

BENEFITS TO PETS FROM THE HUMAN-ANIMAL BOND: A STUDY OF  
PET OWNER BEHAVIORS AND THEIR RELATION TO ATTACHMENT

A Dissertation by

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PET OWNER BEHAVIORS AND THEIR RELATION TO ATTACHMENT

I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Psychology.

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## DEDICATION

To my husband, Bob Nuckolls, whose constant demonstration of unconditional love and support has been a major source of inspiration and has made this adventure possible; to my parents, John and Nancy Dickinson, for kindling, fanning, and endlessly feeding a child's curiosity; to Zach, for triumphing over difficulties that would have broken a lesser spirit and in the process becoming a man I am so very proud to call my son; to my siblings Debra Harries and David Dickinson, who are off on their own new adventures; to my Aunts, Sally Shaw and Judy Naylor, for support and enthusiasm above and beyond the call of family duty; and finally, to my extended family for keeping me grounded and for nourishing my soul

This is what you should do: love the earth and sun and the animals, despise riches, give alms to everyone that asks, stand up for the stupid and crazy, devote your income and labor to others, hate tyrants, argue not concerning God, have patience and indulgence toward the people, take off your hat to nothing known or unknown or to any man or number of men ... re-examine all you have been told at school or church or in any book, dismiss what insults your own soul, and your very flesh shall be a great poem.

Walt Whitman, preface to the 1855 edition of *Leaves of Grass*

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## ABSTRACT

Researchers have demonstrated clear benefits to humans in their relationships with companion animals; however, little is known about how these animals may benefit from their relationships with humans. The purpose of the current study is to investigate potential benefits to a pet of living in a household, as defined by an array of specific pet owner behaviors. A second purpose is to investigate the relationship between self-reported attachment to a pet and dimensions of potentially beneficial owner behaviors on behalf of that animal.

Participants in the current study were pet-owning undergraduate students (N=501) from a large Midwestern university who were surveyed on an array of behaviors they may perform for or with a companion animal. Self-reported attachment to the animal was measured using the Lexington Attachment to Pets Scale (Johnson, Garrity, & Stallones, 1992).

Factor analysis resulted in five dimensions of behavior for dog owners (n=350), named Indoor/Outdoor, Attention, Inclusion, Well-being, and Safety. Four dimensions were found for cat owners (n=151) and named Indoor/Outdoor, Indulgence, Possessions, and Independence. The Indoor/Outdoor dimension was similar to factors found in previous research. The rest of the dimensions appear to be uniquely important in terms of either dog or cat ownership. Regression analysis using factor scores to predict attachment revealed that 38.6% of the variance in attachment scores for dog owners and 23.6% for cat owners was explained by the dimensions.

The results of the factor analysis provide a picture of what human care giving might mean, in terms of beneficial behavior, to the animal. The results also indicate that the basic needs of companion animals are being met regardless of the degree of attachment: low attachment may not necessarily mean poor care. Attachment does, however, appear to make a difference in the life of a companion animal in terms of enrichment. Dog owners who report higher attachment tend to include the dog in family activities, and provide certain kinds of attentions. Cat owners who report higher attachment are more likely to have a cat that stays close by their side, and are also more likely to provide gifts and treats to the cat.

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## CHAPTER I

### INTRODUCTION AND LITERATURE REVIEW

It is probably safe to assume that humans and animals have been interacting since the beginning of time. Our initial associations with animals would have been largely focused on utility: animals were viewed as sources of food, labor, fur, protection, and rodent control. No one knows for certain when humans and animals began to interact in companionate relationships: our best guess comes from archaeologists who have discovered graves in which people were buried with a dog or cat. Based on such evidence, dogs are believed to have been domesticated by humans around 14,000 BC (Western, 1997). The earliest evidence of cats as pets, from a recent archaeological dig in Cyprus, dates remains back to 7500 BC (Walton, 2004).

While the concept of animals as companions to humans is ancient, it is only during the past thirty years or so that researchers have begun to study the question of why humans keep pets. The term “human-animal bond” has come to represent endeavors in this area. The human-animal bond is defined by the American Veterinary Medical Association as “a mutually beneficial and dynamic relationship between people and other animals that is influenced by behaviors that are essential to the health and well-being of both. This includes, but is not limited to, emotional, psychological, and physical interactions of people, other animals, and the environment” (Wollrab, 1998, p. 1675).

The human-animal bond has been studied by researchers in many disciplines, but primarily by psychologists, veterinarians, and sociologists. During one of the earliest conferences on the subject, the Delta Society Invitational Conference for Research on the Interactions of Animals and People in 1984, a group of scientists met to map out paths for

future research. They made three major recommendations regarding research content: (1) more research should occur in normal settings rather than medical or therapeutic settings, (2) more research should focus on benefits to animals, and (3) researchers should focus more attention on the behaviors and attitudes of normal populations. Methodological recommendations included a preference for behavioral rather than attitudinal measures of the human-animal bond (Zeglen, Lee, & Brudvik, 1984).

### *Benefits to Humans*

Much of the research to date on the human-animal bond has focused on benefits to humans (e.g., Anderson, Hart, & Hart, 1984; Friedmann, Thomas, & Eddy, 2000; Podberscek, Paul, & Serpell, 2000; Robinson, 1995). One benefit of pet ownership is increased survival rate after heart attack (Friedmann, Katcher, Lynch, & Thomas, 1980; Friedmann et al., 2000). Friedmann et al. (1980) found that simply owning a pet, regardless of degree of interaction or attachment, was significantly related to the one year survival rate for patients with coronary heart disease. While the best predictor of survival was found to be severity of illness, prediction accuracy was significantly increased by taking pet ownership into account. In a replicated study, Friedmann (1995) found that pet ownership, severity of illness, and degree of social support acted independently to influence survival rates.

Pet ownership may influence risk factors for cardiovascular disease as well. In an epidemiological study (N=5741) of pet ownership and risk factors for cardiovascular disease, Anderson, Reid, & Jennings (1992) found male pet owners to have lower levels of cholesterol and triglycerides as well as lower systolic blood pressure. For women, who

are more likely to develop cardiovascular disease at or subsequent to menopause, the benefits did not appear until that time.

Researchers have found an association between petting a dog and physical phenomena that appear to produce a calming effect in humans. In experimental settings, talking to and/or petting a dog has been shown to result in reduced blood pressure, pulse, and respiration (Baun, 1984; Friedmann, 1979; Vormbrock & Grossberg, 1988). Conversely, talking to other humans in the same experimental conditions, with no dog present, resulted in higher blood pressure and heart rate (Friedmann, 1979; Vormbrock & Grossberg, 1988). Baun investigated further and found an effect for bonding: if the person felt a positive bond toward the dog, blood pressure and respiratory rate dropped even further during petting.

Although bonding appears to increase the benefits, it may not be essential in producing positive effects. In a study that included a wide range of participants from healthy young university employees to elderly hypertensives, watching tropical fish in a 40-gallon tank reduced blood pressure to lower rates than simply sitting quietly in a chair (Katcher, Friedmann, Beck, & Lynch, 1983). Additionally, pet ownership has been found to be associated with reduction in complaints about minor health problems (Friedmann et al, 2000), and fewer physician visits for elderly pet owners, especially those with dogs (Siegel, 1990).

Researchers have also looked at relationships between the human-animal bond and psychological factors. Sable (1995) used attachment theory and social support to explain how attachment to pets may reduce loneliness and diminish stress. Poresky and Hendrix (1990) examined several aspects of human development, including social

competence, empathy, cooperation, and intelligence with respect to the presence of a pet in the home. Results indicated significant correlations between bonding scores and social competence, empathy, and cooperation, and provided further support for the importance of the human-animal bond. In a recent qualitative study, Harbolt and Ward (2001) described an intervention that paired incarcerated youth with shelter dogs. These teenagers spent three weeks with the dogs, participating in various activities such as basic obedience training, grooming, socializing, walking the dog, cleaning the kennel, watching for illness and medicating the dog when ill. At the end of the intervention, each young person wrote a letter to accompany their dog back to shelter for adoption. Examination of these letters suggested that many youth had become more socially competent and learned useful lessons as a direct result of the intervention.

Possible relationships between the human-animal bond, social support, and physical and psychological dimensions have been studied. Budge, Spicer, and St. George (1998) considered the human-animal bond from the standpoint of compatibility, defined as “the fit between the animal and the owner on physical, behavioral, and psychological dimensions” (p. 29). Participants for this study were recruited through a newspaper article, and included 176 people who indicated they had lived in a house with a companion animal for at least a year. Participants were given a measure of compatibility, the Pet Attachment Survey, a human social support scale, and mental and physical assessments. Results indicated a positive relationship between compatibility and mental health, compatibility and physical health, and compatibility and attachment to pets. A negative relationship was found between physical health and attachment to pets.

Two studies of pet ownership and loneliness produced conflicting results. Zasloff and Kidd (1994), in a study of 148 adult female students, found that while no significant differences existed between pet owners and non-owners on reported loneliness in general, the presence of a pet was associated with reduced loneliness in women who lived alone. Conversely, Mahalski, Jones, and Maxwell (1988) surveyed attitudes about cats in elderly women who lived in public housing in two cities in New Zealand, one that allowed pet cats in the house and one that denied them. Results indicated that in the city where cats were allowed in the house, attitudes toward cats were more positive. Attitudes also were more positive when the participant either had a cat or wanted a cat. No conclusive relationship was found between pet ownership and reduction in loneliness.

#### *Benefits to Pets*

As stated earlier, few studies have focused on the positive aspects of the human-animal bond with respect to the pet. One of the earliest studies to focus on the animal rather than the human involved an experiment where human participants either petted a laboratory dog or simply entered the same room without interacting. Gantt, Newton, Royer, and Stephens (1966) found that the dogs exhibited tachycardia (increased heart rate) when a person entered the experimental room without interacting with the dog, and bradycardia (decreased heart rate) when being petted. While this experiment illustrated the need for experimental control when using animals in laboratory research, it also showed the positive results of petting for the dog.

Anderson and Gantt (1966) studied the interactive influence of two stimuli (petting and shock) presented simultaneously. Petting and shock presented alone produced opposite cardiac responses (bradycardia following petting, tachycardia

following shock). Results indicated significant reduction in heart rate response to shock when shock was accompanied by petting. Lynch and McCarthy (1967) conditioned five dogs using a tone-shock sequence until all dogs responded reliably (90% of time) by flexing a leg muscle in anticipation of shock. Researchers then experimented with three conditions: pairing the tone-shock sequence with the dog alone in the room, with a person present, and with a person petting the animal during the ten-second tone and for ten seconds after the one-second shock. Results indicated that petting had a significant and positive effect on both conditioned response and unconditioned response for both motor activity (leg flexion prior to shock) and heart rate. Lynch and McCarthy (1969) also determined that cardiac response in dogs depends upon the how the presence of the person is interpreted by the dog. During their experiment, the person either served as a signal for subsequent electrical shock, was present in a passive role, or petted the dog. Heart rate varied by condition, with the highest heart rates associated with person paired with shock and lowest rates for person paired with petting. Again, the point of the research was to stress the importance of experimental control, but it also speaks to positive physiological changes in the dogs, similar to those experienced by humans.

