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Owner characteristics and interactions and the prevalence of canine behaviour problems

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Abstract

Despite the popular idea that dog owners are often responsible in some way for their animals' behaviour problems, the scientific evidence is scarce and contradictory. Some studies have failed to detect any links between the quality of the owner–dog relationship and the occurrence of behaviour problems, while others suggest that some behaviour problems may be associated with certain aspects of owner personality, attitudes and/or behaviour.

Using retrospective data from a sample of 737 dogs, the present study investigated the association between the prevalence of different behaviour problems and various aspects of either owner behaviour or owner–dog interactions. A number of statistically significant associations were detected: (a) between obedience training and reduced prevalence of competitive aggression ($P < 0.02$), separation-related problems ($P < 0.001$), and escaping and roaming ($P < 0.05$); (b) between the timing of the dogs' meal times and the occurrence of territorial-type aggression ($P < 0.01$); (c) between sleeping close to the owner and increased prevalence of competitive aggression ($P < 0.01$) and separation-related problems ($P < 0.01$); (d) between first-time ownership and the prevalence of dominance-type aggression ($P < 0.001$), separation-related problems ($P < 0.05$), fear of loud noises ($P < 0.001$), and various manifestations of overexcitability ($P < 0.001$); (e) between owners' initial reasons for acquiring a dog and the prevalence of dominance-type ($P < 0.001$), competitive ($P < 0.01$) and territorial aggression ($P < 0.01$). The possible practical implications of these findings are discussed.

Keywords: Dog; Behaviour problems; Development; Human–animal interactions

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1. Introduction

Principles derived from the scientific study of animal and human psychology were first applied to the treatment of canine behaviour problems during the mid to late 1970s (Tuber et al., 1974; Campbell, 1975). Prior to that time, the problem dog was viewed largely as the product of a lack of authority, discipline and control on the part of its owner (Mugford, 1995). When the eccentric dog trainer, Barbara Woodhouse, announced on public television that there were "no bad dogs, only bad owners", she simply gave voice to a popularly accepted stereotype: that of the permissive, over-indulgent owner with an unruly and badly behaved pet (Woodhouse, 1978). To some extent, such views were also tacitly endorsed by the dog-breeding community, since they helped to deflect attention from the behavioural problems inherent in some breeds (Serpell, 1987).

Despite the prevalence of such views, current evidence linking dog behaviour problems with aspects of the owner's behaviour, attitudes or personality tends to be either anecdotal or inconclusive. Trainers and animal behaviour counsellors (therapists) often assume, for example, that owners who 'spoil' their pets—i.e. allow them to get their own way—or who treat them like persons, are more likely to cause, or contribute to, the development of problems than owners who are less acquiescent or anthropomorphic. It has also been proposed that particular types of dog–owner interaction, such as allowing the dog to 'win' in competitive games, feeding it before the owner's meal times, or allowing it to sleep in the bedroom or on the bed, may help to potentiate dominance-related problems (Hart and Hart, 1985; O'Farrell, 1987; Rogerson, 1989; Rogerson, 1990; Voith et al., 1992; Fisher, 1993; Peachey, 1993; Rogerson, 1993). Reliable supporting evidence for these ideas is scarce. O'Farrell (1987) detected a statistical relationship between the occurrence of dominance aggression and the owner's degree of emotional attachment for the dog, as measured by his or her tendency to allow the animal to sleep in the bedroom, or to feed it tit-bits or specially prepared food. More recently, however, using the results of a large survey, Voith et al. (1992) failed to find any significant association between owners' anthropomorphic attitudes or 'spoiling' activities and the prevalence of behaviour problems. Owners' lack of knowledge or experience of dogs is also commonly considered to be a contributory factor in the aetiology of behaviour problems (Peachey, 1993), although Borchelt and Voith (1986) found no statistically significant associations between the prevalence of problems and the amount of dog-owning experience of owners. The value of formal obedience training as a means of controlling behaviour problems has also been questioned. Campbell (1986) and Clark and Boyer (1993) both obtained results indicating reduced prevalence of behaviour problems in dogs which received formal obedience training. The survey of Voith et al. (1992), however, found no statistically significant effects of obedience training on the prevalence of problem behaviour.

