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Evidence for an association between pet behavior and owner attachment levels

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Abstract

The possible relationship between companion animal behavior and owner attachment levels has received surprisingly little attention in the literature on human–companion animal interactions, despite its relevance to our understanding of the potential benefits of pet ownership, and the problems associated with pet loss, or the premature abandonment and disposal of companion animals. The present study describes a preliminary investigation of this topic involving a questionnaire survey of 37 dog owners and 47 cat owners exactly 1 year after they acquired pets from animal shelters. The results demonstrate a number of highly significant differences in owners' assessments of the behavior of dogs and cats, particularly with respect to playfulness (Mann–Whitney U Test, $P = 0.125$), confidence ($P < 0.001$), affection ($P = 0.002$), excitability ($P = 0.018$), activity ($P = 0.002$), friendliness to strangers ($P < 0.001$), intelligence ($P = 0.02$), and owner-directed aggression ($P = 0.002$). However, few differences were noted between dog and cat owners in terms of their perceptions of what constitutes 'ideal' pet behavior. The findings also suggest that dog owners who report weaker attachments for their pets are consistently less satisfied with most aspects of their dogs' behavior compared with those who report stronger attachments. Weakly attached cat owners are significantly more dissatisfied with the levels of affection shown by their pets ($P = 0.0186$), but in other respects they are far less consistent than dog owners.

Keywords: Dog; Cat; Attachment; Behavior Problems; Human–animal interactions

1. Introduction

In a large survey of persons relinquishing dogs to animal shelters in the USA, Arkow and Dow (1984) found that behavior problems were the second most common reason given by owners for disowning a pet, accounting for 26.4% of animals surrendered. A comparable (unpublished) survey in the UK indicated that 17.5% of dogs and 5% of cats

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were disowned for behavioral reasons (see Council for Science and Society, 1988). Although these findings provide circumstantial evidence for a causal link between companion animal behavior and owner attachment levels, this association has received surprisingly little recognition in the literature on human–companion animal interactions. For example, although numerous published studies have looked for associations between so-called 'pet attachment' and either the putative benefits of animal companionship (Ory and Goldberg, 1983; Connell and Lago, 1984; Garrity et al., 1989; Miller and Lago, 1990), or the strength of the grief response when a pet dies (Keddie, 1977; Rynearson, 1978; Harris, 1983; Quackenbush and Glickman, 1983; Weisman, 1991; Gosse and Barnes, 1994), none of them appear to have considered the behavior of the individual animal as a possible contributing variable. Furthermore, all of the instruments which have been developed for measuring people's attachments for their pets are essentially anthropocentric in focus, exploring the person's perceptions of the pet without considering the role that the animal's personality and behavior may play in moulding these perceptions (Holcomb et al., 1985; Poresky et al., 1987; Lago et al., 1988; Johnson et al., 1992; Kafer et al., 1992).

By exploring the relationship, if any, between companion animal behavior and owner attachment levels, the pilot study presented here is intended as a small and preliminary step towards redressing this imbalance.

2. Subjects and methods

2.1. Subjects

A convenience sample of 37 adult dog owners and 47 adult cat owners participated in the study. Subjects were recruited during the acquisition of new pets from one of two local animal shelters near Cambridge UK during the period 1990–1991. Persons who had owned either a dog or a cat during the previous year were excluded from the study, but no other selection criteria were imposed. Only one subject per household took part in the study. In every case, these persons were the ones who had the greatest day-to-day involvement with the care of the animal. In most cases, they were also women.

