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The effect of the presence and familiarity of a dog on people’s performance of a stressful task

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Dogs can benefit people physically, socially, and mentally.

This research was supported by NSERC.

Barker et al. (2010) found familiar dogs tended to reduce people’s stress reactivity more than unfamiliar dogs, but this was not a significant effect.

Stress-buffering hypothesis - dogs act as social support for people to buffer against stress’ negative physiological consequences (Cohen & Pressman, 2004).

**Background**

- Dogs can benefit people physically, socially, and mentally.
- Owning a pet is associated with increased survival after a heart attack (Friedmann, Katcher, Lynch & Thomas, 1980).
- Allen et al. (1991, 2002) showed dogs reduce people’s stress (heart rate and blood pressure) more than friends or spouses.

**Current study**

**Contribution** - replicate & extend Barker et al.’s (2010) study

**Application** - help design effective dog therapy programs

**Question** - Does the familiarity of a dog affect a person’s stress and performance on a stressful task?

**Methods**

**Participants**

12 dog-owning students
12 familiar dogs - participants’ pets
2 unfamiliar dogs - Cash (rough collie) & Lucy (black lab)

**Variables**

Independent variables
- Familiarity of the dog (unfamiliar dog, familiar dog, or no dog) present while a person did a stressful task
- Identity of the unfamiliar dog (Cash or Lucy)

Dependent variables
- Stress measure - heart rate reactivity (highest heart rate during stressor minus lowest heart rate during a testing session) measured with a Fitbit wristband
- Task performance - score on math task & task speed (# of subtractions completed)

**Procedure**

- Participants performed a word recall and stressful task (mental subtraction) with no dog, a familiar dog (their pet), or an unfamiliar dog present.
- Stressful task - serial mental subtraction aloud; e.g., start at 543 and subtract by 17’s.
- To increase stress more - had kitchen timer on table and told performance would be compared to peers.
- During the mental arithmetic, a Fitbit wristband monitored the person’s heart rate.
- Measured stress as heart rate reactivity.
- Measured task performance as score on the math task and the number of subtractions completed.
- Within-subjects design - tested participants 3x, one week apart to repeat the stress task in a different dog familiarity condition.
- Random assignment of participants to unfamiliar dog identity.
- Completed conditions in counterbalanced order.

**Results**

- The familiar dog condition had the lowest heart rate reactivity, although this was not significantly different from the other conditions.
- There were no significant differences between conditions for number of subtractions.
- The familiar dog condition had a higher math score than the other conditions, although this was not a significant effect.

**Discussion**

Hypothesis 1 is partially supported
- by the trend where people are less stressed when a familiar dog is present.
- Agrees with Barker et al.’s (2010) findings.
- Adds support to the stress-buffering hypothesis.

Potential applications - potentially more effective stress reduction if programs have the same dog rather than different dogs visit each time.

**Future Research**

A. Use exam stress as a natural stressor and independent variable to see how dog familiarity influenced students’ natural stress.
- Test students before, during, and after exams.
- Examine whether dogs with certain features, e.g., size, breed, colour, sex, reduce people’s stress more effectively.

**References**


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