It seems clear that humans have gained from relationships with companion animals. However, beyond the laboratory studies described above, very little is known about what these animals may gain from their relationships with humans. The purpose of this study is to investigate the benefits of living in a household to pet dogs and cats by looking at an array of behaviors pet guardians may perform for or with their pets. Another purpose is to examine relationships between these behaviors and self-reported

attachment as measured by the Lexington Attachment to Pets Scale (Johnson, Garrity, & Stallones, 1992).

### *Attachment to Pets Scales*

Researchers interested in the human-animal bond have attempted to measure it through self-report scales. The attachment scales that have been developed are largely atheoretical. Although some researchers state that their scales are theory-based, citing theories such as biophilia, attachment, and/or social support as structure for developing their scales, none appear to have gone further than that.

Attachment scales tend to indicate emotional responses to the pet and include such items as “My pet knows when I'm feeling bad.” and “My pet makes me feel loved.” Some researchers (i.e., Poresky, 1989) have attempted to go beyond attitudinal measurement. Poresky's scale represented an attempt to measure attachment primarily through assessing behavior, and included behavioral questions such as “How often did you hold, stroke, or pet your companion animal?” and “How often did your companion animal sleep with you?”

A recent review of the literature revealed the existence of numerous published human-animal bond scales. A few have evaluated and reported psychometric properties, while others have simply been created and offered for use by any researcher willing to test the psychometrics of the instrument. Following is a brief description of several commonly used scales.

Templer, Salter, Dickey, Baldwin, & Veleber (1981) developed an 18-item Pet Attitude Scale, with a Cronbach's alpha (a measure of reliability) of .93 and two week test-retest reliability of .92. According to Nunnally (1978), an alpha of .50 is acceptable,

with higher values indicating more statistical support for the internal consistency of the measure (theoretically possible values range from 0.00 to 1.00). Face validity and criterion validity were supported by the fact that kennel workers scored significantly higher than social work students. A factor analysis with varimax rotation yielded three factors: love and interaction, pets in the home, and joy of pet ownership.

Poresky (1989) developed two scales: the Companion Animal Bonding Scale and the Companion Animal Semantic Differential. Data gathered from two studies, with adults and with families, were examined for reliability. The adult study yielded a Cronbach's alpha of .82. In the second study, Cronbach's alpha was reported as .76 for mothers and .80 for fathers. A factor analysis resulted in three factors: bonding, animal size, and pet responsiveness. Bodsworth and Coleman (2001) used the scale to study the relationship between attachment and family circumstances, finding that stronger attachment occurred in young children from single parent homes than those from two parent homes.

Holcomb, Williams, and Richards (1985) developed the Pet Attachment Survey (PAS), a 27-item Likert-type scale that includes both behavioral and emotional aspects of pet attachment. Two subscales, Relationship Maintenance and Intimacy, were found to be highly correlated ( $r=.76$ ). Cronbach's alpha was reported as .85 and .83 for the respective subscales. Budge, Spicer, and George (1998) used the PAS to compare attachment, mental health, and physical health, finding attachment to be positively related to mental health but negatively to physical health.

Wilson, Netting, and New (1987) published the Pet Attitude Inventory (PAI), based on earlier work by Bustad and by Ory and Goldberg. The PAI, a 50-item scale,

purports to measure ownership characteristics, attachment, and attitudes toward pets. Psychometric properties have not been reported for this instrument. Kidd and Kidd (1989) selected the PAI to study factors in adults' attitudes toward pets. They reported that women, singles, and childless couples were more attached to their pets. In addition, those who had owned pets as children were more attached to a current pet. No information on scale reliability was reported.

Lago, Kafer, Delaney, and Connell (1988) developed the Pet Relationship Scale (PRS) from previous scales, including Templer's Pet Attitude Scale, and from the literature on the human-animal bond. The PRS is a 22-item scale containing both behavioral and attitudinal measures. Data from two samples (one U.S. and one Canadian) were collected and a factor analysis with varimax rotation yielded three subscales: affectionate companionship, equal family member status, and mutual physical activity. Cronbach's alpha for the US sample was .91; for the Canadian sample it was .94, indicating a very high internal consistency for the instrument. Chumley, Gorski, Saxon, Granger, and New (1993) utilized the PRS to study risk of relinquishment at military transfer time. A strong, positive relationship was found between attachment and the likelihood that the pet moved with the family. The researchers added a single-item semantic differential to help assess validity of the instrument, and found a strong relationship between attachment and semantic differential scores. Additionally, data were subjected to factor analysis with varimax rotation, yielding two factors instead of Lago's three: pet companionship and pet affection. Cronbach's alpha for this sample was .95.

Zasloff (1996), in response to concerns about possible biasing effects for different species, developed the Comfort from Companion Animals Scale. A number of other

attachment scales include items germane exclusively to dogs, which results in higher scores for people with dogs rather than cats or other species of pets. Zasloff showed that when two items pertaining to dogs were removed from the Comfort from Companion Animals Scale, no differences in attachment were found between dog and cat owners. Castelli, Hart, and Zasloff (2001) used the instrument to measure reported attachment to dogs and cats in men with AIDS. Results indicated strong attachment to cats but not to dogs. Another scale in current use is the Lexington Attachment to Pets Scale (LAPS), which will be discussed later.

#### *Attachment and Benefits to Pets*

The question remains: does attachment to pets translate into any kind of benefit for the pets? Is high attachment better for the pet? Kafer, Lago, Wamboldt, and Harrington (1992) note that “[t]he promising start in assessing attitudes will mean relatively little in the long run if it cannot be shown to be associated with important differences in personal behavior” (p. 104).

There are a few studies addressing this issue. The human-animal bond may protect some animals from abandonment or harm. Chumley et al. (1993) assessed attachment to a favorite pet among service members expected to transfer within the next six months. Follow-up surveys were administered after the moves. While the primary reasons given for relinquishing the animals at transfer were cost of transporting the pet, animal quarantine periods, and housing restrictions in the new location, there was a strong positive relationship between level of attachment to a companion animal and whether the animal went with the family during the military transfer.

In a study to determine risk factors for pet evacuation failure during a flood, Heath, Beck, Kass, and Glickman (2001) found a strong positive association between attachment and the likelihood that pets were evacuated. Of those who failed to include their pets in the evacuation, the majority (66.7% of dog owners and 75.8% of cat owners) stated a belief that they would not be gone long. Another major concern was for the safety of the family, and more than a third said they could not transport their pet. One of the major problems for cat owners was in catching them: 43.6% of cat owners reported that they could not catch the cat versus only 18.5% of dog owners. More than 20% of pet owners stated that they were instructed not to evacuate the pet. The authors cite another study on pet evacuation failure (due to a hazardous chemical spill) in which similar results were obtained. Failure to evacuate the pet was related to low attachment and commitment in both studies.

The well-being of pets may even displace human needs in difficult situations. Faver and Strand (2003) found that over 25% of battered women with companion animals reported that decisions about staying or leaving the situation were influenced by the presence of the animals. Women with companion animals were less likely to leave the home. Logistic regression analyses showed that this influence was significantly increased in women reporting that their animals had been threatened or actually hurt by the batterer. Cohen (2002) presented pet owners with hypothetical situations in an attempt to measure family status of the pet. When asked to choose whether they would give a scarce drug to a stranger or their own pet, 13 of 16 respondents stated they would choose the pet. When given a scenario in which they were asked to imagine themselves in a capsizing boat with family members and their pet, six of the 16 said they would rescue their pet before

rescuing humans. The choice to rescue a pet first was based on perceived helplessness for 10 of the 16.

In a discussion of the consequences of veterinary medical advances, Commings (2003) presents numerous examples of people willing to spend thousands of dollars on heroic health care measures for their pets. She cites a finding of the 2002 Pet Owner Survey conducted by the American Animal Hospital Association. When asked how much they would be willing to spend to save their pet, nearly half of the respondents said “any amount.” She further states that the bond between human and non-human animal may be as great a factor in the owner’s decision-making as are the pet’s condition or the cost of treatment.

Unfortunately, some evidence suggests attachment may not be a factor in terms of benefits to the pet. DiGiacomo, Arluke, and Patronek (1998) interviewed 38 people who relinquished their pets to animal shelters. While the decision to relinquish was not made lightly, and tended to involve a good deal of thought and emotion, the animal was still given up. The same results occurred in a study by Shore, Petersen, and Douglas (2003), who interviewed relinquishers who stated they were giving up the animal because they were moving. It was found that relinquishers as a group were highly bonded to the animal surrendered to the shelter. A number of participants expressed great sorrow at having to relinquish the pet, and many had already tried numerous other options before resorting to the shelter. Central factors in relinquishment included relatively low income, moving for employment, and renting rather than owning. While we cannot conclusively state that attachment does not prevent relinquishment, these studies suggest it may not.

### *Statement of Problem*

One purpose of this study is to examine dimensions of pet owner behaviors, specifically those thought to be of benefit to the animal. A second purpose of this study is to further investigate whether self-reported attachment, as measured by a scale in current use, is linked to dimensions of behaviors that benefit the pet.

## CHAPTER II

### METHOD

#### *Participants*

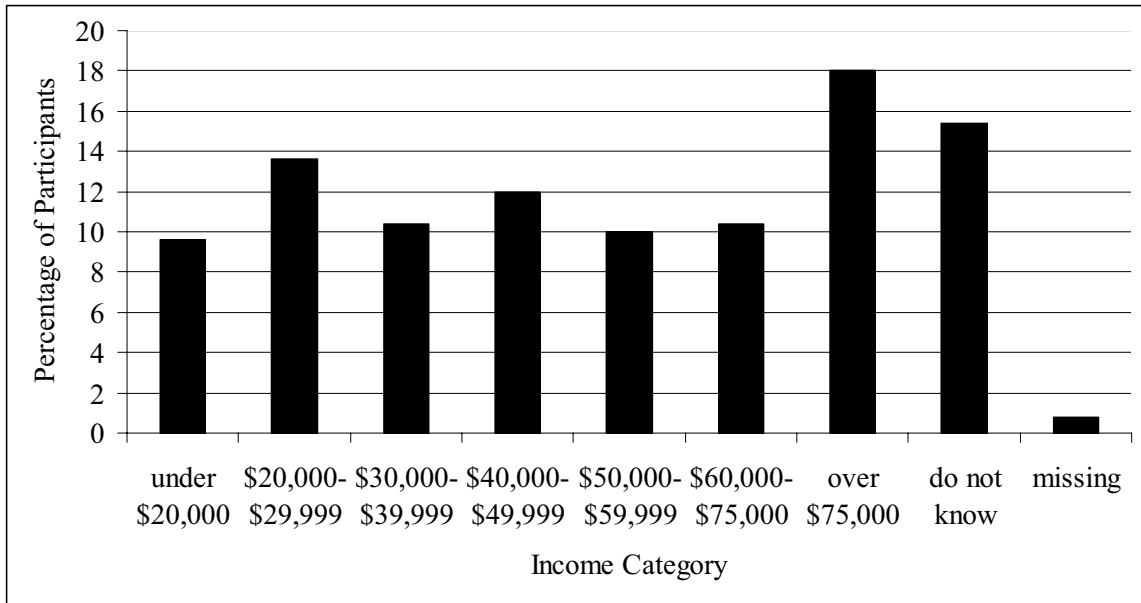
Participants consisted of 534 students recruited from a variety of undergraduate classes at a large Midwestern university located in an ethnically diverse metropolitan area. A number of these students are nontraditional (older than traditional college students, attending college part-time, working full- or part-time, married). The proportion of nontraditional students in the sample may have been increased by the fact that most of the data were collected during the Summer 2003 session, when professionals such as teachers return to fulfill continuing education requirements.

