

# Canines on Campus: A Literature Review Exploring the Effect of Canine-Assisted Therapy on Student Stress at Canadian Universities

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## Abstract

**Background:** Animal-assisted therapy has been studied and applied in a variety of settings to complement interventions in palliative care, geriatrics, and psychiatry. Recently, Canadian universities have begun to integrate canine-assisted therapy into their student services to address mental health. Studies have shown that university students are especially susceptible to elevated stress levels and poor mental health due to challenges with acclimating to student life. **Objective:** The objective of this literature review is to determine whether canine-assisted therapy, in comparison with no intervention, reduces stress levels in Canadian university students. **Methodology:** Literature search was conducted using Scopus and the following search entry: “student AND stress AND therapy AND dog.” Limits were applied to include only Canadian, English peer-reviewed articles from the last ten years. Articles lacking statistical analysis were excluded. This search strategy yielded four articles acceptable for literature review. Data from these articles was extracted and organized into a table detailing study design, sample size, results, and statistical significance. **Results:** Among the four articles reviewed, three observed reductions in student stress levels ( $p < 0.05$ ) after participation in canine-assisted therapy while one measured lower increases in stress response ( $p < 0.01$ ) when the intervention was followed by exposure to a stressor. Additionally, canine-assisted therapy also reduced homesickness due to dislike of school ( $p < 0.001$ ) and attachment to home ( $p < 0.05$ ), and increased social support ( $p = 0.032$ ), happiness ( $p < 0.001$ ), energy levels ( $p < 0.001$ ), and sense of school belonging ( $p < 0.05$ ). **Conclusion:** The results of this literature review suggest that canine-assisted therapy, in comparison with no intervention, reduces stress levels in Canadian university students. However, further study on the logistics of canine-assisted therapy (e.g., availability, dose) at Canadian universities is required to optimize its effects on student mental health.

## Background

Animal-assisted therapy (AAT) is primarily founded on two theories: the biophilia hypothesis and the social support theory (O’Haire, 2010). The former proposes that an instinctual affiliation between humans and animals exists as a result of the historical reliance of humans on animals to increase probability of survival (O’Haire, 2010). According to the theory, focusing on animals and their behaviours has a calming and relaxing effect on humans that relieves feelings of anxiety (O’Haire, 2010). The social support theory speculates that the non-judgmental nature of animals, as well as their companionship and unconditional love, facilitates animal-to-human and human-to-human interactions and mitigates loneliness and social isolation (O’Haire, 2010). Consequently, some hospitals, nursing homes, correctional facilities, military hospitals, and schools have begun to complement their interventions with AAT (Matuszek, 2010). People with conditions like dementia, HIV/AIDS, PTSD, depression, and anxiety have benefited from AAT (Matuszek, 2010; O’Haire, 2010). Recently, canine-assisted therapy has become widely utilized to address mental health at university campuses (Ward-Griffin et al., 2018). The American College Health Association (2016) revealed in a survey on Ontario universities that more than one in four respondents were diagnosed with or treated for mental illness between 2015 and 2016. About 60% of respondents rated their overall stress level to be more than average or tremendous (American College Health Association, 2016). Studies cite financial difficulties, overwhelming academic expectations, sleep problems, social relationships, and time management issues to be among the stressors that increase students’ vulnerability to poor mental health (Binfet, 2017; Fiocco & Hunse, 2017). Thus, to respond to this demand for mental health care that effectively targets postsecondary students, universities have turned to innovative therapies like canine-assisted therapy to improve student wellbeing (Binfet, 2017).

## Research Question

Does canine-assisted therapy, in comparison with no intervention, reduce stress levels in Canadian university students?

