

Effects of Domestic Versus Exotic Animals on Stress Reduction

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Abstract

The use of animals as a therapeutic tool is becoming a more widely studied concept. Researches are finding that animals tend to have positive effects on people. The effect of animal pictures on stress reduction was examined on 65 undergraduate and graduate students. Participants took a timed, stress inducing, mathematical exam and then viewed a short slideshow presentation of animal pictures. Upon completion of the presentation participants filled out a likert-scale State-Trait Anxiety Inventory. The slideshow participants viewed entailed one of four conditions: domestic adult animals, domestic juvenile animals, exotic adult animals, and exotic juvenile animals. Results showed that the level of stress was not affected by the independent variables. Overall, the mean level of stress varied a minuscule between each condition.

Introduction

Animal assisted therapy is a relatively new concept that has recently received attention by the research community. Many studies conducted have researched the benefits animals have on people both individually and socially. Pets serve as companions. Not only do they assist in the interactions between people, but they also benefit individualistic qualities of a person (Brickel, 1981). Physical, pet interaction has been found to lower blood pressure and heart rates (DeMello, 1999). Pets also encourage individuals to physically play with them, which is a great source of exercise. In addition, pets aide in the fulfillment of the psychological needs of individuals. Pet ownership gives individuals a sense of responsibility and induces higher self-esteem (Brickel, 1981). Animals, especially dogs, are known for their unconditional love, which is often the support a person needs after a long day. They can be a nice distraction from the world and daily issues. It has been reported that the physical presence of an animal can ease the processes of expressing difficult feelings (Brickel, 1981). This was the case for an individual whom had become self-isolated and silent for over twenty-five years. A therapist brought in a dog at which time the individual spoke, "you brought a dog." He subsequently broke out of his shell and began to draw pictures of dogs and display the pictures (Brickel, 1981, p.122).

Many studies that look at the effects of animals on people use the participant's autonomic responses as a means of measurement. For example, researchers commonly measure blood pressure, heart rate and perspiration (Allen, Blascovich, Tomaka & Kelsey, 1991; DeMello, 1999; Eddy, 1996). However, other studies have used interviews and surveys to assess psychological health (Seigel, 1990; Straede & Gates, 1993). A self-reported stress measure was utilized in this study based on the constraints of time and money.

There have been significant findings on the differences between being able to see an animal and being able to touch the animal. The current study uses pictures as the stimuli instead of having an animal present. This adds a completely new realm to the previously explained studies in that did not merely use pictures, but had an animal physically present.

The majority of studies have focused on how one type of animal reduced stress. The most commonly used animal is a dog, which was the case in research conducted by Allen et al. (1991). Their study measured blood pressure, heart rate and skin conductance of participants while they performed a stressful task. While performing this task, participants were either alone or had a friend or dog present. Results showed that participants with a friend present demonstrated the highest levels of anxiety whereas those that had a dog present showed the least amount. This may be due in part to a dog's non-evaluative support. In other words, when another person watched while performing a task, even a close friend, the person performing the task may be concerned with the other person's judgment of his or her performance. When only an animal is present, this concern is eliminated (Allen et al., 1991). A different study found that cats, another common pet, provide psychological benefits (e.g. a sense of companionship) to their owners (Strade & Gates, 1993).

While research has generally focused on common household pets such as cats and dogs, there are examples of research on slightly more exotic pets. For example, Eddy (1996) used measurements of heart rate and blood pressure to determine level of arousal in one of three situations. The participant was simply asked to relax in one condition, which showed the highest levels of blood pressure and heart rate. In another condition, the participant was able to see his pet snake. In the third condition, where the participant's heart rate and blood pressure were the lowest, the participant was able to hold and pet the reptile (Eddy, 1996). This suggests that perhaps it is not the type of animal but rather the strength of the bond between animal and owner.

In all these studies, researchers only used one type of animal per study. Siegel's (1990) research differed from these in that it surveyed an elderly population to determine the effects of pet ownership. He found that pet owners in general had fewer patient initiated doctor visits. Among non-pet owners, Siegel discovered a relationship between highly stressful life events and number of doctor visits. This correlation was not present among the pet owning population. He also found that dogs more than any other type of animal provided the most positive effects, which is most likely attributed to the type of companionship and attachment with this pet.

The current study focuses on the effects of the type of animal, domestic or exotic, on an individual's level of stress. The underlying implication from previous research is that stress reduction occurs due to the familiarity and bond with the animal. Little research conducted looked at the effects of unfamiliar animals on stress reduction (DeMello, 1999). The present study is designed to examine whether either domestic or exotic animals induce greater stress reduction. The age of the animal (juvenile vs. exotic) will also be manipulated.

Animals are usually physically present during studies, but this study will focus on whether pictures are a strong enough presence to induce similar effects as opposed to when an animal is physically present. It is hypothesized that juvenile domestic animals will be correlated with the lowest stress scores followed by domestic adult animals. The highest stress scores will occur in the condition viewing adult exotic animals.

Method

Participants

Participants were 65 undergraduate and graduate students from the University of Wisconsin – Stout (39 females, 24 males, and 2 who did not identify sex). Participation in this study was strictly voluntary. Students were able to sign up via a sign up sheet that was presented during class periods. Some participants received class credit for their participation.

Materials

A math test was used to induce stress in participants. The math test was created using two arithmetic books from the UW- Stout. The test was designed to challenge participants, so it was nearly impossible for anyone to finish the test in the allotted time.

The media presentations consisted of various animal pictures extracted from internet websites. In the domestic condition, pictures of cats, dogs and rabbits were shown. Pictures of less familiar animals such as, red pandas, lemurs and capybaras (see Appendix A) were used in the exotic condition. All pictures were of a single animal with neutral backgrounds.