Twenty-seven surveys had to be discarded because they were missing several pages. Another six surveys were discarded because participants either failed to indicate a target animal or did not complete the survey. The remaining 501 participants were primarily female (70.7%) and Caucasian (78.2%). The mean age for the sample was 25.56 (s.d. 9.20), with ages ranging from 16 to 60. Most (77%) were full-time students, and most (72.6%) work full or part time. Regarding their role at home, 42.6% of students said they lived with their parents, while 39% said they were the head of household, spouse, significant other, or parent. The majority (69.6%) lived with four or fewer people. Just under half (45%) reported that children lived in the household.

Virtually all (92.4%) students stated they were born in the United States. A majority (60.3%) reported owning more than one dog or cat; of these, 54.1% owned two to four animals, 4.6% owned five to eight, and 1.6% owned more than eight cats and/or dogs. Income was reported as one of seven different categories from under \$20,000 to

over \$75,000 (see Figure 1). Slightly over 15% said they did not know their household income, which is unremarkable in a sample including a large number of students still living with their parents. Detailed information on characteristics of the participants may be found in Appendix B.

*Figure 1. Annual household income of participants expressed as a percentage.*



### *Instrument*

The People and Their Pets Survey (Appendix A) consists of five sections: a set of 85 questions designed to elicit information regarding owner behaviors toward and with their companion animals (with separate subsections dealing with behaviors unique to dog owners and cat owners), the Lexington Attachment to Pets Scale (Johnson et al., 1992), the Miller-Rada Commitment to Pets Scale (Staats, Miller, Carnot, Rada, & Turnes, 1996), a single-item semantic differential attachment scale (Chumley et al., 1993), and a set of demographic questions. The Miller-Rada scale and the semantic differential scale were not used in the current study.

To prepare to sample owner behaviors thought to be of benefit to the pet, a group of four researchers generated a list of behavioral items from a wide variety of domains resulting from a literature review, from gleaning information from articles describing care of companion animals, and from brainstorming sessions. Developing these items was a dynamic process: categories were suggested, questions generated and cross-checked to categories, and new categories and questions were generated until the researchers were satisfied that an exhaustive list of behavioral questions had been created. After a final pool of questions had been created, researchers independently categorized each item. The researchers discussed their rationale for categorizing until a consensus was formed that questions had been developed to cover eight domains of benefit: food, shelter, safety, contact with humans, veterinary and home health care, freedom from fear and abuse, mental stimulation and play, and a miscellaneous category (e.g., willingness to seek advice regarding the pet).

Behaviors regarding food were assessed by asking questions such as how often the pet is fed, what type of food is provided, and whether clean water is available. Behaviors regarding shelter were assessed by asking where the pet generally stays during the day, at night, and during inclement weather. Safety questions included asking whether the pet is allowed to go unsupervised away from the house, whether the pet is tagged or microchipped, and whether the yard is fenced. Contact with humans was assessed by asking questions including whether the pet sleeps with the person, how often (and for how long) the pet is left alone during a normal day, and what happens to the pet when the owners are traveling or ill. Veterinary and home health care was measured by responses to questions including whether the pet has visited a veterinarian in the past year, if it is

current on its rabies shot, and if it receives medications to prevent fleas and ticks. Freedom from fear and abuse was assessed by asking questions such as how the pet is disciplined or punished, and what happens when the pet is fearful (e.g., during a storm). The construct of mental stimulation and play was measured by responses to questions such as whether the pet has its own toys, whether (and how often) someone plays with the pet, and whether household objects such as foil or paper balls are used as pet toys. A final miscellaneous category included assessment of such items as whether the pet owner understands that young children are never to be the primary caregivers, and whether the pet owner is willing to seek outside advice for pet problems. Some of the questions were species-specific: three questions unique to cats included the use of scratching posts, cat furniture, and catnip; and twelve questions unique to dogs included whether the dog was licensed, provided heartworm medication, taken for walks, day care, hunting, dog fights, and enrichment (problem-solving toys, agility, therapy).

The Lexington Attachment to Pets Scale (LAPS; Section II in *Pets and Their People Survey*, Appendix A) is a semantic differential scale in which participants are asked to agree or disagree to statements thought to measure attachment to animals. The LAPS is perhaps the most thoroughly tested instrument in use today. Stallones, Johnson, Garrity, and Marx (1990) developed the scale and analyzed its psychometric properties using data from a U.S. probability sample of persons aged 21 to 64. Results yielded a Cronbach's alpha of .75. Johnson et al. (1992) refined the LAPS based on data from a random, representative sample (N=412). The resultant scale consists of 23 items "having excellent psychometric properties" (p. 160). Cronbach's alpha was 0.928. A principal components analysis with varimax rotation resulted in three factors: general attachment,

people substituting, and animal rights/animal welfare. Cronbach's alpha for these subscales were 0.90, 0.85, and 0.80, respectively. No relationship was found between attachment and whether the participant was the primary caretaker for the pet. The LAPS has several limitations: respondents may have been influenced toward more positive answers as they were instructed to answer according to their feelings toward a favorite pet. In addition, results from an Item Response Theory analysis indicated that the LAPS is not effective in assessing weak attachment. Items indicating lower attachment tended to be better indicators of attachment, but few of these items were identified in the instrument. Finally, the LAPS has only been administered via telephone, so no psychometrics are currently available for paper-and-pencil format.

The final section in the instrument included demographic items. Participants were asked questions regarding their gender, age, race/ethnicity, income, student and employment status, number of people living in the home, number of children living in the home, number of other pets living in the home, and income.

### *Procedure*

Professors and instructors at the university were contacted by telephone to request permission to visit classes for recruitment and survey administration. They were advised that the study involved what pet owners do for and with their pets and their attachment to their pets, and that eligibility for participation was limited to students who were currently living with at least one cat or dog. If the professor or instructor was willing, an appointment was made for a researcher to visit the class and administer the survey. The researcher gave a short speech to the entire class regarding the nature of the survey and eligibility requirements. It was emphasized that students must be living in the same home

as the dog or cat, and that students who were living away from the home where the pet lived were not eligible to participate in the present study. Students were advised that the survey should take around 15 minutes to complete and that it must be completed on site. Volunteers who indicated they were eligible were provided surveys after signing a consent form. Participants were instructed to think of their present pet while completing the survey. If more than one pet resided in the household, participants were asked to select one for survey purposes. After survey completion, interested participants provided contact information in order to receive research results. Extra credit for participation was offered to students in psychology classes. Data were entered into SPSS Version 12 and checked for accuracy.

## CHAPTER III

### RESULTS

#### *Preparation of Data for Analysis*

Prior to analysis, the data were split into two files in order to analyze data for dogs and cats separately. For both datasets, all variables were examined for accuracy of data entry, singularity, and interpretability within the current study, missing data, outliers, and multicollinearity. A number of items approached singularity and were removed from further analysis; however, some items approached singularity for one species and not the other. Some variables were recoded as dichotomous to make them suitable for factor analysis. The dichotomous variables were then re-examined for singularity: items in which 70% or more participants chose the same response were removed from further analysis. Generally, a 90% cutoff is preferred (Tabachnick & Fidell, 2001), but a more conservative cutoff was chosen in light of the small sample size ( $n=350$  for dogs,  $n=151$  for cats). Preliminary inspection of variables indicated that some questions were not interpretable within the current study: for example, it would be difficult to infer a benefit to the pet from the number of times it is fed per day. Separate tables for each species listing all items removed from the analysis, along with the reason for exclusion, may be found in Appendices C and D. A majority of variables in both datasets were extremely skewed and/or kurtotic; transformations were not made in the interest of interpretability of the solution. SPSS collinearity diagnostics suggested no problems with multicollinearity.

For dogs, examination of stepwise regression residuals yielded no multivariate outliers using Mahalanobis distance at  $p<.001$ , evaluated at  $\chi^2(35) = 66.553$ . For cats,

examination of stepwise regression residuals yielded four suspected multivariate outliers using Mahalanobis distance at  $p < .001$ , evaluated at  $\chi^2(28) = 56.892$ . A second inspection of skewness and kurtosis after removal of outliers for the cat dataset showed a small increase in both skewness and kurtosis for most variables, suggesting that the variables were not, in fact, outliers. They were therefore retained for analysis.

Results of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy test (0.871 for dogs, 0.678 for cats) suggested a factor analysis would be useful with these data: cutoff for good factorability is 0.6 (Tabachnick & Fidell, 2001).

#### *Demographic Results for Dogs and Cats*

More dogs ( $n=350$ , 69.9%) than cats ( $n=151$ , 30.1%) were represented in the sample. Mean age for dogs was approximately 4.5 years (55.48 months, s.d. 46.04); for cats, the mean age was slightly higher, approximately 5.25 years (63.05 months, s.d. 53.77). Ages for both cats and dogs ranged from two months to eighteen years. Sex of the animal was fairly evenly divided: 51.1% ( $n=179$  of 350) of participants chose to think about a male dog, and 47.7% ( $n=72$  of 151) chose to think about a male cat while completing the survey.

#### *Dimensions of Pet Owner Behaviors*

##### *Dog Owners.*

A principal components analysis using the 35 variables retained for analysis was used to obtain eigenvalues, resulting in 11 components with eigenvalues above one. Pairwise exclusion was employed to deal with missing data. Examination of a line graph plot of eigenvalues using Cattell's Scree (Appendix E) suggested a 5 factor solution. A principal axis factor analysis with 5 factors extracted and varimax rotation was employed.

When a promax rotation was requested, examination of factor correlations indicated three modest correlations. For this reason, an oblique solution was chosen.

Factor pattern coefficients below .35 (12% of variance) were not interpreted. Some factors were reflected to clarify interpretation. For the factor pattern and structure matrices, refer to Appendices F and G respectively. Table 1 shows the factor pattern coefficients (partial correlations between the item and rotated factor) for the first factor, which was named Indoor/Outdoor. High loadings on this dimension suggest that the dog lives indoors, spends most of its time indoors, sleeps on the bed with family members, and does not have an outdoor doghouse.

Table 1

*Indoor/Outdoor: Dog Owners Factor Pattern Coefficients*

---

$r_{fp}$	Item
.881	The pet lives in the house.
.868	In a 24 hour day, the pet is never outside.
.840	When I/we go to sleep, the pet sleeps on the bed, with me or a family member.
.791	In very hot or cold weather, the pet lives indoors.
.771	In bad weather (rain, storms), the pet lives indoors.
.763	The pet spends most of its time inside, wherever it wants to go.
.705	When family members are home, the pet is always in the house with someone.
.682	The dog does not have an outside doghouse.

---

Table 2 shows factor pattern coefficients for the second factor, named Attention. High loadings on this dimension suggest that the dog is walked regularly, accompanies an exercising family member, and has received training.