This article presents evidence of statistical associations between a number of characteristics of owners and/or owner–dog relationships and the prevalence of various behaviour problems. The possible significance of these findings is discussed in the light of current beliefs and practices regarding the care and training of companion dogs.

2. Materials and methods

2.1. Subjects and questionnaires

Questionnaires [1] were circulated to the owners of 737 dogs recruited from four sources: animal behaviour counsellors/therapists ($N = 451$), veterinary surgeons ($N = 88$), the teaching hospital at the University of Cambridge Veterinary School ($N = 112$), and random door-to-door inquiries ($N = 86$). The questionnaire required the owners to provide detailed information on the form and duration of their interactions with the dog, their reasons for acquiring the animal, and their past history of dog ownership.

Reasons for dog acquisition (companionship, protection, exercise/recreation, breeding or showing) were each individually coded as absent or present, and analysed for their association with the prevalence of problematic behaviour patterns or categories. Previous dog ownership was coded as a simple dichotomous variable: 'no previous dogs' or 'one or more previous dogs'. Obedience training was directly coded from the questionnaire as being absent, informal, or formal. Similarly, relative feeding time was coded into three groups: before the owners, after the owners, or variable. Dogs were coded as either sleeping close to their owners (i.e. in the bedroom) or distant from their owners (elsewhere in the house or garden). The types of games owners reported playing with their dogs were also assigned to one of three different categories: chasing games, fetch, and 'tug-o-war' type games.

Owners were asked to complete a checklist of problematic behaviour patterns, indicating on a series of five-point rating scales (ranging from 'almost never' to 'almost always') the frequency at which their dog demonstrated each of 40 different behaviour patterns (Table 1). The behaviour patterns were divided into five broad categories; aggression, fearful behaviour, separation-related behaviour patterns, overexcitability and miscellaneous. The five-point frequency scales were subsequently reduced to a simpler, absent or present scoring system (1–2, absent; 3–5, present) for the purposes of statistical analysis. Recoding the behavioural pattern data into this more conservative format was intended to reduce the possible effects of individual biases in the owner's perceptions.

The methods used in this study relied on the ability of the owners to accurately report on their dogs' behaviour. Borchelt (1984) has commented on the ability of owners, whose dogs were referred to him for behavioural problems, to interpret fearful behaviour accurately. The present study required owners not only to interpret fearfulness, but also aggressiveness, overexcitability, separation-related behaviour, and various other behaviour patterns. The use of the owner as an informant allows the rapid acquisition of detailed data on a large number of animals. However, as with any behaviour measurement technique, it still needs to be shown that this method is scientifically valid and reliable (sensu Martin and Bateson, 1993).

[1] Copies of the questionnaire are available upon request from the first author.

Table 1
Categorical associations between different problematical behaviour patterns as described by cluster analysis

Problematic behaviour patterns	Clinical categories (clusters)
Separation-related urination	Separation-related elimination
Separation-related defecation	
Chasing livestock	Chasing behaviour
Chasing cars/bicycles	
Aggression at meal times	
Aggression in restricted spaces	
Aggression when handled	Dominance-type aggression
Aggression when disciplined	
Aggression to owner	
Separation-related barking	Separation-related destructiveness
Separation-related destructiveness	
Aggression when attention is paid to others	Competitive aggression
Aggression to other dogs in the household	
Fear of children	
Fear of strangers	Social fears
Fear of dogs	
Fear of traffic	
Fear of loud noises	Non-social fears
Other (specified) fears)	
Aggression to people approaching the house	
Aggression to strange dogs	Territorial-type aggression
Aggression to people approaching the dog	
Aggression to people approaching the owner	
Chasing cats/birds	
Overexcitement when playing	
Overexcitement when visitors arrive	General overexcitement
Overexcitement when doorbell/phone rings	
Overexcitement on walks	
Disobedient	Disobedience
Excessive barking	
Overexcitement in cars	
Coprophagia	
Aggression to children	
Escaping/roaming	
Abnormal sexual behaviour	
Submissive urination	

2.2. *Analysis*

The associations between owner or husbandry variables and the prevalence of behaviour problems were investigated using the Pearson chi-square test. Linear relationships were investigated using the Mantel–Haenszel chi-square test (Armitage and Berry, 1987), and Goodman post hoc comparative tests were also performed where appropriate (Marascuilo and Serlin, 1988). The data were analysed by means of the SPSS statistical software, and manually.

