Prevalence of behaviour problems reported by owners of dogs purchased from an animal rescue shelter

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Abstract

This study examined the prevalence of behaviour problems exhibited by dogs within 4 weeks of acquisition from a rescue shelter in Northern Ireland. One thousand five hundred and forty-seven people who had purchased a dog from a rescue shelter in Northern Ireland were sent a postal questionnaire designed to collect information on the behaviours exhibited by their dog within the first month of acquisition. Five hundred and fifty-six people responded to the survey, representing a response rate of 37%. The majority of respondents (68.3%) reported that their dog exhibited a behaviour problem, the most common being fearfulness. Most of those respondents (89.7%) who returned their dog to the shelter did so because the animal exhibited behaviour that they considered undesirable. Male dogs showed more unacceptable behaviours than females, specifically inter-male aggression, sexual problems and straying tendencies. More stray dogs displayed undesirable behaviour than unwanteds, specifically straying tendencies. Puppies were less likely to exhibit unacceptable behaviours than juveniles or adults, particularly fearfulness, sexual problems and straying tendencies. More juvenile dogs showed excessive activity and excessive barking than puppies or adults. More adult dogs displayed aggression towards other dogs than juveniles or puppies. Findings indicate that dogs purchased from rescue shelters do exhibit behaviour problems that may lead to their return. The number of dogs admitted or returned to rescue shelters with behaviour problems may be reduced by raising public awareness regarding the value of behaviour therapy and introducing behaviour therapy schemes to rescue shelters.

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1. Introduction

Undesirable behaviours are common in the domestic dog population. It has been estimated that up to 90% of dogs may exhibit behaviours that their owners find unacceptable (Vacalopoulos and Anderson, 1993). So-called ‘behaviour problems’ can be a huge source of distress for owners and for many the only solution seems to lie in handing the animal over to the care of a rescue shelter (e.g. Patronek et al., 1995; Salman et al., 1998; Wells, 1996). Over 30% of dogs relinquished by their owners to rescue shelters are abandoned because of behaviour problems (Wells, 1996). The incidence of dogs purchased from rescue shelters with problem behaviours, however, is poorly recorded. Moreover, it is unclear what impact purchasing a dog with behaviour problems has on owners’ perceptions of the animal’s desirability. This paper examined the prevalence of problem behaviours exhibited by dogs acquired from an animal rescue shelter in Northern Ireland and the relationship between the behaviour of the dog and whether the animal was kept by the new owners or returned.

The domestic dog can exhibit a wide variety of behaviours that owners find annoying. These range from relatively minor problems such as tail chasing or pulling on the lead, to more serious ones such as aggression or destructiveness (see for instance Knol, 1987; Mugford, 1995; Vacalopoulos and Anderson, 1993).

The chances of a dog developing a behaviour problem may be dependent upon a number of factors including, for instance, its breed, age, sex, castration status, diet, relationship with owner’s (see Jagoe (1994) for review; Serpell and Jagoe, 1995). Recent reports indicate that a dog’s source of acquisition may also influence its chances of developing a behaviour problem (Jagoe, 1994; Serpell and Jagoe, 1995). Study suggests that dogs acquired as strays or purchased from pet stores or rescue shelters are more likely to exhibit problem behaviours than dogs acquired from friends, relatives, breeders, or bred at home (Jagoe, 1994).

Dogs purchased from rescue shelters are particularly prone to separation-related problems, e.g. destruction, elimination when left alone (e.g. Jagoe, 1994; McCrave, 1991). So-called ‘separation anxiety’ is believed to be due to the breakdown in a dog’s social ties to its previous owners followed by the development of an overly close attachment to a subsequent owner (e.g. Askew, 1996; O’Farrell, 1992; Voith and Borchelt, 1985).

