

Spring 5-15-2014

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Author Note

I would like to acknowledge the following people for their assistance and contributions to this research: Dr. Piroch, Professor Nycum, Dr. Stanton, Dr. King, Ms. Ketron, Ms. Barker, and Dr. Hayslip.

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## Abstract

Studies have shown that pet owners have better overall physical health than non-owners; however, little research has been done to examine the influence of pet ownership on an individual's psychological health. The purpose of this research was to determine the effect pet ownership has on interpersonal trust and helping attitudes, as well as to examine gender differences for these variables. It was hypothesized that pet owners would score higher for trust and helping attitudes than non-owners, and that women would score higher for trust and helping attitudes than men. It was also hypothesized that women would have stronger companion animal bonds than men. Subjects completed surveys to measure interpersonal trust, helping attitudes, and strength of companion animal bonds. Results of an independent t-test revealed there were no significant differences between pet owners and non-owners for scores on the trust inventory. However, results of another t-test revealed there were significant differences between women and men for scores on the trust inventory. Results of a third t-test revealed there were nearly significant differences between pet owners and non-owners for scores on a helping attitude survey. There were no differences between women and men for scores on this instrument. Results of a final independent t-test revealed no significant differences in pet bonding scores as a function of gender. Results of this study revealed that women are more trusting than men. A second study was conducted to further examine the relationship due to problems associated with college students owning and caring for pets. Data was obtained from older adults who likely owned pets for longer periods of time and were primary caretakers. Results of an independent t-test revealed there were no significant differences between pet owners and non-owners for scores on the trust inventory. However, results of another t-test revealed there were nearly significant differences between women and men for scores on the trust inventory. Results of a third t-test

revealed there were no significant differences between pet owners and non-owners for scores on a helping attitude survey. There were no differences between women and men for scores on this instrument. Results of a final independent t-test revealed no significant differences in pet bonding scores as a function of gender. Results of this study were not significant. Additional methodological issues should be addressed for future studies in this area. Continued research could provide further evidence of the benefits of pet ownership, and ultimately contribute to people leading healthier lives through pet ownership.

*Keywords:* pet bonding, trust, helping attitudes, pet ownership, gender differences

A Study of Pet Bonding, Interpersonal Trust, and Helping Attitudes as a Function of Gender and  
Pet Ownership

“According to the 2013-2014 APPA National Pet Owners Survey, 68% of U.S. households own a pet, which equates to 82.5 millions homes” (American Pet Products Association, [www.americanpetproducts.org/press\\_industrytrends.asp](http://www.americanpetproducts.org/press_industrytrends.asp)). For many people, pets are considered members of the family. Pets accompany owners on vacations, have their own stockings at Christmas, have clothing and furniture, etc. It is evident that pets are a crucial part of pet owners’ lives, but many people are not aware of the positive effects pets may have on well-being. Literature has revealed that pet owners can benefit physically and psychologically from their pets.

Most people know of the physical benefits a pet can provide, such as warning of intruders, ridding the house of pests, etc., but the psychological benefits of pet ownership are less evident. In a ten month pilot study conducted by Serpell (1991), the behavior and health changes of 71 adult participants after purchase of a pet dog or cat, and 26 non pet owners who served in a control group, were examined using three self-report measures of physical and psychological health. Both dog and cat pet owners reported that minor health issues were relieved during the first month of ownership. Dog owners continued to have less health problems throughout the duration of the study.

In addition to the physical benefits, psychological benefits also occur with pet ownership. McConnell, Brown, Shoda, Stayton, and Martin (2011) conducted a study to evaluate the positive consequences of pet ownership. The researchers obtained a sample of 217 people who completed the Center for Epidemiological Studies Depression Scale, the Rosenberg Self-Esteem Scale, and Cohen and Hoberman’s stress inventory. Participants also responded to four

statements developed by Lyubomirsky and Lepper designed to measure happiness, and statements regarding how often participants exercised. McConnell et al. concluded that pet owners had higher self-esteem, exercised more frequently, were more physically fit, and were less lonely than non-owners. The researchers also concluded that pet owners had healthier personalities, in that they were more extraverted and more conscientious than non-owners (McConnell et al. 2011). Research has also demonstrated that pet ownership can improve social interactions with others, which also enhances well-being (McNicholas et al., 2005). Although there are health risks associated with pet ownership, such as aggression and bites, allergies, etc. (Voith, 2009), the benefits of owning pets far outweigh the risks.

It is likely that the stronger the bond a pet owner has with the pet, the more beneficial the relationship will be. Brown, Richards, and Wilson (1996), conducted a study with 55 adolescents. It was hypothesized that the strength of the bond between an adolescent and his/her pet would predict the intensity of grief following the loss of the pet. It was also hypothesized that the strength of the bond between an adolescent and his/her pet would be greater for girls than for boys. Lastly, based on the previous two hypotheses, the researchers hypothesized that degree of grief experienced after loss of an animal would be greater for girls than boys. The researchers reported that adolescents who had stronger bonds with their pets did experience more severe grief when the pet died than those who had weaker bonds. In addition, Brown et al. concluded that girls formed more intense bonds with pets than boys. However, the participants self-reported the strength of the bonds with their pets rather than completing an instrument designed to measure bonding strength. Thus results may have been difficult to quantify.