The tendency of different problematical behaviour patterns to associate together (i.e.

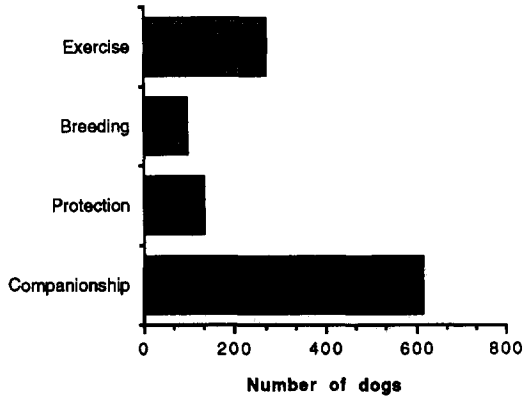

Fig. 1. The numbers of dogs acquired for different reasons (dogs may have been acquired for more than one reason).

to co-occur in the same dog) was investigated by cluster analysis using an agglomerative hierarchical technique (Jagoe, 1994). The results of this analysis made it possible to combine the initial 40 different behaviour patterns into distinct clinical categories, such as 'dominance-type aggression', for the purposes of additional analysis (Table 1).

3. Results

3.1. Reasons for dog acquisition

Companionship was the commonest reason for acquisition, followed by exercise, protection and breeding/showing in that order (Fig. 1). Dogs chosen for companionship showed a significantly lower prevalence of competitive aggression than dogs acquired for other reasons ($\chi^2 = 8.32$, $P < 0.01$, $N = 692$). There were no other statistically significant associations between companionship as a reason for acquiring the dog and the prevalence of any other problematic behaviour patterns or clusters.

Dogs acquired for protection showed a significantly higher prevalence of territorial-type aggression than dogs acquired for other reasons ($\chi^2 = 5.89$, $P < 0.01$). Dogs acquired for breeding and/or showing had a significantly lower prevalence of dominance-type aggression than dogs acquired solely for other reasons ($\chi^2 = 9.41$, $P < 0.01$). Dogs acquired for exercise had significantly lower prevalences of dominance-type aggression ($\chi^2 = 12.52$, $P < 0.001$) and competitive aggression ($\chi^2 = 4.44$, $P < 0.05$) than dogs acquired solely for other reasons.

3.2. Experience of dog ownership

The greater proportion of the respondents were previous dog owners (ratio 579:157). Dogs belonging to first-time owners displayed higher prevalences of behaviour typically associated with dominance-related problems, including aggression when disciplined

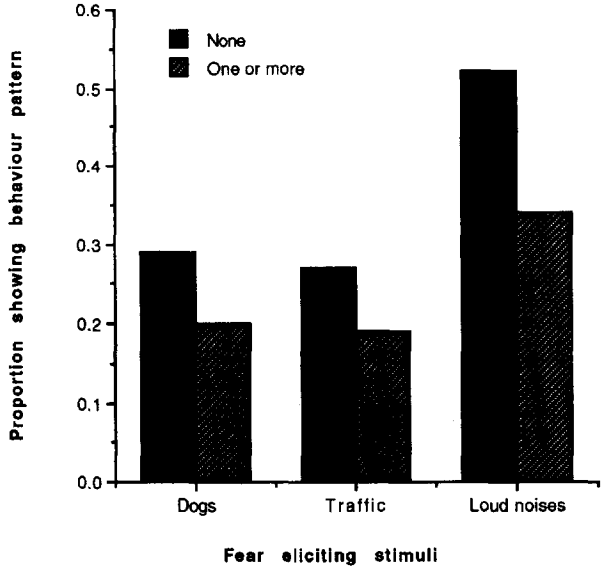

Fig. 2. The relationship between the proportion of dogs showing fearful behaviour towards other dogs ($P < 0.05$), traffic ($P < 0.05$), and loud noises ($P < 0.001$), and the number of dogs owned previously.