2.2. Methods

Exactly 1 year after acquiring the pet, subjects were sent a self-report questionnaire to complete and return in a prepaid envelope. In addition to exploring various aspects of subjects' health and behavior which are not relevant to the present analysis (but see Serpell, 1991), the questionnaire contained two items concerned with (a) subjects' attachments for their pets, and (b) subjects' perceptions of their pets' behavior. Subjects were asked to describe their own level of attachment for the pet using a simple three-point rating scale comprising (1) not particularly attached, (2) moderately attached, and (3) very attached. The pet's behavior was assessed using a series of 12 semantic differential-type rating scales (Osgood et al., 1957) along each of which owners were asked to mark the position of both their 'actual' and their 'ideal' pets (Table 1). Each

Table 1
Semantic differential-type rating scales used by owners to describe their pets' 'actual' and 'ideal' behavior (the original scales were 50 mm in length, and owners' ratings were measured from left to right)

Behavior ratings			Abbreviations
Very playful	|———|	Not at all playful	(playful)
Confident/relaxed in unfamiliar situations	|———|	Nervous/timid in unfamiliar situations	(confident)
Intensely affectionate	|———|	Not affectionate	(affection)
Highly excitable	|———|	Calm/placid	(excitable)
Well-behaved/obedient	|———|	Badly-behaved/disobedient	(obedient)
Active/energetic	|———|	Inactive/lazy	(active)
Friendly/approachable with strangers	|———|	Unfriendly/fearful with strangers	(friendly)
Intelligent	|———|	Not intelligent	(intelligent)
Quiet	|———|	Noisy	(quiet)
Clean	|———|	Dirty	(clean)
Doesn't mind being left alone	|———|	Hates being left alone	(alone)
Never aggressive towards people she/he knows	|———|	Often aggressive towards people she/he knows	(aggressive)

scale was precisely 50 mm in length, so it was possible to measure the position of owners' 'actual' and 'ideal' marks relative to each other, and to left hand end of the scale. The different rating scales used were designed to be equally applicable to the behavior of either dogs or cats. Comparable procedures have been used previously to obtain owner assessments of the behavior of both dogs (Serpell, 1983) and cats (Turner and Stammbach-Geering, 1990).

2.3. Statistical analyses

The data were analyzed using a StatView 4.02 statistical package (Abacus Concepts, 1992). Since both attachment and behavioral data were collected by means of ordinal rating scales, nonparametric statistical analyses were performed throughout. Comparisons of dogs and cats, or 'moderately' and 'very attached' owners, employed the Mann–Whitney U test, while comparisons of owners' 'actual' and 'ideal' ratings of their pets' behavior were performed using the Wilcoxon signed ranks test (Siegel and Castellan, 1988).

3. Results

3.1. Differences in owner attachments

Although a three-point rating scale was used to estimate owner attachment, in practice none of the owners who participated in this study rated themselves as being 'not particularly attached' to their pets. Owners therefore fell into one of two groups—'moderately attached' ($n = 19$) or 'very attached' ($n = 65$). Dog owners and cat owners did

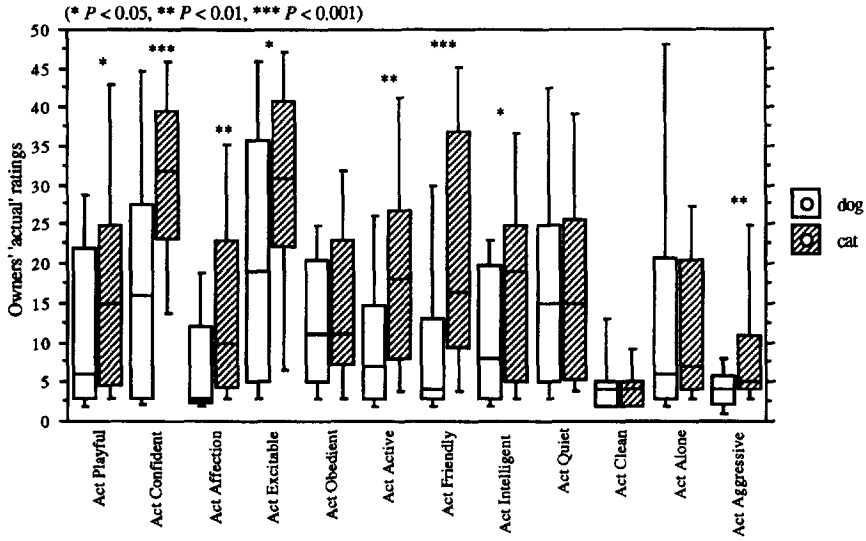

Fig. 1. Box plot comparisons of owners' 'actual' behavior ratings of dogs and cats (illustrating medians and 10th, 25th, 75th and 90th percentiles).

not differ significantly in their reported attachment levels (Fisher's exact P-value 0.295).