Accurate information regarding the incidence and range of behaviour problems exhibited by dogs acquired from rescue shelters is sorely missing. It would be of value to determine what proportion of dogs purchased from rescue shelters show undesirable behaviours in their new homes. Once such information is collected then appropriate measures can be undertaken to reduce the incidence of problem behaviours prior to purchase. This may improve owners’ satisfaction with their new pet, encourage more acceptable owner–pet relationships, and/or result in a decrease in the number of dogs that are returned to rescue shelters with problem behaviours.

The following study collected information regarding the incidence of owner-assessed problem behaviours exhibited by a sample of dogs within the first month of their purchase from the largest animal rescue shelter in Northern Ireland. Owners’ reports were used as evidence of canine behaviour problems since it is the perceptions of the
owner that determines whether the dog is ultimately kept (Wells, 1996). The dogs’ sex (male, female), age (puppy, juvenile, adult), background (stray, unwanted) and castration status (neutered, intact) were recorded to determine whether they were associated with the likelihood of dogs exhibiting problem behaviour/s.

2. Method

2.1. Subjects

One thousand, five hundred and forty-seven people who had acquired a dog within a 12-month period from the largest animal rescue shelter in Northern Ireland (see Wells and Hepper, 1999) were sent a ‘Dog Behaviour Survey’.

2.2. The ‘Dog Behaviour Survey’

2.2.1. Section 1. Type of dog purchased from the shelter

Information pertaining to the sex (male or female), the background (stray, i.e. the dog was found loose roaming the streets, or unwanted, i.e. the dog was relinquished to the shelter by its owners), the age (puppy [0–6 months], juvenile [7 months–2 years], adult [2+ years]), and the castration status (neutered or intact) of those dogs purchased by the participants was collected in this section. The respondents were also asked to indicate whether they still owned the dog in question, and if not, the reason why they no longer had the animal.

2.2.2. Section 2. Behaviour problems

This section gathered information regarding whether the participants’ dogs had exhibited any behaviours which they considered unacceptable within the first 4 weeks of purchase, and if so what they were. The 10 most common types of undesirable behaviours exhibited by sheltered dogs (based on the shelter’s reports) were listed in the survey, namely, fearfulness, excessive activity, destructiveness, house-training problems, straying, coprophagy (listed as ‘eats faeces’), excessive barking, aggression towards dogs, aggression towards humans, sexual problems. Participants were required to indicate whether or not their dog had exhibited any of these problem behaviours within the first month of leaving the shelter. An open-ended category of ‘other’ allowed participants to state whether their dog had exhibited any other problem behaviours besides those mentioned.

Although ‘separation anxiety’ (dog engages in destruction, elimination, and/or vocalisation upon being left alone) is a common behaviour problem in dogs (e.g. McCrave, 1991), for the purpose of this survey, the condition was broken down into the elements of destructiveness, house-training problems and excessive barking.

2.3. Procedure

Those individuals who had purchased a dog from the shelter were posted a copy of the ‘Dog Behaviour Survey’ and a covering letter. Participants were asked to complete
the questionnaire and return it using the pre-paid envelope provided. Anonymity was guaranteed to all respondents.

2.4. Data analysis

Chi-squared tests (e.g. Robson, 1973) were conducted to examine whether the dogs’ sex, age, or background and/or castration status were associated with any of the problem behaviours. For dogs that showed a behaviour problem, Chi-squared analyses were performed to determine whether the dogs’ sex, age, background, and/or castration status, were associated with a specific behaviour problem, i.e. fearfulness, excessive activity, destructiveness, house-training problems, straying, coprophagy, excessive barking, aggression towards dogs, aggression towards humans, sexual problems.

Chi-squared tests were carried out to investigate whether there was an association between a dog showing a behaviour problem and whether or not that animal was returned to the shelter. A similar analysis was conducted to determine whether the type, and/or number of problem behaviours exhibited by the respondents’ dogs was associated with whether or not the animal was returned to the shelter.