($\chi^2 = 10.32$, $P < 0.01$, $N = 736$), aggression when handled ($\chi^2 = 3.74$, $P < 0.05$), aggression in restricted spaces ($\chi^2 = 11.36$, $P < 0.001$), and aggression during feeding/meal times ($\chi^2 = 7.15$, $P < 0.01$). There were no statistically significant associations between previous experience of dog ownership and the prevalence of any other aggressive behaviour patterns or clusters. As shown in Fig. 2, dogs belonging to first-time owners also exhibited higher prevalences of fear of other dogs ($\chi^2 = 4.69$, $P < 0.05$), fear of traffic ($\chi^2 = 4.31$, $P < 0.05$), and fear of loud noises ($\chi^2 = 17.39$, $P < 0.001$).

Only one separation-related behaviour problem had a statistically significant association with previous dog ownership. Dogs belonging to first-time owners had a significantly lower prevalence of separation-related defecation than dogs belonging to experienced owners ($\chi^2 = 4.18$, $P < 0.05$).

Dogs owned by first-time owners were reported as showing a higher prevalence of general overexcitement ($\chi^2 = 7.75$, $P < 0.01$) and overexcitement in cars ($\chi^2 = 4.75$, $P < 0.05$) than dogs owned by experienced owners (Fig. 3). Perhaps not surprisingly, first-time owners also viewed their dogs as being more disobedient than did experienced owners ($\chi^2 = 6.96$, $P < 0.05$).

3.3. Presence and form of obedience training

Aggression when the owner paid attention to another individual diminished in prevalence as the level of obedience training increased (Mantel–Haenszel $\chi^2 = 5.68$, $P < 0.02$, $N = 713$). Separation-related urination (Mantel–Haenszel $\chi^2 = 11.98$, $P <$

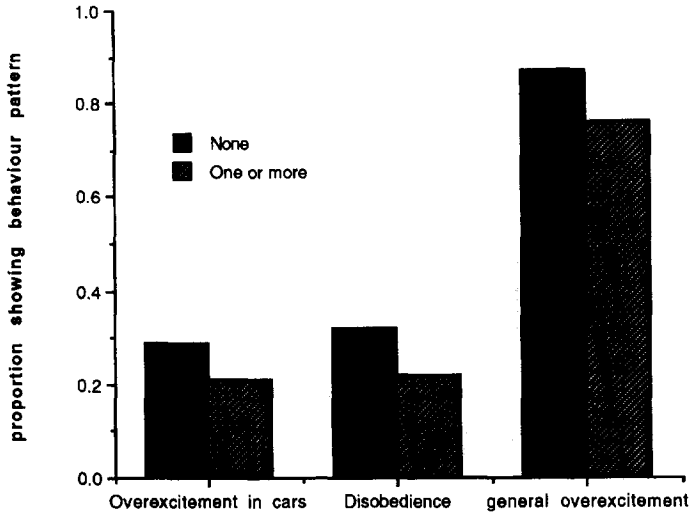

Fig. 3. The relationship between the proportion of dogs showing general overexcitement ($P < 0.01$), overexcitement in cars ($P < 0.05$), and disobedience ($P < 0.05$), and the number of dogs owned previously.

0.001,) and separation-related defecation (Mantel–Haenszel $\chi^2 = 8.38$, $P < 0.01$) also declined in prevalence as the level of obedience training increased, as did the frequency of escaping and roaming ($\chi^2 = 3.7$, $P < 0.05$).

The prevalence of overexcitement in cars increased with the level of obedience training (Mantel–Haenszel $\chi^2 = 5.29$, $P < 0.03$). Overexcitement on walks was also more prevalent in dogs which had gone to formal training classes compared with dogs informally trained at home ($\chi^2 = 6.3$, $P < 0.05$). The Goodman post hoc comparative analysis showed this to be the only statistically significant comparison ($z = -2.4653$, $S^* = \pm 2.45$, $P < 0.05$). Dogs with little or no training are perceived as being disobedient by a higher proportion of their owners than was expected by chance and dogs which were informally trained at home are seen as disobedient by fewer owners than expected ($\chi^2 = 8.7$, $P < 0.01$). The Goodman post hoc comparison demonstrated that this contrast between the two groups of dogs was statistically significant ($z = 2.75$, $S^* = \pm 2.45$, $P < 0.05$). It also demonstrated that dogs trained informally at home had a lower prevalence of perceived disobedience than all the other dogs in the survey ($z = -2.889$, $S^* = \pm 2.45$, $P < 0.05$).