3.2. Differences between dogs and cats

In terms of their owners' 'actual' ratings, dogs and cats differed significantly from one another in a number of behavioral respects. The dogs were perceived as being more playful (Mann–Whitney U test, $U = 551.0$, $P = 0.125$), more confident/relaxed in unfamiliar situations ($U = 405.5$, $P < 0.001$), more affectionate ($U = 468.5$, $P = 0.002$), more excitable ($U = 517.0$, $P = 0.018$), more active/energetic ($U = 443.5$, $P = 0.002$), friendlier and more approachable with strangers ($U = 383.0$, $P < 0.001$), more intelligent ($U = 508.0$, $P = 0.02$), and less aggressive towards people they know ($U = 447.0$, $P = 0.002$) than the cats were (Fig. 1).

In terms of owners' 'ideal' ratings, surprisingly few behavioral differences between the two species were apparent. On average, the 'ideal' dog was rated as being significantly more confident/relaxed in unfamiliar situations ($U = 414.0$, $P = 0.043$), and significantly less aggressive towards people she/he knows ($U = 389.0$, $P = 0.039$) than the 'ideal' cat was (Fig. 2).

3.3. Differences between 'actual' and 'ideal' ratings

Insights into potential areas of conflict or friction between owner and pet were obtained by comparing animals' 'actual' and 'ideal' rankings on each of the 12 different behavioral rating scales. According to this analysis, 'actual' dogs were ranked as being

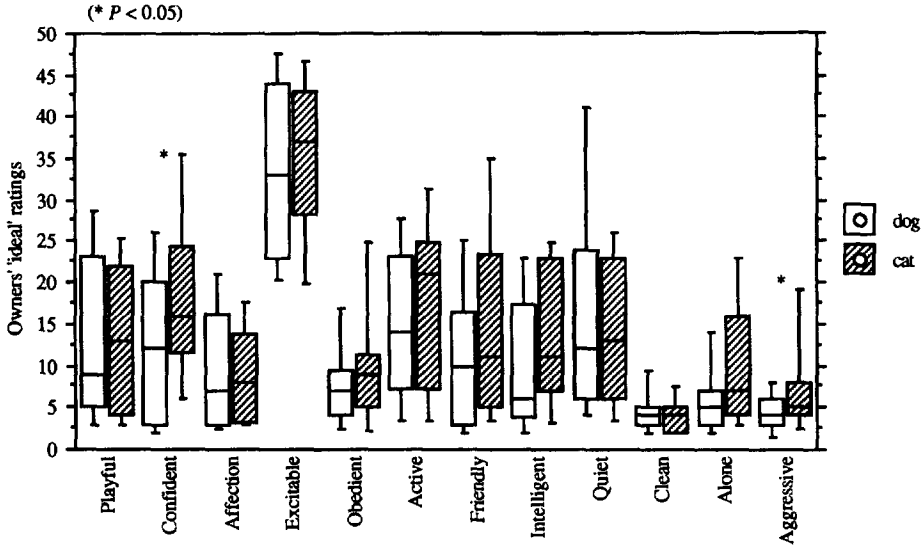

Fig. 2. Box plot comparisons of owners' 'ideal' behavior ratings of dogs and cats (illustrating medians and 10th, 25th, 75th and 90th percentiles).

significantly less confident/relaxed in unfamiliar situations (Wilcoxon signed ranks test, $Z = 2.606$, $P = 0.009$), more affectionate ($Z = 2.524$, $P = 0.012$), much more excitable ($Z = 3.68$, $P < 0.001$), less obedient ($Z = 2.028$, $P = 0.043$), more active ($Z = 2.805$, $P = 0.005$), and less happy about being left on their own ($Z = 2.276$, $P = 0.023$) than were 'ideal' dogs (Fig. 3).