The State-Trait Anxiety Inventory (Spielberger, 1977) was used to measure participant stress. This assessment includes a series of questions assessing the participant's level of anxiety based on a 4-point Likert- scale (1 = Not at all; 2 = Somewhat; 3 = Moderately so; 4 = Very much so).

Procedures

This study was conducted in a computer lab, so each participant had a chair and computer at their station. The number of participants used at a time varied from one to nine. Computers were positioned so participants could only view their computer screen. Upon arrival, participants were randomly assigned to a computer station. They were then given an informed consent and asked to read, sign and date it. The researcher collected the signed informed consent while passing out the math test face down. Participants were instructed to flip over the test and read the instructions at the top of the page stating that they had three minutes to complete the test and not to start until instructed to do so. Participants were given several seconds to read the instructions before the researcher informed them the test time was beginning. After three minutes passed, participants were told that time was up and to direct their attention to the computer screen where Windows Media Player was minimized on the task bar. All computers were set up to display a slide show of animal pictures. Participants viewed one of four slideshows with photos of either domestic adult animals, domestic juvenile animals, exotic adult animals or exotic juvenile animals. Participants were instructed to click on the program, push play and view the slideshow in its entirety. Each slideshow consisted of 20 images, and each image displayed for approximately 6 seconds. After watching the slide show, participants completed the State-Trait Anxiety Inventory. They were then given the debriefing form and thanked for their participation in the study. The researcher wrote either an A, B, C or D on the assessment to signify which slide show they viewed.

Results

The State-Trait Anxiety Inventory is made up of 40 statements total, half of these statements reflected feelings of relaxation. These items were reversed scored to get an overall measure of the participants' level of stress. To confirm the reliability of the State-Trait Anxiety Inventory, internal consistency was tested using Cronbach's alpha. The measure was highly reliable, $\alpha = .879$. Because the scores were highly related, an average stress composite score was created by averaging the items. One participant failed to answer one question on the stress measure. However, rather than eliminating this participant's data, an average was created from the remaining thirty-nine questions.

To determine whether stress was reduced by viewing the animal pictures stress scores were analyzed using a 2 (Type of Animal: domestic vs. exotic) x 2 (Age of Animal: adult vs. juvenile) between-subjects ANOVA. There was no main effect for Type of Animal, $F(1, 61) = .681, p =$

.414. There was also no main effect for Age of Animal, $F(1, 61) = .199, p = .659$. In addition, the Type of Animal x Age of Animal interaction was not significant, $F(1, 61) = .645, p = .426$.

Discussion and Conclusion

It was hypothesized that participants that viewed the slideshow consisting of juvenile domestic animals would show the lowest stress levels. However, the results of this study suggest that stress reduction does not vary with the animal's age or species. Participant's average score on the stress inventory was approximately 2 for every condition. On the likert-scale, 2 represented somewhat stressed. The lack of difference in the mean score may be partially attributed to the fact that a 4-point Likert-scale was used. A larger set of scale points may have resulted in more widely dispersed scores. Another possible reason is that pictures may not have had a strong enough presence to induce stress reduction.

This study both contradicts and supports previous research. Many studies support the idea that the presence of an animal provides stress-relieving effects (DeMello, 1999). The present study did not support the idea that seeing a picture of an animal reduces stress. On the other hand, a study conducted by Siegel (1990) suggests that it is not merely the presence of an animal, but the relationship the individual has with that animal that reduces stress. This study supports this idea in that no relationships were able to develop between the participants and the animal since it was only a picture. Also, as shown by Eddy (1996), tactual interaction causes the most stress reduction; this level of interaction was not possible in this study.

Strengths of this study lie in the procedure and set-up. This study focused on looking for differences in stress reduction between domestic and exotic animals, which is an area within this topic that has been largely overlooked thus far. Additionally, similarly to research conducted by Denton, Burlison, Hobbs, Von Stein and Rodriquez (2001) and DeMello (1990), the current study utilized a mathematical task to induce stress. Another strength of this study is consistency; the researcher had specific dialogue for instructing participants through the different steps of the experiment.

There were several limitations in this study, many of which directly related to a lack of time and funding. Regarding the independent variables, the range of pictures may not have provided enough contrast between the types of animals. All pictures used were furry animals. Using a greater range of animals pictures (e.g. reptiles), might induce a larger difference in stress levels between each condition. In addition, pictures of animals were used instead of having an animal present. Having an animal physically present would likely have provided a stronger independent variable. For the dependent variable, the self-report used was based on a 4-point Likert-scale. In future research, it would be advisable to use a larger scale, for example a 6-point Likert-scale. Ideally autonomic responses would be measured instead of relying on self-reports, since autonomic responses are not biased by the participant's thoughts or opinions. In general, they give a more accurate, scientific data set to work with. Finally, it seemed that the mathematics test was not stressful enough. It would have been beneficial if participants had filled out a stress assessment directly after the stressful task in addition to the one completed after viewing the animal slideshow.

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APPENDIX A

Smithsonian National Zoological Park: <http://nationalzoo.si.edu/Animals/PhotoGallery>
National Geographic: <http://plasma.nationalgeographic.com/animals/index.html>
St. Louis Zoo: www.stlzoo.org
Minnesota Zoo: www.mnzoo.com
Moosey's Country Garden: www.mooseyscountrygarden.com
3D Screen Saver Downloads: www.3d-screensaver-downloads.com
AnalyticalQ: www.analyticalq.com
Dog Luvers: www.dogluvers.com
Volkstudio: www.olegvolk.net