Similar results were obtained in a study conducted by Kidd and Kidd (1985) in which 300 three to thirteen year-olds were interviewed regarding their attitudes toward their pets. Results

revealed that boys loved their pets less than girls. In contrast, in a study conducted by Westgarth et al. (2013) results revealed that there was no difference in strength of attachment with their favorite pet between boys and girls. Another interesting result in this study was that only children or the youngest child of the family had stronger attachments with the pet than older siblings. In this study, 1,091 nine to ten year-old children completed questionnaires designed to investigate pet ownership and contact with other people's animals. Factors influencing type of pet owned and strength of attachment were also examined in this study.

Pet owners tend to be very trusting of their pets. In Australia, a survey titled "A State of the Pet Nation" was distributed, and results revealed that pet owners trusted their pets more than their friends ("Pet Owners Trust Their Domesticated Animals More Than Friends—Survey", 2013). Some pet owners even arranged trust funds for their pets. It is evident that many pet owners are loving and generous toward their pets, and results of the aforementioned study indicated that some pet owners trust their pets more than friends.

Perhaps an important aspect of a healthy personality is being trustworthy, as well as trusting. Trust is likely an important quality of relationships and can be evaluated relative to probability. For example, the higher the probability that one will be trustworthy in a certain situation, the more likely a person is to trust the individual. Conversely, the lower the probability that one can be trusted in a certain situation, the less likely a person is to trust the individual (Das and Teng, 2005). In a recent study conducted by Chaudhuri, Paichayontvijit, and Shen (2013), 286 participants were assigned to either an individual group or a group where two participants were paired with each other. One individual or pair was designated the sender, and another individual or pair was designated the receiver. The senders chose an amount of virtual money to send to the receivers. This amount was tripled before it was received by the receiver. The initial amount

and the tripled amount were presented on a computer for the receiver, and then the receiver decided how much money to return to the sender. This send and receive activity was designated as a round. At the conclusion of each round, all participants were informed of the decisions made and their earnings for that round. Results revealed that groups typically sent more money than individuals, indicating that groups are more trusting than individuals. Both male and female groups were more trusting than males and females individually, although there were no significant differences between men and women for trust scores (Chaudhuri, Paichayontvijit, and Shen, 2013). However, in a study conducted previously, results revealed that there were differences between men and women with respect to trusting behavior, specifically disclosure. Foubert and Sholley (1996) reported that women disclosed more than men regardless if they were high trusting or low trusting individuals. Self-disclosure is "...the process of revealing personal information to other people" (Foubert and Sholley, 1996, p. 277).

In addition to trust, another likely indication of a healthy personality may be one's willingness to help others. In a study conducted by Kahana et al. (2013), subjects were part of a longitudinal study of successful aging sponsored by the Elderly Care Research Center. This study was designed to examine factors related to altruistic attitudes, helping, and continued well-being among elderly persons. Kahana et al. concluded altruistic behaviors, volunteering, and other helping behaviors contribute to overall life satisfaction. In a study conducted by Briggs, Landry, Wood, and Arnold (2005), the deciding factors for helping behavior in a sample of youth volunteers were examined using a task which required substantial self sacrifice, which was fasting for a fundraiser for an international relief organization. Results revealed that even among subjects with high regard for the non-profit organization, the type of task influenced participation in and commitment to fundraising. Other results indicated that materialism may negatively



impact the decision to volunteer. Therefore even if a task is interesting, materialistic values may hinder one from participating. Furthermore, the researchers suggested; “Teens may view volunteering as a means of enhancing their self worth.” In this case, the act of volunteering would not be influenced by the type of task (Briggs et al., 2005).

In a similar study conducted by DellaVigna, List, Malmendier, and Rao (2013), money was raised through door-to-door fundraising for two charities, La Rabida or ECU. Surveys of different lengths and monetary incentives for completion were distributed to subjects and willingness to complete the surveys was examined. The researchers concluded that women were more willing to donate money than men to both La Rabida and ECU. In addition, women were more likely to complete the surveys no matter the incentive or length of the survey compared to men (DellaVigna et al., 2013).

To summarize the previous research, pet owners tend to be healthier than non-owners in more aspects than one (McConnell et al., 2013). In addition, both trust and helping behavior may be related to at least psychological health. However, differences between pet owners and non-owners in regards to helping attitudes and trust have not been researched. Previous research has revealed that women tend to be more trusting than men (Foubert and Sholley, 1996) and more willing to help others (DellaVigna et al., 2013). The present studies were conducted to examine differences between pet owners and non-owners, and between men and women for interpersonal trust, helping attitudes, and strength of companion animal bonds. It was hypothesized that pet owners would score higher for trust and helping attitudes than non-owners, and women would score higher for trust and helping attitudes than men. It was also hypothesized that women would have stronger companion animal bonds than men.

## **Method**

### **Design**

This research was nomothetic and non-experimental. The design was a two by two factorial design.

