Nursing Campus Therapy Dog: A Pilot Study

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A R T I C L E   I N F O

A B S T R A C T

This experimental pilot study investigated the long term effect of a therapy dog on the symptoms of anxiety and depression experienced by nursing students. Participants, assigned to a control or treatment group, completed the Hospital Anxiety and Depression Scale at the beginning and end of a 16 week semester. While there was no measurable effect on depression, participants in the treatment group had significantly less symptoms of anxiety at the end of the semester.

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An acknowledged bond exists between humans and animals throughout history. Recently, the effects of that relationship are the subject of discussion in the health care setting. Therapy animals are visiting hospices (Chur-Hansen, Zambrano, & Crawford, 2014; Kedanis, 2016), nursing homes (Kamioka et al., 2014; Lundqvist, Carlsson, Sjodahl, Theodorsson, & Levin, 2017), and even acute care hospitals (Kamioka et al., 2014; Zeblisky & Jennings, 2016). One crucial area in academia that needs further evidence-based research is the effect of therapy animals on college and university students.

Background

In a national survey collecting data about college students' habits, behaviors, and perceptions on prevalent health topics, 21.9% of the students reported that anxiety affected their academy performance, and 13.8% reported that depression affected their academic performance (American College Health Association, 2015). Mental health disorders in college were even greater among students in professional nursing education, where increased stress, and its resulting anxiety and depression, could interfere with student success (Chernomas & Shapiro, 2013). This increase in mental health disorders was primarily associated with clinical practice where students work in unfamiliar hospital settings (Chernomas & Shapiro, 2013). When comparing nursing to nonnursing students, Bartlett, Taylor, and Nelson (2016) found that nursing students reported higher stress levels than nonnursing students ($p < .001$) and a greater impact of stress on academic success than nonnursing students ($p < .001$). In addition, there was a high prevalence of increased stress among nursing students and a strong relationship between perceptions of chronic stress, depressive symptoms, and test anxiety, $p < .05$ for all (Augner, 2015).

Animal-assisted therapy (AAT), a human interaction with animals designed to improve human physical, psychosocial, emotional, or cognitive abilities, is one of the three categories of animal-assisted interventions (American Veterinary Medical Association, 2016). Identified as a cost-effective intervention available to colleges and universities, AAT can improve student emotional well-being (Stewart, Dispenza, Parker, Chang, & Cunnien, 2014). An activity such as petting an animal enhances serotonin, phenylethylamine, dopamine, endorphins, and other related neuropeptides and promotes a feeling of emotional well-being. In addition, AAT significantly lowers cortisol levels and decreases feelings of stress (Creagan, Bauer, Thomley, & Borg, 2015).

Grajfoner, Harte, Potter, and McGuigan (2017) found that a 20-minute session with a therapy dog improved a university student's well-being, anxiety, and mood. Delgado, Toukonen, and Wheeler (2017) investigated the effect of AAT on college student stress during final examination days. They measured the perceived stress, mood,

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salivary cortisol, and blood pressure before and after a 15-minute interaction with a therapy dog. The findings were significant for decreased perceived stress ($p = .001$), improved mood ($p = .001$), decreased heart rate ($p = .039$), and decreased systolic blood pressure ($p = .001$). Crossman, Kazdin, and Knudson (2015) investigated the effect of AAT on student anxiety, negative affect, and positive affect. They utilized three groups: a control group, a no interaction control group that viewed pictures of the therapy dog, and an intervention group that interacted with a therapy dog. Results indicated that participants in the intervention group had significantly less state anxiety than participants in the control group ($p < .001$) and the no interaction control group ($p = .01$). Only participants in the treatment group experienced a significant reduction in the negative affect ($p < .01$) and an improvement in the positive affect ($p < .01$).

AAT, such as petting a therapy animal, is an innovative and inexpensive action nursing schools can take to help decrease the stress, anxiety, and depression students experience in nursing school (Grajfoner et al., 2017; Stewart et al., 2014). Unfortunately, AAT struggles to earn respect as a legitimate therapeutic intervention (McCune, Esposito, & Griffin, 2017). Even with recent interest and increase in scientific research, the literature suggests that there is little understanding as to why AAT benefits humans. This problem is a result of the methodologies used in AAT research, such as lack of experimental research design and inadequate sample size (Barker, Barker, McCain, & Schubert, 2016; Cherniack & Cherniack, 2014; Kamioka et al., 2014). This is a problem that prevents a credible understanding of the effects of AAT on human health and well-being (Stern & Chur-Hansen, 2013).

