



# The Effect of Therapy Dogs and Meditation on Student Stress

Nicole L. Beasley

Faculty Advisor: Greg Elvers

University of Dayton, Psychology Department

## Introduction

### Therapy Dogs.

- Students experience many stressors throughout the semester. Student stress may arise from various facets of academic life (e.g. academics, financial, and relationship) (Dusselier et al., 2005). Most students report chronic stress (Pierceall & Keim, 2007).
- Therapy dogs may lessen student stress. However, research on how therapy dogs reduce stress is mixed. Some research suggests therapy dogs only reduce psychological perception of stress while other research suggests physiological stress reduction.
- Barker et al. (2016) measured stress with both psychological tests and physiological markers in students. Interacting with therapy dogs reduced the perceived stress but did not change the physiological markers of stress.
- Crump & Derting (2016) measured stress with both psychological and physiological markers in female freshmen students. Interacting with therapy dogs reduced perceived stress and systolic blood pressure, but not diastolic blood pressure or heart rate.
- Other studies indicate a lack of heart rate or blood pressure reduction when interacting with personal pet dogs (Grossberg et al., 2015)
- While the Barker et al. (2016) study supported mainly psychological stress reduction, the ability of Crump et al. (2016) to demonstrate a physiological stress reduction suggests further inquiry is necessary to gain a complete understanding of the stress buffering capabilities of therapy dogs.
- This study utilizes a different physiological stress measurement: heart rate variability (HRV). In a recent meta-analysis, HRV was demonstrated effective at indicating changes in stress. This is a significant advantage over heart rate and blood pressure measurements (Kim et al., 2018)

## Introduction

### Current Study.

- The present study will record a physiological marker of stress and measure perceived stress before and after interacting with therapy dogs or experiencing progressive muscle relaxation (control).

## Hypothesis

- If therapy dogs affect physiological stress parameters, then we should see a reduction in heart rate variability within the 15-minute interaction time.

## Methods

- Participants ( $N = 20$ , 13 female,  $M_{age} = 19.8$ ) were randomly allocated to the therapy dog or relaxation conditions.
- Before interacting with the therapy dogs or relaxation, participants filled out a stress visual analog scale (1-100) and state trait anxiety inventory.
- Participants were then outfitted with the heart rate recording device that assessed heart rate variability and proceeded to their respective condition for 15 minutes.
- Post 15-minute exposure period, participants completed the stress visual analog scale, debriefed, and dismissed from the study.

## Analyses

### Physiological Stress.

The difference between HRV increased from the baseline ( $M = 53.50$ ,  $SD = 60.15$ ) to after the exposure ( $M = 60.15$ ,  $SD = 11.33$ ),  $F(1, 18) = 4.09$ ,  $p = .058$ ,  $\eta^2_{partial} = .19$ .

## Analyses

### Psychological Stress.

- The Stress VAS decreased in both the dog and meditation conditions  $F(1,18) = 3.51$ ,  $p = .077$ ,  $\eta^2_{partial} = .163$ .

	Condition	Mean	Stdev
Baseline	Dog	76.8	27.23
	Meditation	64.00	26.56
Post Exposure	Dog	49.30	23.70
	Meditation	51.10	25.99

- The perceived stress scale did not change from baseline to post exposure in neither the therapy dog nor control conditions  $F(1,18) = 1.85$ ,  $p = .192$ ,  $\eta^2_{partial} = .10$ .

	Condition	Mean	Stdev
Baseline	Dog	16.50	5.36
	Meditation	20.56	4.16
Post Exposure	Dog	15.00	5.19
	Meditation	20.89	3.95

## Discussion

- The average HRV increased, approaching significance, from baseline to the post-exposure.
- The decrease in the Stress VAS is approaching significance. This supports previous research; most of the previous research reports a decrease in subjective stress when interacting with therapy dogs. This indicates that participants felt less stressed post interaction.
- The perceived stress scale was neither significant nor approaching significance. This could be due to the scope of this questionnaire limited to within the past week. Limiting the scope further to within the past day or hour may have yielded more accurate results.