Table 2

*Attention: Dog Owners Factor Pattern Coefficients*

---

$r_{fp}$	Item
.639	The dog is walked every day.
.531	The dog goes along when someone in the household exercises (walk, jog, run, etc.).
.455	The pet is bathed regularly.
.382	The pet has received training (socialization, obedience, tricks, etc.).

---

Table 3 shows factor pattern coefficients for the third factor, named Inclusion. High loadings on this dimension suggest that the dog travels with the family and is included in family events.

Table 3

*Inclusion: Dog Owners Factor Pattern Coefficients*

---

$r_{fp}$	Item
.555	When planning a trip, I/we look for pet-friendly accommodations.
.555	When I/we travel, the pet goes along.
.372	The pet is included in family events.

---

Table 4 shows factor pattern coefficients for the fourth factor, named Well-being. High loadings on the two items that comprise this dimension suggest that the dog does not get table scraps (which are unhealthy for pets) and that the owner has sought advice regarding the pet.

Table 4

*Well-Being: Dog Owners Factor Pattern Coefficients*

---

$r_{fp}$	Item
.507	The pet does not get scraps from the table when we are eating.
.434	I/we have looked for advice about the pet, from books, other pet owners, or experts.

---

Table 5 shows factor pattern coefficients for the final factor, named Safety. High loadings on the two items that comprise this dimension suggest that the yard is fenced, and that the home has been changed to make it safer for the pet.

Table 5

*Safety: Dog Owners Factor Pattern Coefficients*

---

$r_{fp}$	Item
.520	Our yard is completely fenced in.
.442	I/we have changed our home or yard to make it safer for the pet (ex. putting up or repairing fencing, removing poisonous plants).

---

*Relationships Between Factors.*

Table 6 shows correlations between the factors that remained after promax rotation. Because Inclusion was moderately correlated with both Indoor/Outdoor and with Attention, it is possible that another dimension may exist that would account for the relationship between the three dimensions. The strongest correlation was between Indoor/Outdoor and Inclusion, suggesting that dogs that spend most or all of their time indoors tend to be included in family activities and travel.

Table 6

*Factor Correlation Matrix for Dog Owners Dataset*

Factor	Attention	Inclusion	Well-being	Safety
Indoor/Outdoor	.347	.440	.225	-.008
Attention		.356	.162	.174
Inclusion			.270	-.030
Well-being				.231

*Cat Owners.*

A principal components analysis using the 31 variables retained for analysis was used to obtain eigenvalues, resulting in 12 components with eigenvalues above one. Pairwise exclusion was employed to deal with missing data. Examination of a line graph plot of eigenvalues using Cattell's Scree suggested a 4 factor solution. A principal axis factor analysis with 4 factors extracted and varimax rotation was employed. When a promax rotation was requested, examination of correlations between factors indicated modest correlations. Therefore, an oblique solution was chosen.

Factor pattern coefficients below .35 (12% of variance) were not interpreted. Some factors were reflected to clarify interpretation. The factor pattern matrices may be found in Appendix H; for factor structure matrices, refer to Appendix I. Table 7 shows factor pattern coefficients (partial correlations between the item and factor) for the first factor, which was named Indoor/Outdoor. High loadings on this dimension suggest that the cat lives primarily indoors, is indoors during extreme weather, is supervised when outside, is seldom away from family when they are home, and sleeps on the bed with family members.

Table 7

*Indoor/Outdoor: Cat Owners Factor Pattern Coefficients*

---

$r_{fp}$	Item
.926	In a 24 hour day, the pet is never outside.
.904	In bad weather (rain, storms), the pet lives indoors.
.872	In very hot or cold weather, the pet lives indoors.
.819	The pet spends most of its time inside, wherever it wants to go.
.726	The pet lives in the house.
.688	The pet cannot go, unsupervised, anywhere it wants to outside of the house.
.588	When family members are home, the pet is always in the house with someone.
.376	When I/we go to sleep, the pet sleeps on the bed, with me or a family member.

---

Table 8 shows factor pattern coefficients for the second factor, named Indulgences, which includes items related to whether the cat receives gifts, treats, eats regular or premium food, and travels with the family.

Table 8

*Indulgences: Cat Owners Factor Pattern Coefficients*

---

$r_{fp}$	Item
.613	The pet receives holiday gifts (ex., Christmas).
.508	The pet usually eats premium or special dog/cat food.
.475	The pet gets treats (dog biscuits, cat treats).
.373	When I/we travel, the pet goes along.

---

Table 9 shows factor pattern coefficients for the third factor, named Possessions, which includes items such as whether the cat has cat furniture, a scratching post or designated scratching areas, and whether it has its own bed.

Table 9

*Possessions: Cat Owners Factor Pattern Coefficients*

---

$r_{fp}$	Item
.589	The cat has furniture (cat condos, climbing posts).
.521	The cat has scratching posts or pieces of furniture it is allowed to scratch.
.405	The pet has its own bed in the house.

---

Table 10 shows factor pattern coefficients for the fourth factor, named Independence, which includes two items: whether the cat stays by someone's side, and whether it handles fear alone or is helped.

Table 10

*Independence: Cat Owners Factor Pattern Coefficients*

$r_{fp}$	Item
.528	The pet generally stays at someone's side.
.355	When something the pet fears is happening (ex., a storm, fireworks), the pet either has no fears or someone tries to comfort the pet.

*Relationships Between Factors.*

Table 11 shows correlations between the factors that remained after promax rotation. In contrast to the dog owners dataset, no correlations are strong enough to consider the possibility of another dimension for cat owner behaviors. Although no correlations were very strong, the correlations appear to make sense. The strongest correlation, between Indoor/Outdoor and Indulgences, suggests cats that live indoors are more likely to receive gifts and treats. When people and animals live in closer proximity, it seems logical that the animal would be thought of more often, which might be expressed in the form of gifts and treats.

Table 11

*Factor Correlation Matrix for Cat Owners Dataset*

Factor	Indulgences	Possessions	Independence
Indoor/Outdoor	.269	.018	.189
Indulgences		.256	.175
Possessions			.057

### *Attachment and Dimensions of Owner Behaviors*

Owner attachment to the pet was measured using the Lexington Attachment to Pets Scale (LAPS). Scores on the LAPS can range from 0 to 69, with higher scores indicating stronger attachment. For dog owners in this study, scores ranged from 2 to 69 with a mean score of 47.16 (s.d. 13.69); for cat owners, scores ranged from 4 to 69, with a mean score of 47.34 (s.d. 13.23).

#### *Dog Owners.*

A standard multiple regression was performed between Attachment (as measured by scores on the LAPS) as the dependent variable and factor scores for Indoor/Outdoor, Attention, Interaction, Well-being, and Safety as independent variables. The dependent variable, Attachment, was negatively skewed prior to transformation and positively skewed after transforming; therefore, it was not transformed for regression analysis. Evaluation of assumptions, using SPSS Regression and SPSS Frequencies, suggested no other problems with normality, linearity, or homoscedasticity of residuals. Two outliers were identified and five cases lacked a score for the LAPS; all seven were removed from further analysis, producing a final N of 343. A comparison of the standardized regression coefficients ( $\beta$  –weights) to the simple correlations between scores on the LAPS and factor scores failed to indicate the presence of suppressor variables.

Table 12 presents values for correlations between attachment scores and dimensions of dog owner behaviors,  $\beta$  –weights, zero-order and partial correlations. The  $R$  for regression was significantly different from zero,  $R = .615$ ,  $F(5, 343) = 44.069$ ,  $p < .001$ . Two of the five dimensions (Attention,  $sr^2 = .029$ ; Inclusion,  $sr^2 = .102$ ) contributed significantly to prediction of attachment as measured by the LAPS scores.

The five dimensions combined contributed an additional .255 in shared variability. Altogether, 39.5% (38.6% adjusted) of the variability in LAPS scores was predicted by scores on the five dimensions of owner behaviors.

Table 12

*Attachment and Dimensions of Behaviors: Dog Owners*

Dimension	$\beta$	Zero Order Correlations	Partial Correlations
Indoor/Outdoor	.101	.416*	.105
Attention	-.204	-.475*	-.212*
Inclusion	-.432	-.576*	-.379*
Well-being	.045	-.198*	.051
Safety	-.116	-.141*	-.135

\* $p < .01$

*Cat Owners.*

A standard multiple regression was performed between scores on the LAPS as the dependent variable and factor scores for Indoor/Outdoor, Indulgences, Possessions, and Independence as independent variables. One variable, Indoor/Outdoor, was negatively skewed prior to transformation and positively skewed after transforming; it was not transformed for regression analysis. Evaluation of assumptions, using SPSS Regression and SPSS Frequencies, suggested no other problems with normality, linearity, or homoscedasticity of residuals. One outlier was identified, and one case lacked a score for the LAPS; both cases were removed from further analysis, producing a final N of 149. A comparison of the standardized regression coefficients ( $\beta$  –weights) to the simple

correlations between scores on the LAPS and factor scores failed to indicate the presence of suppressor variables.

Table 13 presents values for correlations between attachment scores and dimensions of cat owner behaviors,  $\beta$  –weights, zero-order and partial correlations. The  $R$  for regression was significantly different from zero,  $R = .507$ ,  $F(4, 148) = 12.443$ ,  $p < .001$ . Two of the four dimensions (Independence,  $sr^2 = .05$ ; Indulgences,  $sr^2 = .085$ ) contributed significantly to prediction of attachment as measured by the LAPS scores. The four dimensions combined contributed an additional .10 in shared variability. Altogether, 25.7% (23.6% adjusted) of the variability in LAPS scores was predicted by scores on the four dimensions of owner behaviors.

Table 13

*Attachment and Dimensions of Behaviors: Cat Owners*

Dimension	$\beta$	Zero Order Correlations	Partial Correlations
Indoor/Outdoor	.018	.175*	.019
Indulgences	-.259	-.402*	-.246*
Possessions	-.096	-.217*	-.104
Independence	-.311	-.415*	-.320*

\* $p < .01$

## CHAPTER IV

### DISCUSSION

It perhaps goes without saying that, for most cats and dogs, being in a home is better than being at large or in an animal shelter. This study was an attempt to go beyond that, looking more closely at the benefits of being with a human or human family as defined by an array of specific pet owner behaviors. Another goal was to investigate the relationship between self-reported attachment to a pet and dimensions of potentially beneficial owner behaviors on behalf of that animal: basically, do animal owners simply “talk the talk,” or do they “walk the walk” as well? Does it really matter, in terms of behaviors that benefit the pet, whether the owner feels bonded with the animal?

The original survey included 85 items; ultimately only 35 items were analyzed for dog owners and 31 for cat owners. Of the excluded items, 21 dog owner items and 13 cat owner items were basic care activities in which nearly all participants engaged. For example, 99% of participants said their animal was fed dog or cat food and had access to clean water at all times. Results of this study indicate that the basic needs of companion animals are being met regardless of the degree of attachment: low attachment does not necessarily mean poor care. Rather, relationships between behaviors and attachment begin to emerge only after the basic needs of the animal are met.