## Methodology

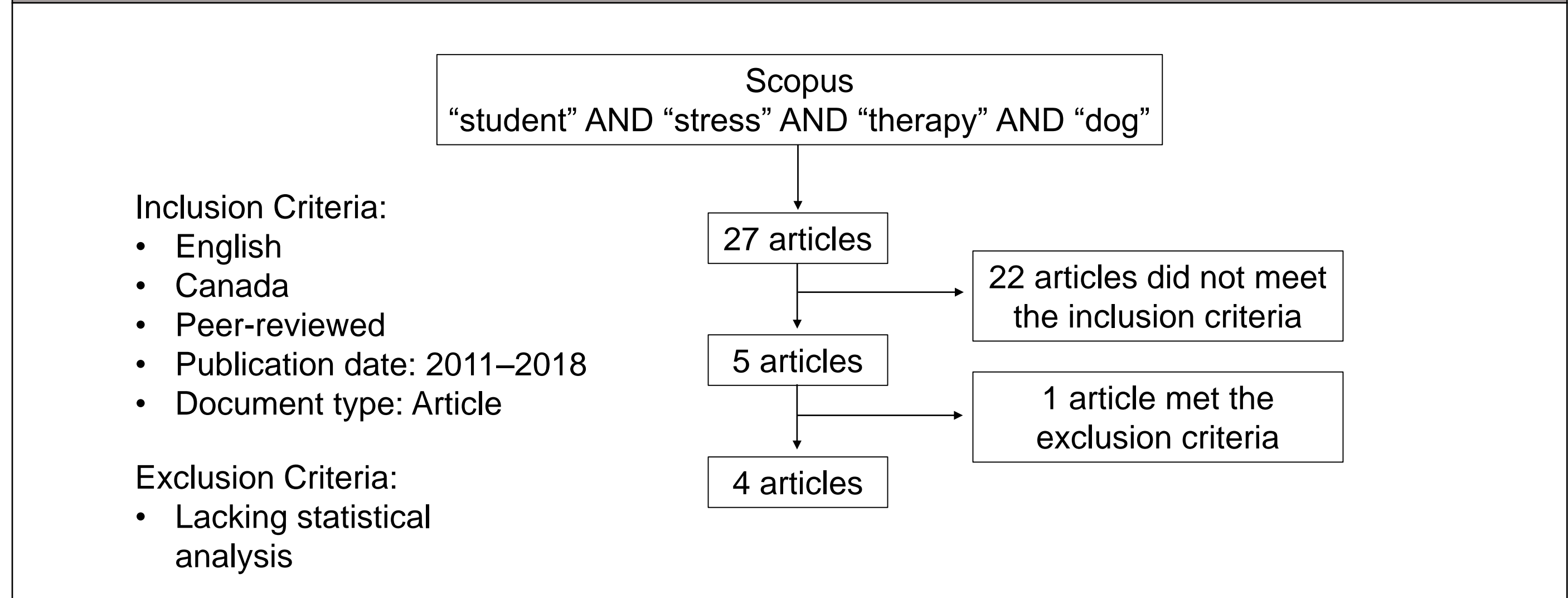


Figure 1. An illustration of the methodology used to locate articles for this literature review.

## Results

Table 1. Summary of reviewed articles’ results

Study	Study Design	Sample	Results	Statistical Significance
The Effects of Group-Administered Canine Therapy on University Students’ Wellbeing: A Randomized Controlled Trial	Randomized Controlled Trial	$n = 163$ Treatment ( $n = 84$ ) Control ( $n = 79$ )	Pre-test to post-test • Effect of group ○ $F_{(4, 149)} = 6.37, p < 0.001$ • ↓ perceptions of stress ○ $F_{(1, 152)} = 14.60, p < 0.001, \eta_p^2 = 0.09$ • ↓ homesickness due to dislike of school ○ $F_{(1, 152)} = 15.16, p < 0.001, \eta_p^2 = 0.09$ • ↓ homesickness due to attachment to home ○ $F_{(1, 152)} = 4.02, p < 0.05, \eta_p^2 = 0.03$ • ↑ sense of school belonging ○ $F_{(1, 152)} = 10.46, p < 0.05, \eta_p^2 = 0.06$  Follow-up • No difference was observed between treatment and control groups ○ $F_{(1, 141)} = 0.97, p = 0.43$	Yes
The Buffer Effect of Therapy Dog Exposure on Stress Reactivity in Undergraduate Students	Randomized Controlled Trial	$n = 61$ Treatment ( $n = 31$ ) Control ( $n = 30$ )	Stress reactivity • Effect of group on change in EDA ○ $F_{(1, 59)} = 15.24, p < 0.01$ • Mean change in EDA was smaller in therapy dog group ○ $MTD = 1.58, SD = 4.93$ ○ $MC = 7.07, SD = 5.81$  Pet attitude and stress reactivity • Effect of group and pet attitude on change in EDA ○ $F_{(1, 60)} = 0.31, p = 0.31$ • Change in EDA was not affected by high or low pet attitudes in therapy dog group ○ $F_{(1, 31)} = 0.41, p = 0.53$  Affective reactivity • Effect of group on change in positive affect ○ $F_{(1, 61)} = 3.17, p = 0.08$ • Mean change in positive affect was smaller in therapy dog group ○ $MTD = -0.35, SD = 6.656$ ○ $MC = -4.37, SD = 7.15$ • Effect of group on change in negative affect ○ $F_{(1, 60)} = 0.26, p = 0.61$ • Mean change in negative affect was greater in therapy dog group ○ $MTD = 2.29, SD = 5.62$ ○ $MC = 0.60, SD = 6.10$	Yes
Reducing University Students’ Stress Through a Drop-In Canine-Therapy Program	Quasi-Experimental One-Group Pretest-Posttest	$n = 1960$	Stress level on a 5-point scale • Pre-intervention: $M = 4.47, SD = 2.91$ • Post-intervention: $M = 1.73, SD = 1.45$ • $t_{(1959)} = 71.19, p < 0.001, d = 1.61$ • ↓ stress by 2.74 points ○ $SD = 1.71, 95\% CI [2.67, 2.82]$	Yes
Petting Away Pre-Exam Stress: The Effect of Therapy Dog Sessions on Student Well-Being	Delayed-Start	$n = 246$ Treatment ( $n = 122$ ) Control ( $n = 124$ )	Immediate (short-term) effects • ↓ perceived stress ○ $F_{(1, 218)} = 344.97, p < 0.001, \eta^2 = 0.613$ • ↑ happiness ○ $F_{(1, 223)} = 84.26, p < 0.001, \eta^2 = 0.274$ • ↑ energy levels ○ $F_{(1, 222)} = 113.10, p < 0.001, \eta^2 = 0.338$  Effects at follow-up • ↓ negative affect ○ $F_{(1, 244)} = 7.45, p = 0.007, \eta^2 = 0.030$ • ↓ perceived stress ○ $F_{(1, 244)} = 4.68, p = 0.031, \eta^2 = 0.019$ • ↑ social support ○ $F_{(1, 244)} = 4.64, p = 0.032, \eta^2 = 0.019$	Yes