The results for cats indicated that 'actual' cats were ranked as significantly less playful ($Z = 2.517$, $P = 0.012$), much less confident/relaxed in unfamiliar situations ($Z = 3.343$, $P < 0.001$), less affectionate ($Z = 3.028$, $P = 0.0025$), much more excitable ($Z = 3.358$, $P < 0.001$), less obedient ($Z = 3.199$, $P = 0.0014$), less intelligent ($Z = 3.238$, $P = 0.0012$), and more aggressive towards people they know ($Z = 707$, $P = 0.0068$) than their 'ideal' counterparts (Fig. 4).

3.4. Relationships between behavior ratings and owners' attachments

Moderately and very attached owners did not differ significantly from each other in terms of their 'ideal' ratings of either dogs or cats. In terms of their 'actual' ratings, very attached dog owners rated their pets as being highly significantly more intelligent than did moderately attached dog owners (Mann–Whitney U test, $U = 10.0$, $P < 0.001$), while very attached cat owners regarded their pets as being significantly more noisy than did moderately attached cat owners ($U = 95.5$, $P = 0.014$).

The relationship, if any, between a companion animal's behavior and its owner's attachment levels is likely to depend on the person's prior behavioral expectations of that particular species, breed, individual, etc. In which case, 'actual' behavior ratings may be less reliable predictors of attachment levels, than the average distances or

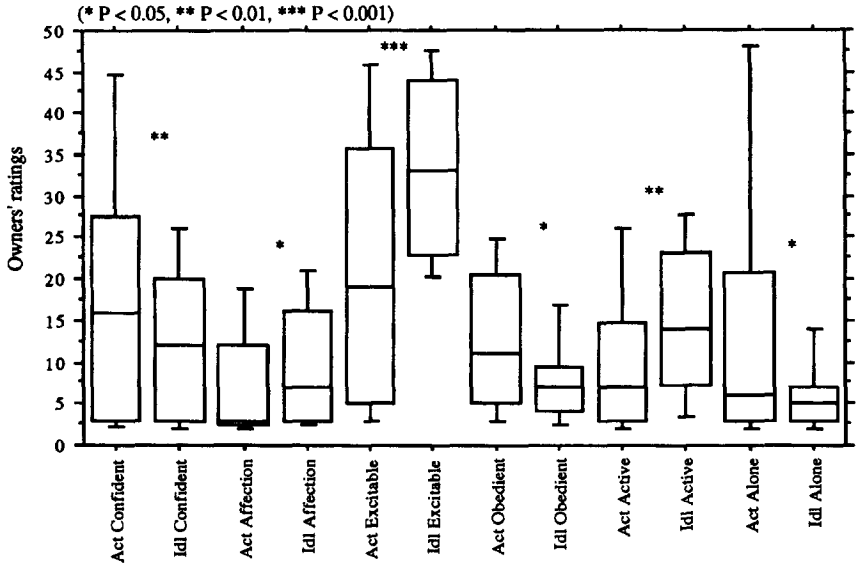

Fig. 3. Box plot comparisons of owners' 'actual' vs. 'ideal' ratings for dogs only (illustrating medians and 10th, 25th, 75th and 90th percentiles).

differences between owners' 'actual' and 'ideal' ratings for each behavioral attribute. When moderately and very attached owners were compared with respect to these 'actual' versus 'ideal' differences (Δ), a more complex and interesting picture emerged.