On the other hand, a large number of excluded items were about behaviors that may be considered luxuries (e.g., videos are provided for the pet’s entertainment) or are not widely known about (e.g., pet is provided for in someone’s will). Thus, the excluded items represent the extremes of ownership and provide further validation of the factors as dimensions of the benefit of companion animal caregiving to the animal.

### *Dimensions of Pet Owner Behaviors and the LAPS*

The first dimension found for both dog and cat owners, Indoor/Outdoor, is similar to factors found by other researchers. Templer et al. (1981, p.345) found a factor that was named “Pets in the Home” and was most strongly correlated with the item “I feel that pets should always be kept outside.” It is also quite similar to the primary factor in Poresky’s Companion Animal Bonding Scale (1989), termed “Bonding,” which includes items related to caring and proximity. Finally, it is similar to Holcomb et al.’s (1985, p. 32) factor labeled “Intimacy,” which consists of “attitudes surrounding emotional importance; physical proximity; [and] planning for close physical proximity.” The rest of the dimensions found in the current study differ from those found in previous studies, perhaps because the current dataset was split into two groups which were analyzed separately.

The factor analyses in the current study produced dimensions that have strong face validity as components of pet ownership for both species. These dimensions provide a picture of what human caregiving might mean, in terms of beneficial behavior, to the companion animal. A dimension common to both species is whether the animal is kept primarily indoors or outdoors. For dogs, certain attentions, inclusion in family activities, and behaviors that enhance the animal’s well-being and safety can be seen as important to the pet’s quality of life. For cats, these elements are a bit different: specifically, material indulgences such as gifts and treats, items such as scratching posts and pet beds, and having the option to stay close to the caretaker.

The results of both regressions indicate that substantial variance in attachment scores was explained by the dimensions of owner behaviors. In terms of human

attachment to companion animals, the dimensions that stand out encompass behaviors that go beyond basic care and could be thought of as enrichment. Dog owners who report higher attachment tend to include the dog in family activities, and to provide certain kinds of attentions such as walking the dog and providing training. Cat owners who report higher attachment are more likely to have a cat that stays close by their side, and to provide gifts and treats. Thus, these behaviors enrich the pet's life but also contribute to the human-animal bond. Conversely, and despite being the first factor in both solutions, Indoor/Outdoor did not contribute significantly to the regression equation for either species; whether the animal resides primarily indoors or outdoors appears to be relatively irrelevant in terms of human attachment to the pet.

Animal shelter personnel and other animal welfare workers often express concern about potential adopters, and debates about adoption standards are relatively common in the field. Results from this study suggest that animal shelter personnel can be more confident when placing animals in new homes. In the current sample, even pet owners willing to state that they weren't very attached to their dog or cat provided food, medical care, and protection, as well as attention and other benefits that make for safe and secure lives and satisfactory human-animal relationships. However, it must be emphasized that our participants reported higher education and income levels than the general population, characteristics that may be related to ability and willingness to provide adequate basic care.

### *Species Differences*

Although not part of the original purpose of the study, it is important to note the differences in dimensions of behavior for dog and cat owners. On reflection, these

differences make sense: as Zasloff (1996, p. 43) pointed out, “a dog is not a cat is not a bird.” After sharing the first dimension, Indoor/Outdoor, dimensions that surfaced for dog owners involve behaviors that differ from the dimensions for cat owners. Similarly, differences emerged in the multiple regressions, with significant variance in attachment explained by different dimensions for dog and cat owners. Thus, in addition to supporting calls for the inclusion of behavioral items in research on the human-animal bond, it is hoped that the current study has demonstrated that because dogs and cats are clearly different in terms of dimensions of owner behaviors, data should be analyzed separately.

### *Limitations*

In this volunteer sample, participants’ age, income, racial/ethnic diversity, and other demographic characteristics distinguish them from both traditional college students and non-college populations. People self-selected into the study; those who chose not to participate may differ in important ways. For example, some people may have chosen not to participate because they felt little attachment to their pet. However, our participants’ scores on the Lexington Attachment to Pets Scale were strikingly similar to those reported by Johnson et al. (1992) in their regional probability sample (N=412). They reported a mean of 47.99 (s.d. 12.65), which was nearly identical to our results: for dog owners, the mean score was 47.16 (s.d. 13.69), and for cat owners, the mean score was 47.34 (s.d. 13.23). Despite these similarities, generalization from this sample to other populations should be done with caution. In addition, as with all self-report data, it is not possible to know whether the respondents actually engaged in the reported behaviors, or whether the behaviors and attachment scores were influenced by the desire to appear to be responsible and loving pet owners.

### *Recommendations for Future Research*

An attempt was made to compile an exhaustive list of potentially beneficial pet owner behaviors. Not surprisingly, this ideal was not attained. One topic that needs further attention is that of discipline. Because such behaviors can be very situation- and animal-specific, we found it difficult to create meaningful questions whose responses could be clearly interpreted as beneficial or not. Nonetheless, owner actions when training or disciplining a pet can have important consequences for the physical and psychological well-being of the animal. Additionally, it would be helpful to have more information on the animal: breed, approximate weight, and for cats especially, whether the animal has short or long hair. In the current study, we were unable to confidently evaluate the statement on grooming: long-haired cats and many breeds of dog need regular grooming, but short-haired cats do not. Knowledge of the animal's weight would be useful in evaluating responses to statements such as "the pet stays on someone's lap."

Inclusion of a social desirability scale in future surveys might help identify potential response problems. Finally, administration of a revised version of the current survey to a non-college sample of pet owners would allow a confirmatory factor analysis to be conducted, and may facilitate generalization of results.

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## **APPENDICES**

Appendix A:

People and Their Pets Study

Section I - The pet in your home

This section contains questions about the arrangements you have made to include a pet in your household. You are participating in the first stage of our effort to develop a survey of the ways people act with pets. Because it is the first stage, there are a lot of questions. We do not expect that you do all these things with or for your pet. Your responses at this very important first stage are greatly appreciated.

*Please answer the questions thinking of your present pet. If you have more than one pet, please pick one and think of it when answering.*

1. I will answer the questions thinking about a  dog/pup  cat/kitten in our household
2. Age of the pet you are thinking about: \_\_\_\_\_
3. Sex of the pet you are thinking about:  male  female
4. Who is the person who is most responsible for the pet you are thinking about?
  - me
  - my mother/father
  - my brother/sister
  - my husband/wife
  - one of the children
  - we share the responsibility
  - other \_\_\_\_\_  
relationship
5. The pet is fed dog/cat food  yes  no
6. The pet usually eats  generic or regular dog/cat food  
 premium or special dog/cat food
7. The pet has a water bowl or other source of clean water at all times  yes  no
8. The pet is fed  once a day  
 twice a day  
 more than twice a day  
 the food bowl is always available, so it can eat when it wants to
9. The pet gets scraps from the table when we are eating  yes  sometimes  no

APPENDIX A (continued)

10. The pet  never gets human food  
 sometimes gets human food  
 is fed leftovers only  
 is fed only human food prepared just for it
11. The pet seems  underweight  the right weight  overweight
12. The pet gets treats (dog biscuits, cat treats)  yes  no
13. The pet is a fussy eater  yes  no
14. The pet lives  in the house  
 in the yard  
 in a dog run  
 in the garage or basement
15. In bad weather (rain, storms), the pet  
 stays outside  
 comes into the house  
 is put in the garage, basement, or other area out of the weather  
 not applicable - the pet lives indoors all the time
16. In very cold or hot weather, the pet usually  
 stays outside  
 comes into the house  
 is put in the garage, basement, or other area out of the weather  
 is outside but has shelter (dog house, shade)  
 not applicable - the pet lives indoors all the time
17. The pet spends most of its time  
 outside, wherever it wants to go  
 loose in the yard  
 in a dog run  
 outside on a chain  
 inside, wherever it wants to go  
 in the garage  
 in the basement or kept in one room of the house
18. The pet has its own pet bed in the house  yes  no

APPENDIX A (continued)

20. The landlord required a pet deposit to keep the pet
- yes
  - no deposit required
  - landlord doesn't know we have the pet
  - not applicable - I/we don't rent
21. Number of other dogs and/or cats in the household
- none
  - one to three
  - four to seven
  - eight or more
22. With humans and animals combined, our household is crowded  yes  no
23. We have a veterinarian we bring the pet to for shots and other veterinary care
- yes
  - no
  - we use different veterinarians
24. In the last year the pet has visited a veterinarian
- no times
  - once
  - more than once
25. The pet is current on its rabies shot
- yes
  - no
  - don't know
26. The pet receives medication to prevent fleas and ticks
- yes
  - no
  - no, the pet doesn't get fleas or ticks
27. The pet is spayed/neutered
- yes
  - no
  - no - I/we breed the pet
28. The pet receives dental care
- no
  - no, the pet is too young
  - yes, by a veterinarian or other professional

APPENDIX A (continued)

29. The pet's nails are trimmed  
 yes  
 no  
 no, the nails don't need trimming
30. The pet is bathed  
 never  
 when it gets very dirty or smelly  
 regularly
31. The pet is groomed       yes  
    no  
    not applicable - the pet doesn't need grooming
32. The pet acts differently when it is sick    yes    no
33. I/we have animal health insurance for the pet    yes    no
34. The pet has clothing  
 yes, for protection (sweater; boots, vests for hunting)  
 yes, for dress up, fun  
 yes, for protection and for fun  
 no
35. The pet has received training (socialization, obedience, tricks, etc.)  
 no  
 yes, from me or a member of the family  
 yes, in classes or from a professional trainer  
 yes, both from me/my family and in classes/from a trainer
36. The pet is welcome to come and go in most areas of the home    yes    no
37. The pet can go, unsupervised, anywhere it wants to outside of the house  
 yes  
 yes, but only within the fenced yard or on our property  
 no
38. There is a pet door so the pet can go in and out of the house    yes    no
39. Someone plays with the pet       every day  
    a few times a week  
    occasionally  
    never

APPENDIX A (continued)

40. The pet has its own toys  yes  no
41. Someone in the household buys toys for the pet  yes  no
42. Someone in the household makes toys for the pet  yes  no
43. Household objects (ex. balled up foil, paper rolls) are used as pet toys  yes  no
44. I/we own videos made especially to entertain the pet  yes  no
45. The pet receives holiday gifts (ex., Christmas)  yes  no
46. I/we celebrate the pet's birthday  yes  no
47. The pet wears a collar and identification tags  
 yes, both collar and tags  
 collar only, no tags  
 no collar or tags
48. The pet has a microchip  yes  no
49. Our yard is completely fenced in  yes  no
50. We have the electronic system known as invisible fencing  yes  no
51. I/we have changed our home or yard to make it safer for the pet (ex. putting up or repairing fencing, removing poisonous plants)  
 yes  no
52. Someone in the household knows how to do first aid if the pet got injured  
 yes  no
53. When I/we travel, the pet  always goes along  
 sometimes goes along  
 never goes along
54. When planning a trip, I/we look for pet-friendly accommodations  yes  no

APPENDIX A (continued)