Much of the research providing empirical evidence on the effects of AAT in this literature review investigated brief, single session interactions with the therapy dog. Well-controlled, crossover-designed experiments with large sample sizes are necessary to determine AAT's long-term effects on human health (Hosey & Melfi, 2014; Kamioka et al., 2014; Stern & Chur-Hansen, 2013) and to better understand the AAT phenomenon. Methods of delivering AAT varied, and there was no set procedure in place to guide interventions (Cipriani et al., 2013). This pilot study provides new knowledge of the AAT phenomenon by utilizing an experimental design to investigate the long-term effect of a therapy dog presence on nursing students' symptoms of anxiety and depression. It also identifies challenges associated with scientific research and AAT in the academic setting.

Theoretical Framework

The midrange theory of comfort developed by Kolcaba (2001) describes three levels of patient comfort, with each level increasing comfort until a patient reaches its highest level, transcendence. Wagner, Byrne, and Kolcaba (2006) described *transcendence*, the highest level of comfort, as a state of empowerment when a patient is able to rise above challenges and plan for a successful future. The rigorous course work and the unfamiliar clinical setting associated with nursing education commonly result in increased stress, depression, and anxiety (Chernomas & Shapiro, 2013), difficulty sleeping (Chernomas & Shapiro, 2013), and lower metacognition (Reyes, Silva, Jaramillo, Rehbein, & Sackur, 2015). Increased stress, depression, anxiety, difficulty sleeping, lack of self-confidence, and lower metacognition may all describe a state of student discomfort. Kolcaba's theory of comfort easily translates to nursing academia as a guiding framework to relieve student discomfort (K. Kolcaba, personal communication, March 30, 2017). Students who reach transcendence would be empowered to rise above the challenges of nursing education and plan for a successful future as a registered nurse.

Purpose

The primary purpose of this pilot study was to investigate the effect of a long-term therapy dog presence on nursing students' symptoms of anxiety and depression. The underlying purpose was the identification of potential solutions to the challenges associated with AAT research. There were two research questions:

1. Do symptoms of anxiety differ between students who participate in AAT throughout the semester with a registered therapy dog and students who do not participate in AAT?
2. Do symptoms of depression differ between students who participate in AAT throughout the semester with a registered therapy dog and students who do not participate in AAT?

Methods

Design and Setting

The pilot study used a quantitative experimental, pretest/posttest design with participants randomly assigned to either a control group or a treatment group. Participants in the treatment group interacted with a registered therapy dog, and participants in the control group did not interact with the therapy dog. The treatment group and the control group were compared at the beginning and end of a 16-week semester to determine the effect of AAT on participants' symptoms of anxiety and depression. The investigator received institution review board approval for the pilot study from the public community college where the study took place.

Student interactions with the therapy dog took place on the community college's health sciences campus. The therapy dog visited students around campus in various locations, such as the nursing classrooms and foyers, the nursing resource center, tutoring center, and computing center.

Sample

The 109 study participants were recruited from all Level 2 students in the community college's associate degree nursing program. The Level 2 curriculum in the associate degree nursing (ADN) program included a medical–surgical course, a transitional course, a pediatric course, and an obstetrics course. Students excluded from participation were those who were allergic to dogs or were afraid to interact with a therapy dog. Participant demographics represented student demographics within the ADN program: 50% Hispanic, 38% Caucasian, 7% African American, 3% Asian, and 2% other ethnic groups. The students' age ranged from 21 to 56 years, with the majority of students 25 years of age or older, 88% were female students, and 12% were male students.

Measures

All students who volunteered to participate in this pilot study completed the Hospital Anxiety and Depression Scale (HADS). The scale is a self-rating instrument that includes seven questions specific to anxiety and seven questions specific to depression (Bjelland, Dahl, Haug, & Neckelmann, 2002). Developed in 1983 by Zigmond and Snaith, an analysis of validity at a later date indicated that the HADS performed well assessing symptom severity of anxiety disorders and depression in the general population (Bjelland et al., 2002). Cronbach's alpha for HADS-Anxiety varied from .68 to .93 (mean = .83) and for HADS-Depression from .67 to .90 (mean = .82; Bjelland et al., 2002).