### **Participants**

A total of 130 subjects participated in the first study. The sampling technique was a nonrandom convenience sampling technique. There were 35 men and 95 women in this study, including 95 pet owners and 35 non-owners. Subjects' ages ranged from 18 to 55; the mean age was 20.22, and the standard deviation was 4.27. The subjects were all students attending Coastal Carolina University. Coastal Carolina University is a midsize, liberal arts university located in Conway, South Carolina near a resort town. Some students were awarded an incentive by their professors for participating in the study.

A total of 56 subjects participated in the second study and were obtained using a nonrandom convenience sampling technique. There were 16 men and 40 women, including 29 pet owners and 27 non-owners. Subjects' ages ranged from 43 to 94; the mean age was 68.05 and the standard deviation was 8.33. The subjects were all students of the Osher Lifelong Learning program (OLLI) offered by Coastal Carolina University.

### **Materials**

Prepared written instructions were developed by the investigator and read to all subjects. The researcher also prepared a demographic survey containing statements and questions regarding age, gender, and ethnicity, and additional information was obtained regarding if participants were pet owners (see Appendix A for a copy of the demographic survey).

A second instrument completed by participants was the Helping Attitude scale (HAS) developed by Dr. Nickell of Minnesota State University, Moorhead. This scale was used in this study to assess altruism. Subjects respond to 20 statements on 5-point Likert scales designed to measure attitudes and opinions about helping others (Nickell, 1998) (see Appendix B for a copy of the HAS). The HAS includes statements such as “Helping others is usually a waste of time”, to which subjects respond with 1 indicating strongly disagree, 2 indicating disagree, 3 indicating undecided, 4 indicating agree, or 5 indicating strongly agree. Test-retest reliability of this instrument is reported as .837 ( $p < .001$ ) (Nickell, 1998). For construct validity, scores on the HAS positively correlate with scores on the Self-Report Altruism Scale, the Interpersonal Reactivity Index, and with two of the four subscales of the Interpersonal Reactivity Index, specifically the Empathic Concern subscale and the Perspective-Taking subscale (Nickell, 1998). The HAS also positively correlates with the Social Responsibility Scale, Internal-External Locus of Control Scale, and the Just World Scale (Nickell, 1998).

Another scale completed by subjects was the Interpersonal Trust Scale (ITS) developed by Rotter in 1967 and updated in 1971. This scale is designed to measure participants’ willingness to rely on others (Wrightsman, 1991). The ITS includes 25 statements to which participants respond on 5-point Likert scales (see Appendix C for a copy of the ITS). The ITS includes statements such as “Most people would be horrified if they knew how much news that the public hears and sees is distorted”, to which subjects respond with 1 indicating strongly agree, 2 indicating mildly agree, 3 indicating agree and disagree equally, 4 indicating mildly disagree, or 5 indicating strongly disagree. Split-half reliability was reported by Wrightsman to be .76 (.77 for men and .75 for women). Test-retest reliability was .56 ( $p < .01$ ,  $n = 24$ ) for a seven-month period and .68 ( $n = 42$ ) for a three-month period. Rotter removed statements for the updated ITS

that correlated with the Marlowe-Crowne Social Desirability Scale in order to further improve discriminant validity of the instrument (Wrightsman, 1991).

A fourth instrument completed by all participants was the Companion Animal Bonding Scale (CABS), which contains eight questions to which one responds on 5-point Likert scales. This scale was designed by Poresky, Hendrix, Mosier, and Samuelson in 1987 to examine the strength of the relationship between a human and pet (see Appendix D for a copy of the CABS). The CABS includes questions such as “How often were you responsible for your companion animal’s care?” to which subjects respond with 1 indicating never, 2 indicating rarely, 3 indicating often, 4 indicating generally, or 5 indicating always. Cronbach alphas to assess internal reliability were reported by Poresky et al. (1987) as .87 and .77. For construct validity, scores on the CABS correlate with scores on the Pet Attitude Scale and a childhood and contemporary bonding scale with coefficients of .39 and .40, respectively (Poresky et al., 1987). This scale also has face validity according to Poresky et. al (1987) because the instrument measures what it intends to measure, which is individual’s interactions with pets.

The materials were assembled in packets each of which contained a demographic survey, the HAS, ITS, and CABS. Each packet was numbered to maintain individual subject data sets.

### **Procedure**

For the first study, the researcher contacted faculty at the university with whom she was acquainted and asked if she could solicit subjects and collect data from their students. Once convenient times were determined for the researcher to administer the surveys, data collection began. The researcher entered each classroom and read the typed instructions to the students. These instructions included an introduction of the researcher and a brief description of the research being conducted. Students were informed that participation was voluntary and

anonymous and would require completion of three surveys, and a fourth if one owned a pet.

Students were told that they could withdraw from the study at any time, and if they chose not to participate, to accept materials anyway, leave them blank, and turn them face down on their desks. Those who had already participated in the study were asked to not do so again.

Participants were asked to remain silent throughout data collection. The researcher recorded her contact information on the board, and told students that if they wished to know more about the study they could contact her at a later time. The researcher asked if there were any questions and then materials were distributed. Data collection required approximately 15 minutes in each classroom, and materials were collected upon completion. The participants were thanked, and the researcher left the classroom. These procedures were repeated in five standard classrooms.