55. When everyone is away from home for more than one day, the pet
- stays at home alone
  - is checked on by a friend, family member, or neighbor
  - is checked on by a pet-sitter
  - is cared for by a live-in pet-sitter
  - goes to a boarding kennel or to the vet
  - not applicable - I/we don't travel
56. If the person who usually takes care of the pet is sick and unable to care for it,
- most often another family member cares for it
  - most often a friend, family member outside the home, or neighbor takes care of it
  - most often a pet-sitter takes care of it
  - most often it goes to a boarding kennel or to the veterinarian
  - most often no one takes care of it
57. The pet is provided for in someone's will  yes  no
58. The pet is disciplined or punished
- daily
  - once or twice a week
  - occasionally
  - hardly ever
  - never
59. What usually happens when the pet needs to be disciplined or punished?
- someone removes it from where we are (ex. put in yard, garage)
  - someone teaches it what it is supposed to do
  - someone puts its nose in the mess
  - someone says "bad dog" or other expression that the animal responds to
  - someone yells at it
  - someone shakes or spanks it
  - someone hits it with a hand or object (stick, rolled up newspaper, etc.)
  - none - the pet never needs to be disciplined or punished
60. The children
- are allowed to discipline or punish the pet when needed
  - sometimes discipline or punish the pet, without permission
  - are not allowed to discipline or punish the pet
  - not applicable - no children in the household

APPENDIX A (continued)

61. When the children discipline or punish the pet, most often they
- remove it from where they are (ex. put in yard, garage)
  - teach it what it is supposed to do
  - put its nose in the mess
  - say “bad dog” or other expression that the animal responds to
  - yell at it
  - shake or spank it
  - hit with hand or object (stick, rolled up newspaper, etc.)
  - none - the pet never needs to be disciplined or punished
  - not applicable - the children are not allowed to discipline/punish the pet
  - not applicable - no children in the household
62. When something the pet fears is happening (ex., a storm, fireworks)
- the pet usually handles it itself
  - usually someone does things to reduce the fear (ex., put pet indoors)
  - usually someone tries to comfort the pet
  - not applicable - the pet has no fears
63. I/we have looked for advice about the pet, from books, other pet owners, or experts
- yes
  - no
64. The pet is alone or only with other pets, when no one is home
- more than 12 hours per day
  - between 8 and 12 hours per day
  - between 4 and 8 hours per day
  - fewer than 4 hours per day
  - the pet is never home when there aren't any people there
65. When family members are home, the pet is away from me/us (on a chain, in the yard or dog run, in basement/garage, etc.)
- more than 12 hours per day
  - between 8 and 12 hours per day
  - between 4 and 8 hours per day
  - fewer than 4 hours per day
  - the pet is always in the house or with someone, when I/we are at home
66. When outside, the pet is usually kept on a chain  yes  no
67. When outside, the pet is usually in a dog run or cat enclosure  yes  no

APPENDIX A (continued)

68. In a 24-hour day, the pet  
 is outside all 24-hours  
 is outside almost all the time  
 is outside when no one is at home  
 is outside fewer than 4 hours  
 is only outside for walks or for brief, supervised periods  
 is never outside
69. The pet stays at someone's side  often  
 sometimes  
 hardly ever  
 never
70. The pet stays on someone's lap  often  
 sometimes  
 hardly ever  
 never
71. When I/we go to sleep the pet sleeps  
 outside  
 in the garage or basement (away from people)  
 in the house  
 on the bed, with me or a family member
72. Someone pets/scratches the pet  often  
 sometimes  
 hardly ever  
 never
73. The pet is included in family events  always  
 often  
 sometimes  
 hardly ever  
 never
74. The pet is taken to events for pets (dog walks, pet contests)  yes  no

APPENDIX A (continued)

***If you are answering these questions about a cat, please continue.***

***If you are answering about a dog, please go to Question #78***

For Cat Owners:

75. The cat has scratching posts or pieces of furniture it is allowed to scratch

yes

no

76. The cat has cat furniture (cat condos, climbing posts)  yes  no

77. The cat gets catnip  yes

no

no, because s/he doesn't like it

***If you are answering about a dog, please continue.***

***If you are answering about a cat, please go to Section II***

For Dog Owners:

78. The dog is licensed  yes  no

79. The dog has an outside doghouse  yes  no

80. The dog receives heartworm prevention medication  yes  no

81. The dog is walked  every day

a few times a week

occasionally

never

82. The dog goes along when someone in the household exercises (walk, jog, run, etc.)

yes, always

yes, sometimes

no

83. The dog goes to day care  no

yes, regularly

yes, once in a while

APPENDIX A (continued)

84. The dog goes hunting with someone in the household  
 yes, always  
 yes, sometimes  
 no  
 not applicable - no one hunts, or dog is not a hunting dog
85. The dog is entered in dog fights  yes  no
86. The dog has a Kong or other toys that require problem solving  yes  no
87. The dog does agility work with someone in the household  yes  no
88. The dog plays flyball with someone in the household  yes  no
89. The dog is a therapy dog  yes  no

***Please go to Section II***

Section II - Your pet and you

Please answer these questions thinking about the same pet you thought about when answering the questions in Section I. Answer by writing in the number that fits best.

Your choices are:    0 = strongly disagree  
                              1 = somewhat disagree  
                              2 = somewhat agree  
                              3 = strongly agree

- \_\_\_\_\_ My pet means more to me than any of my friends.
- \_\_\_\_\_ Quite often I confide in my pet.
- \_\_\_\_\_ I believe that pets should have the same rights and privileges as family members.
- \_\_\_\_\_ I believe my pet is my best friend.
- \_\_\_\_\_ Quite often, my feelings toward people are affected by the way they react to my pet.
- \_\_\_\_\_ I love my pet because he/she is more loyal to me than most of the people in my life.
- \_\_\_\_\_ I enjoy showing other people pictures of my pet.

APPENDIX A (continued)

- \_\_\_\_\_ I think my pet is just a pet.
- \_\_\_\_\_ I love my pet because it never judges me.
- \_\_\_\_\_ My pet knows when I'm feeling bad.
- \_\_\_\_\_ I often talk to other people about my pet.
- \_\_\_\_\_ My pet understands me.
- \_\_\_\_\_ I believe that loving my pet helps me stay healthy.
- \_\_\_\_\_ Pets deserve as much respect as humans do.
- \_\_\_\_\_ My pet and I have a very close relationship.
- \_\_\_\_\_ I would do almost anything to take care of my pet.
- \_\_\_\_\_ I play with my pet quite often.
- \_\_\_\_\_ I consider my pet to be a great companion.
- \_\_\_\_\_ My pet makes me feel happy.
- \_\_\_\_\_ I feel that my pet is part of my family.
- \_\_\_\_\_ I am not very attached to my pet.
- \_\_\_\_\_ Owning a pet adds to my happiness.
- \_\_\_\_\_ I consider my pet to be a friend.

APPENDIX A (continued)

Section III - Ideas about pets

For the following questions, please circle the number representing your degree of agreement.

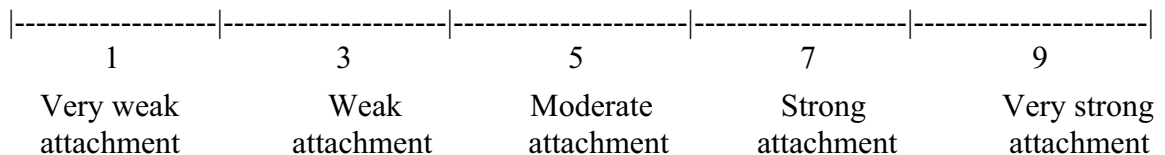
1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree

- 1 2 3 4 5 If a pet destroyed a \$50 piece of furniture or personal item, I would get rid of it.
- 1 2 3 4 5 If a pet destroyed a \$4,000 piece of furniture or personal item, I would get rid of it.
- 1 2 3 4 5 If a young pet required extensive veterinary care, I would get rid of it.
- 1 2 3 4 5 If an old pet required extensive veterinary care, I would get rid of it.
- 1 2 3 4 5 If a three-month-old puppy or kitten were having problems with housebreaking, I would get rid of it.
- 1 2 3 4 5 If a six-month-old puppy or kitten were having problems with housebreaking, I would get rid of it.
- 1 2 3 4 5 If an adult dog or cat were having problems with housebreaking, I would get rid of it.
- 1 2 3 4 5 If a three-month-old puppy or kitten were having problems with destructiveness, I would get rid of it.
- 1 2 3 4 5 If a six-month-old puppy or kitten were having problems with destructiveness, I would get rid of it.
- 1 2 3 4 5 If an adult dog or cat were having problems with destructiveness, I would get rid of it.



Section IV - Your attachment to your pet

Please mark an "X" along the scale below indicating how attached you feel toward your pet. Please do this for the pet you were thinking about when you answered the questions in Sections I and II.



APPENDIX A (continued)

Section V - About You

Just a few questions about you and your family.

1. Your gender:      male    female
  
2. Age at your last birthday: \_\_\_\_\_
  
3. Which would best describe you?  
    African-American            Asian-American  
    Hispanic-American    Native-American  
    White (Caucasian, nonhispanic)    Other \_\_\_\_\_
  
4. In what country were you born?           \_\_\_\_\_
- a. spent most of your life?           \_\_\_\_\_
  
5. Is English your primary language?    yes    no
  
6. Student status:      full time college student                    visiting student  
                           part time college student                    not a college student
  
7. Are you employed outside the home?  
    yes, full time            no, presently unemployed/laid off  
    yes, part time            do not work outside of the home
  
8. Your place in the home:                    only person in the home  
   head of household/spouse/significant  
  other/parent  
   living with parent(s)  
   roommate  
   other \_\_\_\_\_
  
9. Number of people living in your home with you: \_\_\_\_\_
  
10. Number of children living in your home with you: \_\_\_\_\_
- a. Ages of children living with you: \_\_\_\_\_
  
11. Number of pets in the home:     \_\_\_ dogs   \_\_\_ cats   \_\_\_ other

APPENDIX A (continued)

12. To the best of your knowledge, which category represents your annual household income? (Household means the combined income of all the working adults)

- Less than \$20,000 a year
- Between \$20,000 and \$29,999
- Between \$30,000 and \$39,999
- Between \$40,000 and \$49,999
- Between \$50,000 and \$59,999
- Between \$60,000 and \$75,000
- Over \$75,000
- Do not know

APPENDIX B:  
CHARACTERISTICS OF THE PARTICIPANTS

Table 14

*Gender of Participants*

	Frequency	Percent
Male	146	29.2
Female	354	70.8
Missing	9	
Total	501	100.0

Table 15

*Ages of Participants*

	Frequency	Percent
Under 20	152	30.5
20-29	228	45.6
30-39	56	11.2
40-49	50	10
50-59	11	2.2
60 and over	1	0.2
Missing	3	
Total	501	100.0

APPENDIX B (continued)

Table 16

*Race of Participants*

	Frequency	Percent
African-American	33	6.6
Hispanic-American	27	5.4
White	391	78.2
Asian-American	24	4.8
Native-American	5	1.0
Other	20	4.0
Missing	1	
Total	501	100.0

Table 17

*Participants' Country of Origin*

Born	Frequency	Percent
USA	463	92.8
Other	36	7.2
Missing	2	
Total	501	100.0

APPENDIX B (continued)