3.4. Timing of the dog's meal times relative to those of the owner

The prevalence of territorial-type aggression has a statistically significant association with the relative timing of meal times ($\chi^2 = 10.39$, $P < 0.01$, $N = 687$). The Goodman post hoc multiple comparison tests shows that the difference in prevalence between those dogs always fed before and those always fed after their owners was significant ($z = -2.678$, $S^* = \pm 2.45$, $P < 0.05$). The difference in prevalence of territorial-type

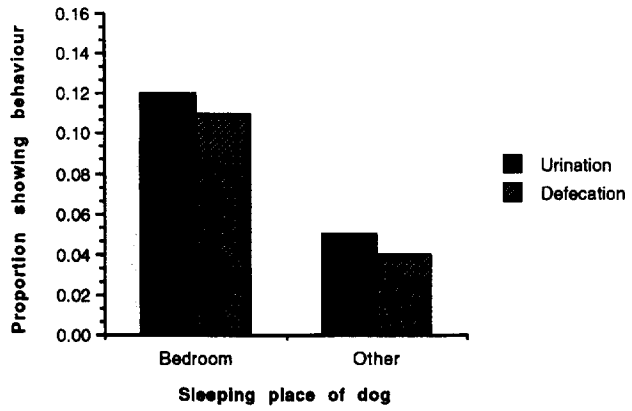

Fig. 4. The relationship between the proportion of dogs showing separation-related urination ($P < 0.01$) and defecation ($P < 0.01$) and the proximity of the dog to the owner when sleeping.

aggression between dogs always fed before their owners and those always fed after or occasionally fed after their owners, was also significant ($z = -3.145$, $S^* = \pm 2.45$, $P < 0.02$).

3.5. Proximity of the dog to the owner whilst sleeping

Dogs which slept in the owner's bedroom at night had a higher prevalence of competitive aggression than dogs which slept elsewhere ($\chi^2 = 8.39$, $P < 0.01$, $N = 689$). Separation-related urination ($\chi^2 = 7.23$, $P < 0.01$) and defecation ($\chi^2 = 8.01$, $P < 0.01$) were both more prevalent in dogs that slept in their owner's bedroom (Fig. 4). There were no further statistically significant associations between the proximity to the owner whilst sleeping and the prevalence of any other behaviour problems or clusters.

3.6. Type of owner–dog games

There were no statistically significant associations between the presence of, or type of games and the prevalence of any problematic behaviour pattern or cluster in any of the groups of dogs in this study.

4. Discussion

This survey found a lower prevalence of dominance-type and possessive aggression in dogs chosen primarily for exercise. The treatment advised to reduce problems related to social dominance commonly includes lead-walking and increased owner-initiated interactions (Voith and Borchelt, 1982; Beaver, 1983; Hart and Hart, 1985; O'Farrell, 1986). It is possible that the reduced prevalence of such aggressive behaviour patterns in

dogs obtained for exercise is a reflection of the more interactive, owner-lead style of these exercise-based relationships. Dogs chosen for breeding and/or showing also displayed less dominance-type aggression, and this may again reflect the fact that show dogs are trained to tolerate unusually invasive handling procedures, and long periods of physical restraint.

The relationship between protection as a reason for acquiring a dog and territorial-type aggression is complex and somewhat difficult to interpret. People who choose a dog for protection may tend to opt for a herding or guarding breed in which territorial-type aggression has been actively selected for. It is also probable that persons acquiring dogs primarily for protection are more likely to encourage or reinforce signs of territorial behaviour. Separating the effects of owner reinforcement from that of genetic predispositions is therefore difficult (Borchelt and Voith, 1982). It is also possible that owners who acquire dogs for protection simply perceive their dogs' behaviour differently from those who acquire dogs primarily for other reasons.

Contrary to the findings of Borchelt and Voith (1986), this study demonstrated more frequent behaviour problems in dogs belonging to first-time owners. This may be due to several factors. First-time owners may lack experience of handling and communicating effectively with dogs, and their inappropriate responses to canine behaviour patterns and signals may, inadvertently, help to initiate or potentiate problem behaviour (Peachey, 1993). Another difficulty first-time owners have is a lack of experience in selecting a dog. The expression of many behaviour patterns involves strong genetic influences (Murphree et al., 1967; Hart and Hart, 1985; Serpell, 1987; Wright and Nesselrote, 1987), and inexperienced owners may be less aware of breed differences in behaviour, and less sensitive to possible inherited problems. Alternatively, apparent differences in the prevalence of behaviour problems between experienced and first-time owners could be an artifact of differences in owner perception. Since they may have little experience of what constitutes 'normal' frequencies of canine behaviour, it is possible that first-time owners tend to over-report or exaggerate the presence of problems.