For the second study, the researcher contacted the director of the OLLI department of Coastal Carolina University and asked if she could solicit subjects and collect data from students enrolled in the program. Once permission was granted, the researcher contacted a faculty member with whom she was acquainted, and who taught Lifelong Learning classes. Dates and times were agreed upon when the researcher could visit classes and solicit subjects and administer surveys in class. Data collection proceeded in the same manner as in study one. These procedures were repeated in five classrooms.

## **Results**

For all subjects scores on the Interpersonal Trust Scale, Helping Attitude Scale, and Companion Animal Bonding Scale were obtained.

### **Study One**

As stated previously, there were 95 pet owners and 35 non-owners. Of these 95 pet owners, there were 27 primary caretakers of pets and 68 non-primary caretakers. Of the 130

subjects who completed materials, data for the IT were not analyzed for three subjects due to incompleteness of materials. The possible range of scores on the IT is 25 to 125. High scores indicate greater interpersonal trust. The actual range in this study was 53 to 107. The mean score on the IT for pet owners was 84.48 and the standard deviation was 11.67. For non-owners, the mean score on the IT was 82.35 and the standard deviation was 9.06 (see Figure 1 for a comparison of scores). Groups were compared for scores on the IT by calculating an independent t-test. Results revealed there were no significant differences between pet owners and non-owners for scores on the IT,  $t(125) = 0.09, p > 0.05$ . These results did not support the hypothesis.

Although there were 130 participants in this study, data for the HAS were not analyzed for one participant due to failure to complete materials. The possible range of scores on the HAS is 20 to 100. High scores indicate that one is more willing to help others. The actual range of scores in this study was 57 to 98. The mean scores were 80.54 and 83.38 and the standard deviations were 10.64 and 8.33 for pet owners and non-owners respectively (see Figure 1 for a comparison of scores). Non-owners had a higher mean score than pet owners. Scores on the HAS were compared for pet owners and non-owners by calculating an independent t-test. Results revealed that there were no significant differences in HAS scores which did not support the hypothesis; however, results were nearly significant,  $t(127) = -1.41, p > 0.05$  ( $p = 0.08$ ).

Scores on the IT were also compared with an independent t-test to examine differences in scores between women and men, and data were analyzed for 127 subjects. There were 92 women in the sample and the mean score on the IT for women was 84.90 and the standard deviation was 10.65. There were 35 men in the sample and the mean score on the IT for men was 83.91 and the standard deviation was 11.75 (see Table 1 for a comparison of scores). The

hypothesis was supported in that results revealed there were significant differences in IT scores between women and men,  $t(125) = 1.65, p = 0.05$ .

Gender differences for scores on the HAS were also examined. The mean score on the HAS for women was 81.31 and the standard deviation was 10.75. The mean score on the HAS for men was 81.24 and the standard deviation was 8.29 (see Table 1 for a comparison of scores). Scores were compared with an independent t-test. Results revealed that there were no significant differences between women and men for scores on the HAS, which refutes the hypothesis,  $t(127) = 0.03, p > 0.05$ .

In addition to the IT and HAS, scores on the Companion Animal Bonding Scale for women and men current pet owners were also compared. Of the 95 participants classified as pet owners, data for the CABS were not analyzed for seven subjects due to incompleteness of materials. The possible range of scores on the CABS is 8 to 40. High scores indicate a stronger bond with an animal. The actual range of scores in this study was 8 to 40. The mean score for women pet owners was 30.17 and the standard deviation was 5.55. The mean score for men pet owners was 30.86 and the standard deviation was 5.98 (see Table 1 for a comparison of scores). These data were also examined with an independent t-test. Results revealed that there were no significant differences in CABS scores as a function of gender which refutes the hypothesis,  $t(86) = -0.48, p > 0.05$ .

## Study Two

As stated previously, there were 29 pet owners and 27 non-owners. Of these 29 pet owners, there were 23 primary caretakers of pets and 6 non-primary caretakers. Of the 56 subjects who completed materials, data for the IT were not analyzed for four subjects due to incompleteness of materials. Data was analyzed for 28 pet owners and 24 non-owners, including

22 primary caretakers and 6 non-primary caretakers. The possible range of scores on the IT is 25 to 125. High scores indicate more interpersonal trust. The actual range of IT scores in this study was 60 to 100. The mean score on the IT for pet owners was 82.14 and the standard deviation was 11.39. For non-owners, the mean score on the IT was 85.00 and the standard deviation was 8.67 (see Figure 2 for a comparison of scores). Groups were compared for scores on the IT by calculating an independent t-test. Results revealed that there were no significant differences between pet owners and non-owners for scores on the IT,  $t(50) = -1.00, p > 0.05$ . These results did not support the hypothesis.

Although there were 56 participants in this study, data for the HAS were not analyzed for two participants due to failure to complete materials. The possible range of scores on the HAS is 20 to 100. High scores indicate that one is more willing to help others. The actual range of scores in this study was 66 to 100. The mean scores were 83.11 and 86.08 and the standard deviations were 8.02 and 7.11 for pet owners and non-owners respectively (see Figure 2 for a comparison of scores). Non-owners had a higher mean score than pet owners. Scores on the HAS were compared for pet owners and non-owners by calculating an independent t-test. Results revealed that there were no significant differences in HAS scores between the groups which did not support the hypothesis; however, results were nearly significant,  $t(52) = -1.44, p > 0.05$  ( $p = 0.078$ ).