Table 18

*Country Where Participant Spent Most of Life*

	Frequency	Percent
USA	437	95.2
Other	22	4.8
Missing	42	
Total	501	100.0

Table 19

*English as Participants' Primary Language*

	Frequency	Percent
Yes	475	95.2
No	24	4.8
Missing	2	
Total	501	100.0

APPENDIX B (continued)

Table 20

*Participants' Student Status*

	Frequency	Percent
Full time	386	77.4
Part time	93	18.6
Visiting	12	2.4
Not a student	8	1.6
Missing	2	
Total	501	100.0

Table 21

*Participants' Employment Status*

	Frequency	Percent
Yes, full time	151	30.3
Yes, part time	211	42.3
No, presently unemployed or laid off	71	14.2
Do not work outside the home	66	13.2
Missing	2	
Total	501	100.0

APPENDIX B (continued)

Table 22

*Participants' Role in the Home*

	Frequency	Percent
Only person in the home	32	6.4
Head of household/spouse /significant other/parent	194	39.0
Living with parent(s)	212	42.6
Roommate	44	8.8
Other	16	3.2
Missing	3	
Total	501	100.0

Table 23

*Number of Other People in Household*

	Frequency	Percent
0	25	5.0
1-2	206	41.2
3-4	195	39
5-9	74	14.8
Missing	1	
Total	501	100.0

## APPENDIX B (continued)

Table 24

*Number of Children in Household*

	Frequency	Percent
0	274	54.8
1-2	182	36.4
3-4	34	6.8
5-9	10	2
Missing	1	
Total	501	100.0

Table 25

*Number of Other Animals in Household*

	Frequency	Percent
0	407	82.2
1	37	7.5
2	20	4.0
3	5	1.0
4	9	1.8
5	5	1.0
6-15	12	2.4
Missing	6	
Total	501	100.0

APPENDIX C:

*Items Excluded From Factor Analysis: Dog Owners*

Item	Reason for Exclusion
The pet is fed dog/cat food.	98.9% said yes
The pet has a water bowl or other source of clean water at all times.	99.1% said yes
Number of feedings per day	Difficult to infer benefit to pet
The pet gets human food.	Not interpretable
The pet seems (under/overweight).	Not interpretable (87.4% said right weight)
The pet gets treats (dog biscuits, cat treats).	88.8% said yes
The pet is a fussy eater.	Not interpretable (85.4% said no)
The landlord allows us to keep the pet.	74% don't rent
The landlord required a pet deposit to keep the pet.	74% don't rent
With humans and animals combined, our household is crowded.	82.8% said no
We have a veterinarian we bring the pet to for shots and other veterinary care.	96.3% said yes
In the last year the pet has visited a veterinarian.	93.1% said yes
The pet is current on its rabies shot.	85.6% said yes
The pet receives medication to prevent fleas and ticks.	78.8% said yes
The pet acts differently when it is sick.	91.6% said yes
I/we have animal health insurance for the pet.	94.1% said no
The pet has clothing.	76.9% said no

APPENDIX C (continued)

Item	Reason for Exclusion
The pet is welcome to come and go in most areas of the home.	80.6% said yes
There is a pet door so the pet can go in and out of the house.	90% said no
Someone plays with the pet.	82.9% said every day
The pet has its own toys.	86.6% said yes
Someone in the household buys toys for the pet.	87.1% said yes
Someone in the household makes toys for the pet.	80.9% said yes
Household objects (ex. balled up foil, paper rolls) are used as pet toys.	74.1% said yes
I/we own videos made especially to entertain the pet.	96.3% said no
The pet receives holiday gifts (ex., Christmas).	74.2% said yes
The pet wears a collar and identification tags.	79.6% said yes
The pet has a microchip.	94% said no
We have the electronic system known as invisible fencing.	97.7% said no
The pet is provided for in someone's will.	85% said no
What usually happens when the pet needs to be disciplined or punished?	ambiguous
The children (allowed/not allowed to discipline pet)	ambiguous
When the children discipline the pet . . .	ambiguous
When something the pet fears is happening (ex., a storm, fireworks) . . .	74.5% said someone tries to comfort pet
When outside, the pet is usually kept on a chain.	83.3% said no

APPENDIX C (continued)

Item	Reason for Exclusion
When outside, the pet is usually in a dog run or cat enclosure.	86.7% said yes
Someone pets/scratches the pet.	81.8% said often
The pet is taken to events for pets (dog walks, pet contests).	79.9% said no
The dog is licensed.	86.1% said yes
The dog receives heartworm prevention medication.	85.8% said yes
The dog goes to day care.	91.6% said no
The dog goes hunting with someone in the household.	91.6% said never
The dog is entered in dog fights.	98.3% said no
The dog has a Kong or other toy that requires problem solving.	78.3% said no
The dog does agility work with someone in the household.	77.9% said no
The dog plays flyball with someone in the household.	Many participants appeared to be unfamiliar with the concept of flyball
The dog is a therapy dog.	97.7% said no

## APPENDIX D

### *Items Excluded From Factor Analysis: Cat Owners*

Item	Reason for Exclusion
The pet is fed dog/cat food.	99.3% said yes
The pet has a water bowl or other source of clean water at all times.	98% said yes
Number of feedings per day	Difficult to infer benefit to pet
The pet gets human food.	Not interpretable
The pet seems (under/overweight).	Not interpretable (71.5% said right weight)
The pet is a fussy eater.	Not interpretable (75.8% said no)
The landlord allows us to keep the pet.	68.2% don't rent
The landlord required a pet deposit to keep the pet.	68.2% don't rent
With humans and animals combined, our household is crowded.	86% said no
We have a veterinarian we bring the pet to for shots and other veterinary care.	91.3% said yes
In the last year the pet has visited a veterinarian.	78% said yes
The pet is current on its rabies shot.	79.3% said yes
The pet receives medication to prevent fleas and ticks.	36.7% said doesn't get fleas or ticks
The pet is spayed/neutered.	81.3% said yes
The pet receives dental care.	79.9% said no

APPENDIX D (continued)

Item	Reason for Exclusion
The pet is groomed.	48% said pet doesn't need grooming
The pet acts differently when it is sick.	85.9% said yes
I/we have animal health insurance for the pet.	95.3% said no
The pet has clothing.	95.3% said no
The pet has received training (socialization, obedience, tricks, etc.).	79.3% said no
The pet is welcome to come and go in most areas of the home.	95.3% said yes
There is a pet door so the pet can go in and out of the house.	94% said no
Someone plays with the pet.	86.7% said every day
The pet has its own toys.	84.7% said yes
Someone in the household buys toys for the pet.	82% said yes
Household objects (ex. balled up foil, paper rolls) are used as pet toys.	82.7% said yes
I/we own videos made especially to entertain the pet.	98% said no
I/we celebrate the pet's birthday.	82% said no
The pet wears a collar and identification tags.	79.5% said no
The pet has a microchip.	97.4% said no
We have the electronic system known as invisible fencing.	Not relevant for cats
I/we have changed our home or yard to make it safer for the pet (ex. Putting up or repairing fencing, removing poisonous plants).	72.7% said no
When planning a trip, I/we look for pet-friendly accommodations.	77% said no

APPENDIX D (continued)

Item	Reason for Exclusion
The pet is provided for in someone's will.	92.1% said no
What usually happens when the pet needs to be disciplined or punished?	ambiguous
The children (allowed/not allowed to discipline pet)	ambiguous
When the children discipline the pet . . .	ambiguous
When outside, the pet is usually kept on a chain.	96.5% said no
When outside, the pet is usually in a dog run or cat enclosure.	88.7% said no
Someone pets/scratches the pet.	81.8% said often
The pet is taken to events for pets (dog walks, pet contests).	98.7% said no
The cat gets catnip.	20.5% say cat doesn't like catnip

APPENDIX E:

Figure 2

*Eigenvalue Plots for Dog Owners Factor Analysis*

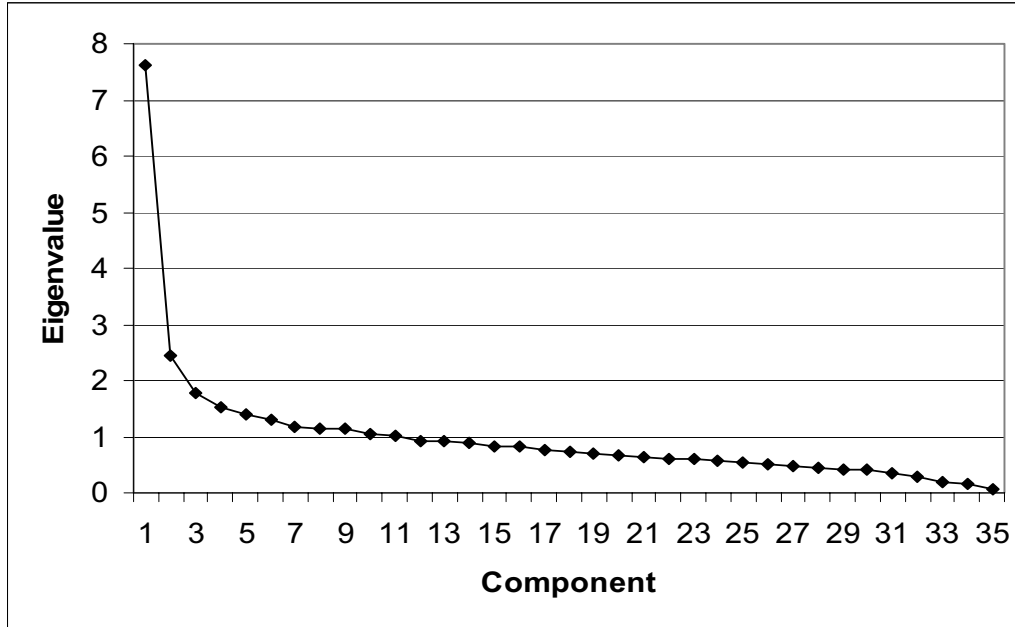
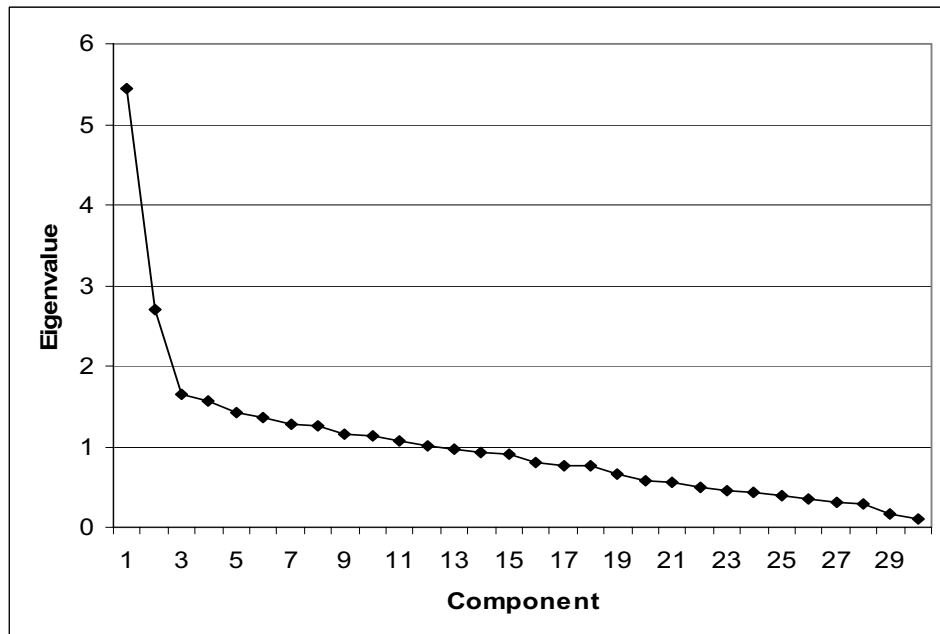