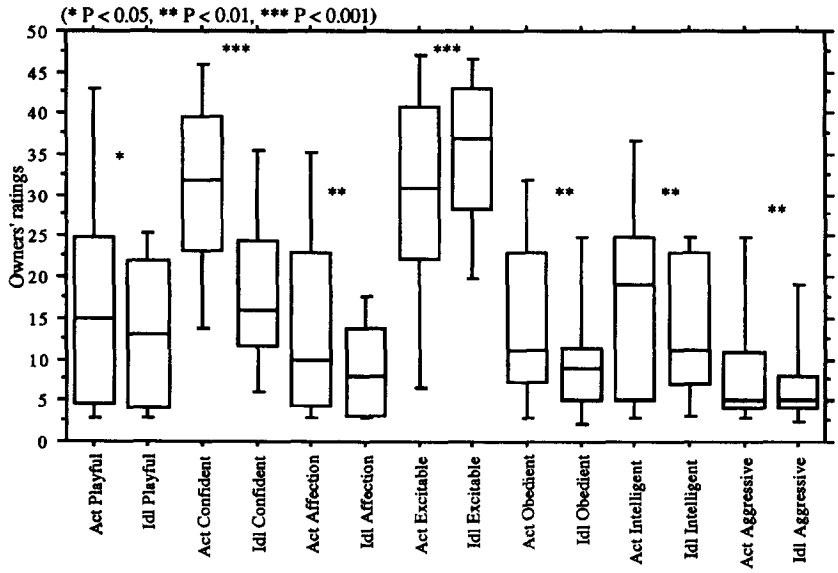

Fig. 4. Box plot comparisons of owners' 'actual' vs. 'ideal' ratings for cats only (illustrating medians and 10th, 25th, 75th and 90th percentiles).

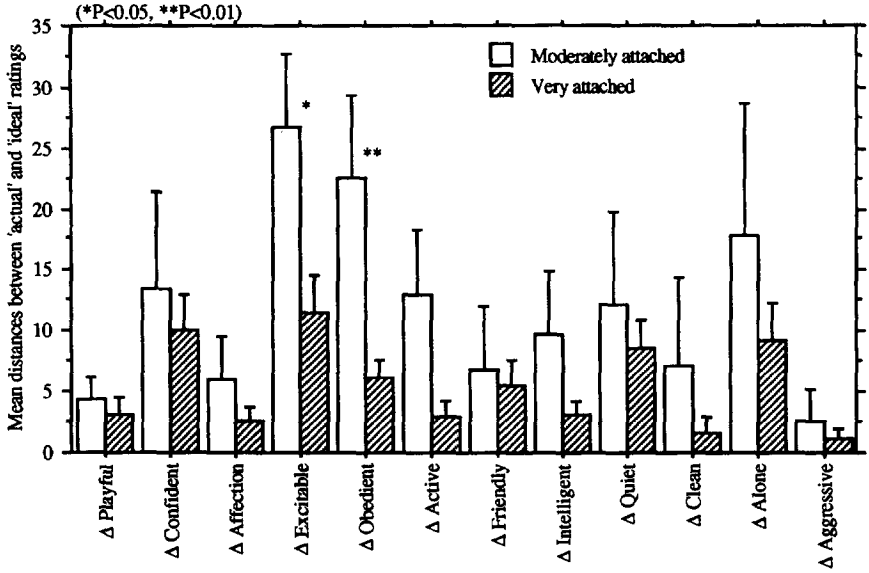

Fig. 5. Bar chart comparisons of mean (±SE) distances between 'actual' and 'ideal' ratings among moderately and very attached dog owners.

Moderately attached dog owners reported consistently larger Δ scores than very attached dog owners. With respect to excitable/energetic ($U = 23.5$, $P = 0.045$) and well-behaved/obedient ($U = 14.0$, $P = 0.009$) these differences between moderately and very