Scores on the IT were also compared with an independent t-test to examine differences in scores between women and men, and data were analyzed for 52 subjects. There were 38 women in the sample and the mean score on the IT for women was 84.68 and the standard deviation was 10.13. There were 14 men in the sample and the mean score on the IT for men was 80.14 and the standard deviation was 10.12 (see Table 2 for a comparison of scores). The hypothesis was



rejected in that results revealed there were no significant differences in IT scores between women and men; however, results were nearly significant,  $t(50) = 1.43, p > 0.05$  ( $p = 0.079$ ).

Gender differences for scores on the HAS were also examined. The mean score on the HAS for women was 85.03 and the standard deviation was 7.42. The mean score on the HAS for men was 83.38 and the standard deviation was 8.37 (see Table 2 for a comparison of scores). Scores were compared with an independent t-test. Results revealed that there were no significant differences between women and men for scores on the HAS, which refutes the hypothesis,  $t(52) = 0.72, p > 0.05$ .

In addition to the IT and HAS, scores on the Companion Animal Bonding Scale for women and men current pet owners were also compared. Of the 29 participants classified as pet owners, data for the CABS were not analyzed for two subjects due to incompleteness of materials. The possible range of scores on the CABS is 8 to 40. High scores indicate a stronger bond with an animal. The actual range of scores in this study was 12 to 40. The mean score for women pet owners was 34.41 and the standard deviation was 5.30. The mean score for men pet owners was 33.40 and the standard deviation was 4.56 (see Table 2 for a comparison of scores). These data were also examined with an independent t-test. Results revealed that there were no significant differences in CABS scores as a function of gender which refutes the hypothesis,  $t(25) = 0.39, p > 0.05$ .

### **Discussion**

As outlined previously, the purpose of the current studies was to investigate differences for interpersonal trust, helping attitudes, and strength of companion animal bonds between pet owners and non-owners, and between men and women. The hypotheses were that pet owners would score higher for trust and helping attitudes than non-owners, and women would score

higher for trust and helping attitudes than men. In addition, it was hypothesized that women would have stronger companion animal bonds than men. All but one hypothesis was rejected. However results of an independent t-test calculated with data from study one revealed that women scored higher for trust than men.

Although there were no significant differences between pet owners and non-owners for scores on the IT, pet owners in study one had a larger mean score indicating greater interpersonal trust, which was expected. Pets can be an asset to promote social interactions for their owners. Dog owners frequently converse with one another when walking with pets or at the park and other venues. Pet owners also meet new people in pet stores, training classes, etc. Thus, pet ownership may increase social behavior, which can lead to the formation of trusting relationships. There were significant differences between women and men for scores on the IT in study one, and nearly significant difference in study two. Women had higher interpersonal trust scores as hypothesized. Perhaps women are less independent than men and need to rely more on others. Women also tend to be more nurturing and emotional than men. These social behaviors (i.e. nurturing, relying on others) could result in stronger social and emotional bonds, which could contribute to feelings of trust.

There were no significant differences between pet owners and non-owners for scores on the HAS. However, non-owners scored higher on the HAS than pet owners in both studies indicating that non-owners are more willing to help others than pet owners. Perhaps this difference is due to pet owners being more preoccupied with their pets rather than with other people. There were also no differences between women and men for scores on the HAS. However, the lack of difference between pet owners and non-owners on the HAS could be because 68 of the pet owners in study one were not primary caretakers, which may mean that

bonds with pets were weak and thus did not influence trusting or helping behavior. In order for the pet to have an impact on physical and psychological health of owners, it is likely that the time with pets must be extensive. However, in study two only 6 of the pet owners were not primary caretakers, but they were all men who did score lower on the HAS. While the mean scores were similar between women and men, women did score higher on the HAS as hypothesized. This may be a result of the nurturant and caring skills some women may demonstrate because of jobs in which they are employed. For example, women more often than men are housemakers and nurses, which require caretaking and nurturant behaviors. Perhaps these skills or behaviors influence women's helping attitudes.

There were no significant differences between women and men for strength of bond formed with pets. However, men in study one had a higher mean score on the CABS indicating that men formed stronger bonds with pets, which is opposite of what was hypothesized. This finding was surprising because only 7 of the 27 primary caretakers were men. However, the adage "a man's best friend is his dog" is commonly repeated. Of the 26 men who owned pets, 19 were dog owners. Perhaps dogs are one of the more interactive pets, and thus it may be easier to form stronger bonds with dogs. In study two, women had a high mean score on the CABS. This finding was not unexpected considering all but two primary caretakers were women.