M = Mean SD = Standard Deviation EDA = Electrodermal Activity TD = Therapy Dog C = Control CI = Confidence Interval

## Discussion

### Key findings

- ↓ stress levels, homesickness, and stress response
- ↑ happiness, energy levels, social support, and sense of school belonging
- Effects appear to be short term:
  - Increase in social support and mitigation of perceived stress and negative affect were sustained up to ten hours post-intervention in Ward-Griffin et al. (2018)’s study.
  - Two weeks post-intervention, reductions in perceived stress and homesickness, and increases in sense of school belonging were diminished in Binfet (2017)’s study.

Researchers reported that findings were consistent with previous studies on the subject.

### Limitations of this literature review

- Use of just one database (Scopus)
- Only articles published in English were considered
- Small sample size ( $n = 4$ )
- Studies by the same author(s)

### Limitations of reviewed articles

- The Effects of Group-Administered Canine Therapy on University Students’ Wellbeing: A Randomized Controlled Trial
  - Confounders (e.g., dog handlers, peers)
  - Sample was predominantly female
  - Data collection via self-reports
- The Buffer Effect of Therapy Dog Exposure on Stress Reactivity in Undergraduate Students
  - Small sample size
  - Sample was predominantly female
- Petting Away Pre-Exam Stress: The Effect of Therapy Dog Sessions on Student Well-Being
  - Confounders (e.g., dog handlers, peers)
- Reducing University Students’ Stress Through a Drop-In Canine-Therapy Program
  - No control group or follow-up
  - Participants’ behaviour during sessions was not assessed
  - Participants may have visited the lab more than once

### Future directions:

Further research on canine-assisted therapy at Canadian university campuses is required to identify factors that can maximize and prolong benefits to student mental health (Ward-Griffin et al., 2018).

### Potential areas of study:

- Availability (i.e., when the therapy is being offered during the school year)
- Dose (e.g., students attend one, two, or three sessions a semester) (Binfet, 2017)
- Interaction (e.g., sitting next to a dog, playing with a dog) (Binfet, Passmore, Ceby, Struik, & McKay, 2018)
- Setting (e.g., library, student lounges)
- Duration of therapy sessions (Ward-Griffin et al., 2018)
- Dog breed
- Optimal ratio of students to therapy dogs (Ward-Griffin et al., 2018)
- Comparison between canine-assisted therapy and standard therapy (Binfet, 2017)

## Conclusion

The results of this literature review suggest that canine-assisted therapy, in comparison with no intervention, reduces stress levels in Canadian university students. However, these results are preliminary; further study on the logistics of canine-assisted therapy at Canadian universities is required to optimize its effects on student mental health.

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