, reporting their “momentary emotional states” before and after treatment (Pendry, et al., 2019). The emotional states were organized into four categories; content, anxious, irritable, and depressed, taken with a measure based on the experience sampling method (ESM) from Csikszentmihalyi and Larson (1987) to control for “moment-to-moment” changes in naturalistic settings (Pendry, et al., 2019). The ESM-based survey contained 25 items with a four-point scale, ranging from 0 (not at all) to 3 (very much) (Pendry, et al., 2019).

The researchers found statistically significant results, with the survey reporting levels of contentment at $\alpha = 0.89$; anxiety at $\alpha = 0.87$; irritability at $\alpha = 0.88$, and depression at $\alpha = 0.86$ (Pendry, et al., 2019). With the use of multivariate regression analyses, the authors found that following the hands-on condition, there was no difference in affect between students who were clinically depressive and students who were not ($\beta = 0.441$, $p = 0.659$), indicating that individuals diagnosed with clinical depression benefited from therapy animal exposure similarly to those without it (Pendry, et al., 2019). This data is striking due to their other finding indicating that the clinically depressive students in the observation group reported feeling significantly more irritable ($\beta = 0.220$, $p = 0.038$) as compared to their non-depressive peers (Pendry, et al., 2019). Further, clinically depressed students felt more anxious while waiting in line ($\beta = 0.326$, $p = 0.002$), and conversely, felt less anxious while interacting with the therapy animals directly ($\beta = 0.172$, $p = 0.071$) (Pendry, et al., 2019). The authors found this evidence promising as just ten minutes of therapy animal interaction significantly decreased feelings of depression and sadness (Pendry, et al., 2019). Evidence of improved affect across the board from the hands-on condition supports that even short bouts of AAT provide relief for college students, in tandem with research by Binfet and Passmore (2016). Due to the randomized controlled design, this study allowed for causal arguments for the effectiveness of animal visitation programs (Pendry, et al., 2019).

Discussion and Future Implications

Given the dire need for accessible student mental health services, this literature review aimed to compile evidence in support of the benefits of utilizing ESAs and AAT in young populations pursuing various college degrees. Due to the unique effects of therapeutic animal exposure, utilization of such interventions found promising results for the embedded population.

Kirnan and colleagues (2022) found that four major benefits of animal companionship were categorized as "(1) providing empathy or therapy, (2) promoting social connections, … (3) filling the role of family, and (4) fostering empowerment and self-efficacy" (Wisdom, et al., 2009). Self-efficacy stood out amongst these other factors, as it has deeply positive implications for students struggling with depression (Rohde, et al., 2023). The study by Saunders was indicative of the range of help an ESA can provide, with participants noting improvement in rumination, ability to administer coping skills in high-stress situations, empathy towards oneself, self-efficacy and competency, gratitude practice, and confidence, among other factors (Saunders, 2020). With this in mind, ESAs may be considered a beneficial treatment option for young adults in higher education settings.

Similarly, studies conducted by Kivlen and colleagues (2022), Kil (2021), and Pendry and colleagues (2019) serve as evidence of the effectiveness of therapy animal interventions such as AVPs for students suffering with clinical depression. Because of its chronic nature, clinical depression is more difficult to treat when compared to brief depressive periods defined by causal factors such as grief (Hall-Flavin, 2017). Within a student demographic context, mental illnesses such as clinical depression can be detrimental to performance (Kivlen, et al., 2022), rendering animal assistance methods both necessary and promising for the population.

It is important to note that AVPs, while still powerful, have less of a lasting effect when compared to the efficacy of ESAs and/or consistent, individualized AAT interventions (Binfet & Passmore, 2016). That being said, in situations where students do not have the option of owning their own animal or seeking out independent AAT sessions for financial, residential, or other accessibility reasons, AVPs are highly useful, and their implementation should be considered by higher education institutions.

Pendry and colleagues noted that because clinically depressed participants felt elevated levels of irritability, depression, and anxiety while in the observation condition, it is important for future studies to consider the conditions prior to participant involvement so as not to worsen symptomology in already depressed individuals (Pendry, et al., 2019). The authors also encouraged further research with varying conditions to examine AVP effectiveness in multiple student demographic contexts. Additional findings would indicate validity and help administrators to make informed decisions about the resources that may be beneficial to their students (Pendry, et al., 2019). As this area of study is still relatively new to the field of psychology, more research is necessary for a wholistic understanding of animal assistance approaches. To further synthesize the collection of research embedded in this literature review, a summary table is included below.

Table 1

Summary Table for Effectiveness of Emotional Support and Therapy Animals

Animal Role	Author(s)	Sample	Methods	Findings
ESA	(Kirnan, et al., 2022)	N/A	Lit review	ESAs aided in stress relief during important transition periods, assuaged isolation and loneliness, encouraged socialization, and improved physiological health.

ESA	(Saunders, 2020)	(N=7)	Qualitative interviews	ESAs provided a large range of help to their owners, including but not limited to anxiety relief, distraction from rumination during depression, exposure, physical touch, and assistance.
Therapy Animal	(Kivlen, et al., 2022)	(N=27)	Quasi-experimental pre-test & post-test	78% of participants reported a significant decrease in their perceived anxiety and stress from direct physical interaction with the THD.
Therapy Animal	(Kil, 2021)	(N=40)	Combined AAT and IPT pre-test & post-test	Participants' depression levels decreased (0.81 ± 0.06 and 0.57 ± 0.07) and self-esteem increased (3.48 ± 0.07 and 3.81 ± 0.05).

Therapy Animal	(Pendry, et al., 2019)	(N=129)	Three conditions pre-test & post-test	Time spent with the therapy animals contributed to significantly decreased feelings of depression and sadness in all participants.

Conclusion

This literature review illuminated the positive effects of utilizing emotional support animals and therapy animals through a synthesis of current research. There are many roles that animals may fulfill to improve their human companions' well-being. The five working titles include: companion, emotional support, therapy, assistance, and service, though emotional support and therapy animals were the only roles explored in this literature review. With the nuances of each animal role come differential benefits that often subserve therapeutic relief at varying capacities, some acting as an alternative to traditional psychotherapy. As such, emotional support animals and therapy animals should be utilized in college settings to best support all four quadrants of student well-being.

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