Some findings obtained in this study were consistent with Foubert and Sholley's (1996) research that revealed that women are more trusting than men. While there were no significant differences between women and men for scores on the HAS, DellaVigna, List, Malmendier, and Rao (2013) concluded that women are more likely to help others than men. The finding that men had stronger bonds with their pets than women conflicted with previous research. Brown, Richards, and Wilson (2003) and Kidd and Kidd (1985) concluded that women form more

intense bonds with their pets than men. However, results from the current study were consistent with a study conducted by Westgarth et al. (2013) in which results revealed that there was no difference in strength of attachment with pets between boys and girls. Other researchers have not examined the influence of pet ownership on trusting and helping behaviors. Further examination of primary caretakers of pets, non-primary caretakers, and non-owners may yield differences that were hypothesized in this study.

There were a number of limitations in this study. Since all participants were undergraduate students at Coastal Carolina University, these results cannot be generalized to the population. In addition, due to the small sample size, the group sizes for pet owners and non-owners, and women and men were unequal. A majority of the subjects were pet owners and women. There were also items on the surveys that may have been unclear to subjects. For example, students who lived at University Place may have been unsure whether to classify that residence as a dorm or an apartment. A larger confound in this research was the lack of counterbalancing of materials. The surveys had been copied in a manner that did not allow for order effect to be addressed. However, perhaps the biggest problem was the general difficulty of conducting research about pet ownership with college students. When students attend college, many relocate and thus are in transition. Pets may remain at home since often students reside in dorms, and other changes make pet ownership difficult. Study two was conducted in an attempt to alleviate this confound, although results did not yield significant differences.

If one were to replicate this research, a larger sample is recommended. Equal group sizes would also be beneficial. To expand this research, it would be beneficial to define pet owners only as those who are primary caretakers of their pets. If a pet resides with an owner, it is more likely that the pet will have a greater impact on both physical and psychological aspects of the

pet owner's life. Also, more questions regarding type of pet owned would aid in examining pet bonding. If a pet owner has hunting dogs that reside outside, this is quite different than a pet owner whose dog sleeps with him/her. More valid results for the CABS may be obtained by having only primary caretakers complete this survey. In addition to replicating this study, comparisons among pet owners with different types of pets could be interesting. Some consider fish a pet, but it is unlikely that a bond one has with a fish is as strong as one would have with a dog or cat. The impact of different types of pet ownership on trust and helping attitudes could produce interesting results.

Research to examine the positive impacts pets may have on one's life may be useful for determining tools for therapy. Beginning in the 9<sup>th</sup> century in Belgium, people with disabilities cared for farm animals as part of their treatment to help them learn daily living activities. This treatment was similar to the Quakers' York Retreat in England in 1792 where animals were used as part of therapy for psychiatric inpatients. Furthermore, nursing pioneer Florence Nightingale recommended companion animal therapy as part of health restoration (Reynolds, 2012). In addition, results of various studies have revealed that the simple act of stroking a cat or watching a fish can lower stress and prolong life (Childers and Scott, 2013). The findings which reveal the positive impacts of pet ownership are important because treatments involving pets are a relatively cheap and efficient means for potentially saving peoples' lives, or at least improving the quality of life. For example, children with learning disorders can benefit from pet ownership in that they can learn how to regulate stress and calm themselves, as well as remain alert and attentive throughout the day, which may better equip these children to deal with challenges and stressors in life. In addition, pet ownership can aid in the vitality of the elderly in that pets

promote playfulness, laughter, and exercise, all of which aid in improvement of the immune system and may help to increase energy.

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Table 1

*Mean Scores and Standard Deviations on the IT, HAS, and CABS as a Function of Gender*

	<b>Women</b>		<b>Men</b>	
	<b>Means</b>	<b>Standard Deviations</b>	<b>Means</b>	<b>Standard Deviations</b>
<b>IT</b>	84.90	10.65	83.91	11.75
<b>HAS</b>	81.31	10.75	81.24	8.29
<b>CABS</b>	30.17	5.55	30.86	5.98

Table 2

*Mean Scores and Standard Deviations on the IT, HAS, and CABS as a Function of Gender*

	<b>Women</b>		<b>Men</b>	
	<b>Means</b>	<b>Standard Deviations</b>	<b>Means</b>	<b>Standard Deviations</b>
<b>IT</b>	84.68	10.13	80.14	10.12
<b>HAS</b>	85.03	7.42	83.38	8.37
<b>CABS</b>	34.41	5.30	33.40	4.56