Interpretation of the apparent beneficial effects of obedience training is complicated by the fact that the owners of problem dogs are more likely to institute training programmes as a means of reducing problems. In relation to possessive aggression, separation-related defecation and urination, and escaping and roaming, owners of obedience-trained animals reported fewer behaviour problems. This would imply that either owners who opt for obedience training tend to perceive their pets' behaviour as less problematical, or that obedience training does actually help to ameliorate these kinds of problems. O'Farrell (1986) and Borchelt and Voith (1986) reported a reduction in aggression in dogs undergoing obedience training, and Clark and Boyer (1993) have recently shown that obedience training can help to reduce separation-related anxiety. In both cases, the differences are attributed to qualitative changes in the relationship between the dog and the owner (although see Voith et al., 1992). The anomalously high prevalence of overexcitement and disobedience in dogs who underwent formal, as against informal, obedience training was probably due to the use of formal training as a means to control these problems. Formal obedience training is commonly recommended for dogs showing overexcitement (Hart and Hart, 1985; O'Farrell, 1986; Myles, 1991), and owners tend to take their dogs to obedience classes because they perceive them to

be exceptionally disobedient and/or overexcitable. If this interpretation is correct, the present findings suggest that formal training may not in fact be an effective treatment for this particular type of problem.

In general, social dominance in groups of wild canids involves priority of access to important resources such as food, sleeping sites, etc. (Lockwood, 1979; Van Hooff and Wensing, 1987). This fact has prompted some behaviour counsellors to propose that the timing of a dog's meals relative to the owner's meal times, the tendency to allow the dog to 'win' in competitive games, as well as the proximity of the dog to the owner while sleeping, may all contribute to the development of owner-directed dominance aggression (O'Farrell, 1986; O'Farrell, 1987; Rogerson, 1989; Rogerson, 1990). The present study found no evidence that feeding dogs before their owner's meal times contributes to the prevalence of dominance-type aggression, as suggested by (Rogerson, 1989; Rogerson, 1990). We did, however, detect significantly more territorial aggression in dogs fed consistently after their owners. Differences in levels of general arousal may offer a possible explanation for this finding, although making a dog wait for its dinner may also increase its perception of the value of the food resource, and hence its tendency to defend that resource from possible intruders.

Although the present findings did not offer any support for the proposed connection between the development of dominance aggression and the types of games played with the dog (Rogerson, 1989; Rogerson, 1990), our data did not enable us to establish whether or not owners were allowing their dogs to 'win' in the more competitive 'tug-o-war' type interactions.

With respect to sleeping arrangements, it is impossible to determine from our data whether the behavioural problems are the consequences or the cause of the sleeping arrangements. Although it is reasonable to suggest that a dog which is allowed or encouraged to sleep close to the owner may develop an unbalanced attachment for that person, and react adversely to separation, it seems equally plausible to argue that the owner has been forced to accept an over-attached canine sleeping partner in order to avoid nocturnal separation-related problems.

In summary, the results provide evidence that obedience training, timing of meal times, and sleeping arrangements, as well as owners' prior experiences of dog ownership and their reasons for acquiring a dog, are all significantly related to the prevalence of certain behaviour problems. These findings are substantially at odds with those of Voith et al. (1992), although the latter survey lumped all behaviour problems together for the purposes of analysis, and would not have detected possible owner effects on particular patterns of behaviour. Unfortunately, the nature of the present data makes it impossible to do more than speculate about the causal relationships between the various owner variables and the prevalence of dog behaviour problems. 'Blaming' owners for their pets' problematical behaviour is generally considered to be counter-productive to successful treatment (Mugford, 1995; O'Farrell, 1995). Nevertheless, it is important to establish precisely how, if at all, owners' attitudes, personalities, actions and/or experiences can affect the likelihood of their pets developing behaviour problems. Such information would not only improve our overall understanding of the human–dog relationship, but may also help in the design of more appropriate treatment programmes.

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