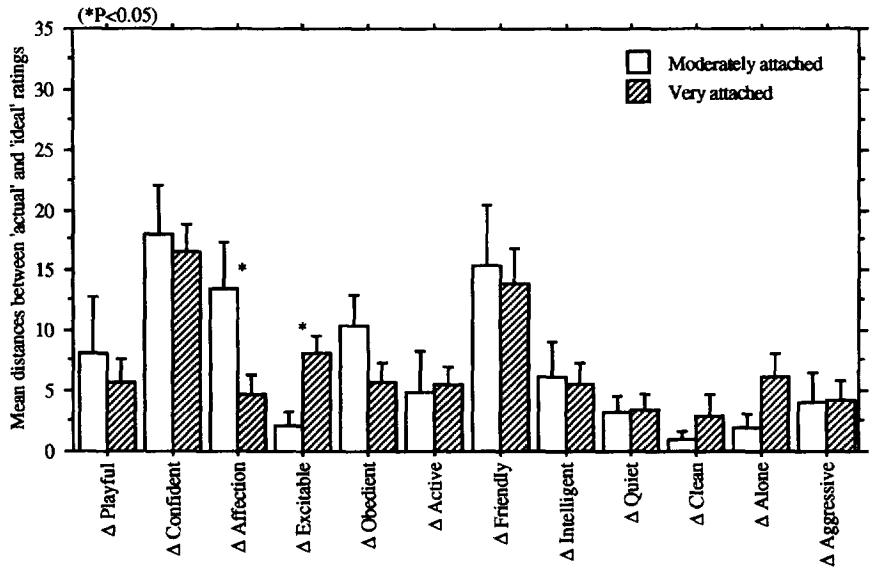

Fig. 6. Bar chart comparisons of mean (±SE) distances between 'actual' and 'ideal' ratings among moderately and very attached cat owners.

attached owners were statistically significant (Fig. 5). In other words, moderately attached dog owners appeared to be less satisfied overall with their pets' behavior.

Cat owners exhibited much less consistency. Although there were significant differences in Δ scores between moderately and very attached cat owners with respect to affectionate ($U = 71.0$, $P = 0.0186$) and excitable/energetic ($U = 73.5$, $P = 0.028$), there was no evidence that the moderately attached owners were consistently any less satisfied overall than the very attached ones. Indeed, with respect to excitable/energetic they appeared to be significantly more satisfied (Fig. 6).

4. Discussion

Because it formed only a small part of a much larger survey, the instrument used to measure animal behavior in this study (Table 1) was deliberately designed to be as simple and straightforward as possible. It was restricted to aspects or dimensions of behavior that were appropriate to both cats and dogs, and, as a result, behavioral propensities unique to either species were ignored, despite the fact that they may also contribute to owner attachment levels. Subjective rating scales of the type used to assess behavior in this study have been tested for reliability and validity in the context of research on laboratory primates (Stevenson-Hinde et al., 1980; Stevenson-Hinde, 1983) and domestic cats (Feaver et al., 1986). Although similar techniques have also been used previously to obtain behavioral information from pet owners (Serpell, 1983; Turner and Stammbach-Geering, 1990), the level of precision, and the degree of bias, in these owner-generated assessments is at present unknown so the present results should be interpreted cautiously (see also Podberscek and Serpell, 1996, this issue).

Coincidentally, the design parameters of the larger survey had the effect of controlling two important, and potentially confounding, variables: (a) source of pet, and (b) length of ownership. Both of these factors have been shown previously to influence the strength of people's attachments for their companion animals (Quackenbush and Glickman, 1983; Arkow and Dow, 1984).

4.1. Dog and cat behavioral comparisons

With the possible exception of aggressiveness towards known persons, the observed significant differences in 'actual' behavior between dogs and cats were consistent with the generally accepted, popular depictions of these two species. Cats are widely considered to be more flighty, more stand-offish with strangers, and less demonstrative in their affections than dogs, as well as being regarded as less excitable, active and playful (Serpell, 1986). Some cat owners would probably object to the notion that cats are less intelligent than dogs, although the cat owners in this study clearly rated them lower on the intelligence scale. Overall, these findings were in accordance with the public's perception of the behavior of dogs and cats, and this provides at least some independent confirmation of the validity of the methods used to assess companion animal behavior. Somewhat surprisingly, cats were not rated as being significantly quieter, cleaner or more tolerant of being left alone than dogs, although all of these

attributes are traditionally associated with cats. The fact that these animals were derived from animal shelters may have contributed to this apparent divergence from 'typical' cat behavior.

The absence of any highly significant differences between owners' 'ideal' ratings of cats and dogs suggests a surprisingly high level of agreement between cat and dog owners regarding the behavioral attributes of the ideal pet. This might appear to contradict the widespread view that cat and dog owners are different sorts of people with different expectations of their pets, although what is expected and what is considered ideal may be two different things from the owner's viewpoint.