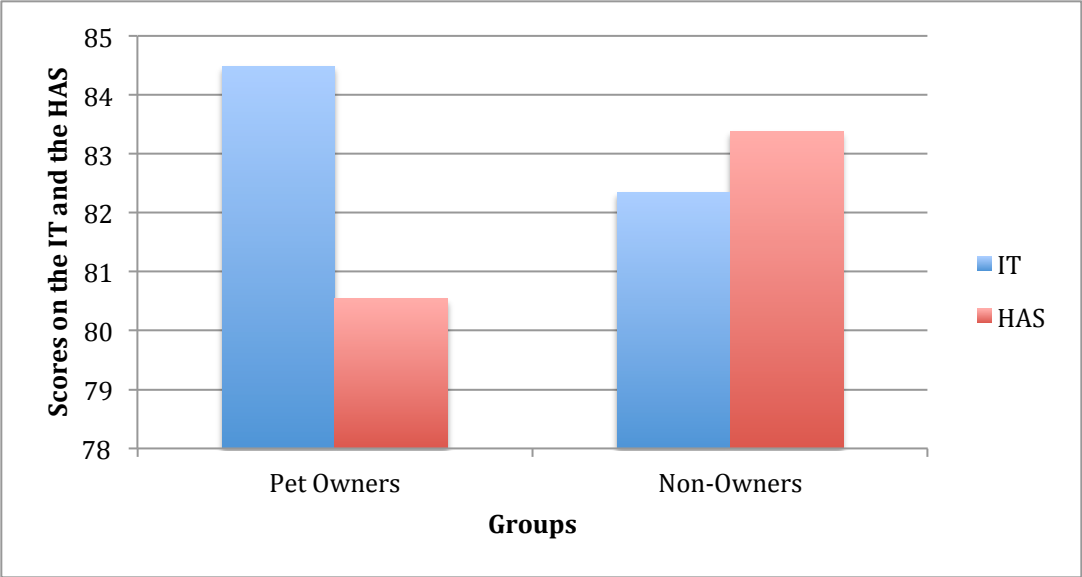


Figure 1. Mean scores on the IT and the HAS as a function of pet ownership.

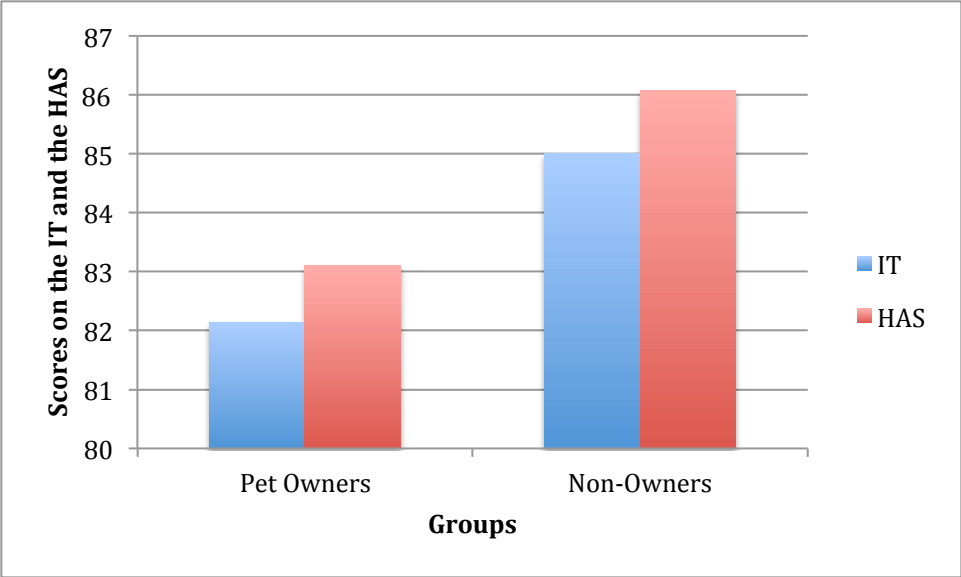


Figure 2. Mean scores on the IT and the HAS as a function of pet ownership.

Appendices

Appendix A

Demographic Survey:

Please respond to the following questions and items.

1. Age: \_\_\_\_\_ years
  2. Sex:    Male            Female            (circle one)
  3. Ethnicity (circle one):
    - a. American Indian
    - b. Asian/Pacific Islander
    - c. Black or African American
    - d. Caucasian/White (including Middle Eastern)
    - e. Latino/Hispanic/Mexican American
    - f. Other (please specify) \_\_\_\_\_
  4. Do you currently own a pet?    Yes            No            (circle one)
  5. If yes, how long have you owned the pet? \_\_\_\_\_
  6. If yes, are you the primary caretaker (i.e. you provide the food, water, shelter)?
 

Yes    No            (circle one)
  7. If yes, how long have you been the primary caretaker? \_\_\_\_\_
  8. Where do you currently reside?
    - a. Dorm
    - b. Apartment
    - c. Condo
    - d. Townhouse
    - e. House
    - f. Other (please specify) \_\_\_\_\_
  9. If you own a pet, does the pet currently reside with you in your current home?
 

Yes    No            (circle one)
  10. If you do not own a pet currently, have you ever owned a pet before?
 

Yes    No            (circle one)
  11. How many pets have you owned in your lifetime? \_\_\_\_\_
  12. Were you the primary caretaker for any of them?    Yes            No            (circle one)
- please complete items on the reverse side**

13. If so, how many? \_\_\_\_\_

14. When did you last have a pet(s)? \_\_\_\_\_

15. What kind of pet(s) do you own now? \_\_\_\_\_

16. What kind of pet(s) did you previously own? \_\_\_\_\_

**Thanks for your participation.**



Appendix B

HAS

**Instructions:** This instrument is designed to measure your interactions with others. It is not a test, so there are no right or wrong answers. Please respond honestly to the statements. Using the scale below indicate your level of agreement or disagreement in the space which is next to each statement.