Figure 3

*Eigenvalue Plots for Cat Owners Factor Analysis*



APPENDIX F:

*Factor Pattern Matrix: Dog Owners*

Item	Factor				
	1	2	3	4	5
The pet lives in the house.	<b>.881</b>			.122	-.173
In a 24 hour day, the pet is never outside.	<b>.868</b>				
When I/we go to sleep, the pet sleeps on the bed, with me or a family member.	<b>.840</b>				-.179
In very hot or cold weather, the pet stays indoors.	<b>.791</b>	.293	-.178	-.147	.131
In bad weather (rain, storms), the pet stays indoors.	<b>.771</b>	.252	-.224	-.140	.136
The pet spends most of its time inside, wherever it wants to go.	<b>.763</b>		.104		
When family members are home, the pet is always in the house with someone.	<b>.705</b>	-.146			-.105
The dog does not have an outside doghouse.	<b>.682</b>	.126			.120
The pet is spayed/neutered.	.332	.133	.262		-.329
When everyone is away from home for more than one day, the pet boards or stays with someone.	.322	-.125		-.313	
The dog is walked regularly.		<b>.639</b>			-.246
The dog goes along when someone in the household exercises (walk, jog, run, etc.).	.171	<b>.531</b>	.138		
The pet is bathed regularly.	-.142	<b>.455</b>			-.104
The pet has received training (socialization, obedience, tricks, etc.).		<b>.382</b>		.198	
The pet does not have its own bed in the house.	-.281	.333		.102	
The pet is seldom alone or only with other pets, when no one is home.	.157	-.236			

APPENDIX F (continued)

Item	Factor				
	1	2	3	4	5
The pet receives dental care.	-.178	.197			.186
Someone in the household knows how to do first aid if the pet got injured.		.190			.142
The pet is groomed.		.147			
The pet is rarely disciplined or punished.		.130		.115	
When planning a trip, I/we look for pet-friendly accommodations.	-.105		<b>.555</b>		.115
When I/we travel, the pet goes along.		.192	<b>.555</b>		
The pet is included in family events.	-.204	.314	<b>.372</b>		
The pet often stays on someone's lap.	-.274	.177	.325	-.134	
I/we celebrate the pet's birthday.		.143	.315		.125
The pet does not get scraps from the table.				<b>.507</b>	-.108
I/we have looked for advice about the pet, from books, other pet owners, or experts.		.158		<b>.434</b>	
The pet usually eats premium or special dog/cat food.	-.144	.130		.240	
If the person who usually takes care of the pet is sick and unable to care for it, most often another family member cares for it.	.105			-.161	
Our yard is completely fenced in.	.205	-.179	.139		<b>.520</b>
I/we have changed our home or yard to make it safer for the pet.	.164		.140	.328	<b>.442</b>
Few or no other dogs and/or cats in the household			.106	-.162	.342
The pet cannot go, unsupervised, anywhere it wants to outside of the house.				-.183	.253

APPENDIX G

*Factor Structure Matrix: Dog Owners*

Item	Factor				
	1	2	3	4	5
In a 24 hour day, the pet is never outside.	.874	-.352	-.380	-.105	.107
The pet lives in the house.	.866	-.349	-.370	-.123	-.143
When I/we go to sleep, the pet sleeps on the bed, with me or a family member.	-.841	.383	.357	.156	.167
In bad weather (rain, storms), the pet stays indoors.	.814		-.515	-.301	.161
In very hot or cold weather, the pet usually stays indoors.	.802		-.466	-.295	.159
The pet spends most of its time indoors, wherever it wants to go.	.760	-.294	-.281	-.226	
When family members are home, the pet is seldom away from me/us.	.736	-.394	-.330	-.143	-.111
The dog does not have an outside doghouse.	.620		-.224		.155
The pet's nails are trimmed.	.435	-.401	-.266	-.257	-.116
When everyone is away from home for more than one day, the pet boards or stays with someone.	.394	-.253	-.176	-.379	
The pet often stays at someone's side.	.333	-.277	-.250	-.104	
The dog is often walked.	.179	-.597	-.268	-.117	.118
The dog goes along when someone in the household exercises (walk, jog, run, etc.).		-.504	-.234		
The pet is bathed regularly.	.324	-.504	-.262	-.165	
The pet has received training (socialization, obedience, tricks, etc.).	.158	-.410	-.149	-.263	-.172
The pet does not have its own bed in the house.	-.379	.404	.179	.181	

APPENDIX G (continued)

Item	Factor				
	1	2	3	4	5
The pet receives dental care.	-.244	.290	.129	.162	.233
The pet is seldom alone or only with other pets, when no one is home.	.226	-.273	-.127		
Someone in the household knows how to do first aid if the pet got injured.		.208			.167
The pet is groomed.		.169			.107
The pet is rarely disciplined or punished.		.133		.118	
When I/we travel, the pet generally goes along.	-.330	.392	.624	.137	
When planning a trip, I/we look for pet-friendly accommodations.	-.324	.179	.573	.195	
The pet is included in family events.	-.471	.529	.564	.193	.126
The pet often stays on someone's lap.	-.449	.356	.475		
I/we celebrate the pet's birthday.	-.172	.275	.364	.180	.151
I/we have looked for advice about the pet, from books, other pet owners, or experts.	-.183	.258	.244	.485	.153
The pet does not gets scraps from the table when we are eating.				.444	
The pet usually eats premium or special dog/cat food.	-.215	.200	.112	.281	
If the person who usually takes care of the pet is sick and unable to care for it, most often another family member cares for it.	.135			-.171	
I/we have changed our home or yard to make it safer for the pet (ex. putting up or repairing fencing, removing poisonous plants).		.124	.144	.432	.515

APPENDIX G (continued)

Item	Factor				
	1	2	3	4	5
Our yard is completely fenced in.	.196			.146	.501
The pet is spayed/neutered.	-.169		-.172		.312
Few or no other dogs and/or cats in the household					.301
The pet cannot go, unsupervised, anywhere it wants to outside of the house.	.122		-.147	-.155	.210

APPENDIX H

*Factor Pattern Matrix: Cat Owners*

Item	Factor			
	1	2	3	4
In a 24 hour day, the pet is never outside.	<b>.926</b>			
In bad weather (rain, storms), the pet stays indoors.	<b>.904</b>			.156
In very hot or cold weather, the pet usually stays indoors.	<b>.872</b>			.169
The pet spends most of its time inside, wherever it wants to go.	<b>.819</b>			
The pet lives in the house.	<b>.726</b>	.166		-.169
The pet cannot go, unsupervised, anywhere it wants to outside of the house.	<b>.688</b>	-.129		
When family members are home, the pet is always in the house with someone.	<b>.588</b>			
When I/we go to sleep, the pet sleeps on the bed, with me or a family member.	<b>.376</b>			-.317
The pet is rarely disciplined or punished.	-.248		.180	
Our yard is completely fenced in.	-.109		-.104	
The pet receives holiday gifts (ex., Christmas).		<b>.613</b>		
The pet usually eats premium or special dog/cat food.	-.164	<b>.508</b>	-.227	.166
The pet gets treats (dog biscuits, cat treats).		<b>.475</b>	.108	-.122
When I/we travel, the pet does not go along.		<b>.373</b>		.137
The pet is not included in family events.		.341	.205	.243
I/we have looked for advice about the pet, from books, other pet owners, or experts.		.289		

APPENDIX H (continued)

Item	Factor			
	1	2	3	4
The pet's nails are trimmed.		.220		.102
Someone in the household makes toys for the pet.		.213	.122	
The pet does not get scraps from the table when we are eating.	-.125	-.204	-.168	
When everyone is away from home for more than one day, the pet boards or stays with someone.	.145	-.152	-.150	
Few or no other dogs and/or cats in the household		.115		
If the person who usually takes care of the pet is sick and unable to care for it, most often another family member cares for it.		.107		
The cat has furniture (cat condos, climbing posts).			<b>.589</b>	
The cat has scratching posts or pieces of furniture it is allowed to scratch.		.174	<b>.521</b>	-.151
The pet has its own bed in the house.			<b>.405</b>	.260
The pet often stays on someone's lap.			.332	.239
The pet is not bathed.	.113		.224	.191
The pet often stays at someone's side.			.310	<b>.528</b>
When something the pet fears is happening (ex., a storm, fireworks), either the pet has no fears or someone tries to comfort it.				<b>.355</b>
Someone in the household knows how to do first aid if the pet got injured.	.119	.126		.297

APPENDIX I

*Factor Structure Matrix: Cat Owners*

Item	Factor			
	1	2	3	4
In a 24 hour day, the pet is never outside.	.943	-.294		-.204
In bad weather (rain, storms), the pet stays indoors.	.874	-.226		
In very hot or cold weather, the pet usually stays indoors.	.850	-.257	-.113	
The pet spends most of its time inside, wherever it wants to go.	.808	-.183		-.146
The pet cannot go, unsupervised, anywhere it wants to outside of the house.	.717	-.324	-.110	-.115
The pet lives in the house.	.713			-.280
When family members are home, the pet is always in the house with someone.	.574	-.142		
When I/we go to sleep, the pet sleeps on the bed, with me or a family member.	.440	-.153		-.396
The pet is rarely disciplined or punished.	-.221		.166	
The pet receives holiday gifts (ex., Christmas).	-.120	.623	.231	.117
The pet usually eats premium or special dog/cat food.	-.328	.523	-.103	.299
The pet gets treats (dog biscuits, cat treats).		.472	.236	
The pet is included in family events.		.413	.277	.275
When I/we travel, the pet does not go along.	-.186	.407		.215
I/we have looked for advice about the pet, from books, other pet owners, or experts.	-.153	.326	.141	
The pet's nails are trimmed.	-.177	.254		.162

APPENDIX I (continued)

Item	Factor			
	1	2	3	4
When everyone is away from home for more than one day, the pet boards or stays with someone.	.194	-.234	-.190	
Someone in the household makes toys for the pet.		.226	.178	
The pet is seldom or never alone or only with other pets.	-.104	-.121		
If the person who usually takes care of the pet is sick and unable to care for it, most often another family member cares for it.		.116		
Few or no other dogs and/or cats in the household				
The cat has furniture (cat condos, climbing posts).		.238	.611	
The cat has scratching posts or pieces of furniture it is allowed to scratch.		.272	.573	-.156
The pet has its own bed in the house.	-.118		.368	.237
The pet stays on someone's lap.	-.139	.128	.314	.234
The pet is not bathed.		.127	.228	.168
The pet does not get scraps from the table when we are eating.		-.200	-.223	
Our yard is completely fenced in.			-.111	
The pet stays at someone's side.			.259	.495