With respect to their 'actual' behavior, both dogs and cats differed significantly from owner's 'ideal' ratings. With dogs, the main discrepancies were associated with nervousness/fearfulness, excitability, lack of obedience, hyperactivity, and separation-related anxiety. The fact that 'ideal' dogs were rated as less affectionate than 'actual' dogs further suggests that some owners were having problems with overly attached and dependent animals. These findings are comparable to those obtained by Serpell (1983) who employed a similar, but somewhat longer and more detailed 22-item questionnaire. Behavior problems of these kinds are commonly reported in the relevant literature (Campbell, 1975; Borchelt and Voith, 1982a; Hart and Hart, 1985) and, significantly, behavioral difficulties associated with separation from the owner are known to be particularly prevalent in dogs obtained from shelters (Borchelt and Voith, 1982b; McCrave, 1991). The absence of aggression from the above list is in some ways anomalous, since various forms of aggression comprise the most common category of behavior problems in the dog population (Borchelt, 1983). The shelters where these animals were acquired are understandably cautious about rehoming dogs which exhibit any symptoms of aggressiveness, and it is possible that this process succeeded in weeding out the more aggressive animals from the present sample.

As with dogs, nervousness/fearfulness, excitability, and lack of obedience were responsible for some of the significant differences between 'actual' and 'ideal' cats. In addition, these cats also fell short of their owners' ideals in terms of playfulness, affection, intelligence and aggression towards people they knew. Owner-directed aggression is a relatively unusual behavior problem in cats (Hart and Hart, 1985), although it may account for a significant proportion of clinical behavioral referrals (Blackshaw, 1988). It is also possible that cats exhibiting this type of behavior are more likely to find themselves in animal shelters.

4.2. Pet behavior and owner attachment

People's 'ideal' conceptions of dog and cat behavior in this study bore no relation to their level of attachment for the animal. It is therefore unlikely that the less strong attachments developed by some owners were a consequence of them having exaggerated or unrealistic behavioral expectations of the pet.

Across most aspects of behavior, 'actual' ratings also showed little association with attachment levels, although more intelligent dogs and noisier cats tended to have more attached owners than their less intelligent and quieter counterparts. This finding indi-

cated that, within reason, absolute levels of behavior may be relatively unimportant to the relationship from the owner's point of view.

The average discrepancy between 'actual' and 'ideal' ratings did affect owner attachment levels, particularly in relation to dogs. Although the small sample sizes made it difficult to demonstrate many statistically significant effects, it was apparent that actual–ideal distances were consistently higher among the less strongly attached group of dog owners. This contrasted markedly with the picture for cats. Moderately attached cat owners were more likely to achieve large actual–ideal distance scores with respect to affection, and low scores with respect to excitability, but otherwise no consistent patterns emerged. This difference between dog and cat owners is difficult to interpret. Because dogs are generally larger and more interactive than cats, it may be that their behavioral idiosyncrasies are more intrusive, and therefore more likely to have an adverse effect on the relationship with the owner. Alternatively, or perhaps in addition, dog owners may expect a higher standard of conduct from their pets than cat owners do, and may become more dissatisfied and less attached when the animal falls short of their ideal. The importance of affection in the cat–owner relationship suggests that simpler behavioral criteria are relevant to cat owners' attachments. This is also supported by the findings of a previous study in which owners' self-rated affection for cats was most strongly correlated with the cats' perceived affection for the owner (Turner and Stammbach-Geering, 1990).

The small sample sizes of moderately attached owners, and the restricted scope of the questionnaire used to assess dog and cat behavior in this study, makes it difficult to draw any detailed conclusions from the results of the present analysis. Nevertheless, these preliminary findings suggest that there is a causal relationship between various aspects of an animal's behavior and its owner's level of attachment, especially within dog–owner dyads. Since an owner's attachment for a pet probably affects his or her likelihood of abandoning or disowning the animal (Arkow and Dow, 1984; Chumley et al., 1993), grieving when it dies (Keddie, 1977; Rynearson, 1978; Gosse and Barnes, 1994), or benefiting from its company (Ory and Goldberg, 1983; Connell and Lago, 1984; Garrity et al., 1989), there are important practical reasons for exploring this relationship in more detail.

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