1	2	3	4	5
Strongly	Disagree	Undecided	Agree	Strongly
Disagree				Agree

- \_\_\_ 1. Helping others is usually a waste of time.
- \_\_\_ 2. When given the opportunity, I enjoy aiding others who are in need.
- \_\_\_ 3. If possible, I would return lost money to the rightful owner.
- \_\_\_ 4. Helping friends and family is one of the great joys in life.
- \_\_\_ 5. I would avoid aiding someone in a medical emergency if I could.
- \_\_\_ 6. It feels wonderful to assist others in need.
- \_\_\_ 7. Volunteering to help someone is very rewarding.
- \_\_\_ 8. I dislike giving directions to strangers who are lost.
- \_\_\_ 9. Doing volunteer work makes me feel happy.
- \_\_\_ 10. I donate time or money to charities every month.
- \_\_\_ 11. Unless they are part of my family, helping the elderly isn't my responsibility.
- \_\_\_ 12. Children should be taught about the importance of helping others.
- \_\_\_ 13. I plan to donate my organs when I die with the hope that they will help someone else live.
- \_\_\_ 14. I try to offer my help with any activities my community or school groups are carrying out.
- \_\_\_ 15. I feel at peace with myself when I have helped others.
- \_\_\_ 16. If the person in front of me in the check-out line at a store was a few cents short, I would pay the difference.
- \_\_\_ 17. I feel proud when I know that my generosity has benefited a needy person.
- \_\_\_ 18. Helping people does more harm than good because they come to rely on others and not themselves.
- \_\_\_ 19. I rarely contribute money to a worthy cause.
- \_\_\_ 20. Giving aid to the poor is the right thing to do.

## Appendix C

ITS

**Directions:** Indicate the degree to which you agree or disagree with each statement by using the following scale:

- 1 = strongly agree
- 2 = mildly agree
- 3 = agree and disagree equally
- 4 = mildly disagree
- 5 = strongly disagree

1. Hypocrisy is on the increase in our society.

1                      2                      3                      4                      5

2. In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy.

1                      2                      3                      4                      5

3. This country has a dark future unless we can attract better people into politics.

1                      2                      3                      4                      5

4. Fear and social disgrace or punishment rather than conscience prevents most people from breaking the law.

1                      2                      3                      4                      5

5. Using the honor system of not having a teacher present during exams would probably result in increased cheating.

1                      2                      3                      4                      5

6. Parents usually can be relied on to keep their promises.

1                      2                      3                      4                      5

7. The United Nations will never be an effective force in keeping world peace.

1                      2                      3                      4                      5

**please complete items on the reverse side**

8. The judiciary is a place where we can all get unbiased treatment.

1                      2                      3                      4                      5

9. Most people would be horrified if they knew how much news that the public hears and sees is distorted.

1                      2                      3                      4                      5

10. It is safe to believe that in spite of what people say most people are primarily interested in their own welfare.

1                      2                      3                      4                      5

11. Even though we have reports in newspapers, radio, and T.V., it is hard to get objective accounts of public events.

1                      2                      3                      4                      5

12. The future seems very promising.

1                      2                      3                      4                      5

13. If we really knew what was going on in international politics, the public would have reason to be more frightened than they now seem to be.

1                      2                      3                      4                      5

14. Most elected officials are really sincere in their campaign promises.

1                      2                      3                      4                      5

15. Many major national sports contests are fixed in one way or another.

1                      2                      3                      4                      5

16. Most experts can be relied upon to tell the truth about the limits of their knowledge.

1                      2                      3                      4                      5

17. Most parents can be relied upon to carry out their threats of punishments.

1                      2                      3                      4                      5

18. Most people can be counted on to do what they say they will do.

1                      2                      3                      4                      5

19. In these competitive times one has to be alert or someone is likely to take advantage of you.

1                      2                      3                      4                      5

20. Most idealists are sincere and usually practice what they preach.

1                      2                      3                      4                      5

21. Most salesmen are honest in describing their products.

1                      2                      3                      4                      5

22. Most students in school would *not* cheat even if they were sure of getting away with it.

1                      2                      3                      4                      5

23. Most repairmen will not overcharge even if they think you are ignorant of their specialty.

1                      2                      3                      4                      5

24. A large share of accident claims filed against insurance companies are phony.

1                      2                      3                      4                      5

25. Most people answer public opinion polls honestly.

1                      2                      3                      4                      5

**please complete items on the reverse side**

Appendix D

CABS

**Directions:** Complete this survey only if you currently or previously owned a pet. Consider “companion animal” to mean your current or most recent pet. Indicate the degree to which you agree or disagree with each statement using the following scale:

- 1 = Never
- 2 = Rarely
- 3 = Often
- 4 = Generally
- 5 = Always

1. How often were you responsible for your companion animal’s care?

1                      2                      3                      4                      5

2. How often did you clean up after your companion animal?

1                      2                      3                      4                      5

3. How often did you hold, stroke, or pet your companion animal?

1                      2                      3                      4                      5

4. How often did your companion animal sleep in your room?

1                      2                      3                      4                      5

5. How often did you feel that your companion animal was responsive to you?

1                      2                      3                      4                      5

6. How often did you feel that you had a close relationship with your animal?

1                      2                      3                      4                      5

7. How often did you travel with your companion animal?

1                      2                      3                      4                      5

8. How often did you sleep near your companion animal?

1                      2                      3                      4                      5