3. Results

3.1. Demographic information

From the 1547 questionnaires sent to dog buyers, 556 (37%) completed surveys were returned and form the basis of the analysis hereafter. As with all postal surveys, the sample of respondents may be somewhat biased in favour of those individuals who most readily related to the issues being addressed. Thus, individuals who owned a dog with a behaviour problem may have been more inclined to participate in the study than those without a ‘problem’ pet.

Table 1 shows the sex, background, age and castration status of the participants’ dogs. The subject count for all analyses does not always add up to 556 since participants who did not respond to individual questions were omitted from the corresponding analyses. Very few (n = 10) of those respondents who owned a male dog reported that their pet had been neutered, and most (86.7%) of those participants who owned a female dog stated that did not know whether or not their pet had been spayed. Due to the low number of castrated dogs in the study sample, the influence of castration status on the occurrence of behaviour problems was omitted from all further statistical analyses.

Sixty-five (11.8%) of the respondents no longer owned the dog they had purchased. Four individuals did not state whether they still owned their dog. Of those individuals who no longer owned their dog, 36 (55.9%) indicated it was because the animal had been returned to the shelter, 18 (27.9%) stated that their dog had died, and 11 (16.4%) reported that their dog had strayed away from the home and not come back again.

3.2. Behaviour problems

The majority of respondents (68.3%) reported that their dogs had exhibited an undesirable behaviour within the first month of leaving the shelter. Two hundred and
Table 1
The total number, and percentage, of dogs which participated in the study, according to the animal’s sex, background, age and castration status

<table>
<thead>
<tr>
<th>Dog Factor</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>248</td>
<td>44.7</td>
</tr>
<tr>
<td>Female</td>
<td>308</td>
<td>55.3</td>
</tr>
<tr>
<td><strong>Background</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stray</td>
<td>286</td>
<td>58.4</td>
</tr>
<tr>
<td>Unwanted</td>
<td>204</td>
<td>41.6</td>
</tr>
<tr>
<td><strong>Age at Purchase</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puppy</td>
<td>268</td>
<td>49.6</td>
</tr>
<tr>
<td>Juvenile</td>
<td>195</td>
<td>36.1</td>
</tr>
<tr>
<td>Adult</td>
<td>77</td>
<td>14.3</td>
</tr>
<tr>
<td><strong>Castration Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male dogs</td>
<td>238</td>
<td>94.0</td>
</tr>
<tr>
<td>Female dogs</td>
<td>15</td>
<td>5.9</td>
</tr>
<tr>
<td>Neutered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male dogs</td>
<td>10</td>
<td>27.8</td>
</tr>
<tr>
<td>Female dogs</td>
<td>26</td>
<td>72.2</td>
</tr>
</tbody>
</table>

sixty-nine dogs (48.3%) had only exhibited one specific behaviour problem, 152 (27.3%) had exhibited two undesirable behaviours, and 136 (24.4%) had shown three behaviour problems.

The number, and percentage of respondents’ dogs that exhibited each of the listed behaviour problems is presented in Table 2. The percentage total exceeds 100 since some respondents indicated that their dogs had shown more than one behaviour problem.

Table 2
The number, and percentage, of respondents’ dogs which exhibited specific behaviour problems within the first 4 weeks of purchase from an animal rescue shelter

<table>
<thead>
<tr>
<th>Problem Behaviour</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fearfulness</td>
<td>203</td>
<td>53.4</td>
</tr>
<tr>
<td>Excessive activity</td>
<td>142</td>
<td>37.4</td>
</tr>
<tr>
<td>Destructiveness</td>
<td>93</td>
<td>24.5</td>
</tr>
<tr>
<td>Inappropriate elimination</td>
<td>81</td>
<td>21.3</td>
</tr>
<tr>
<td>Straying</td>
<td>51</td>
<td>13.4</td>
</tr>
<tr>
<td>Coprophagy</td>
<td>49</td>
<td>12.9</td>
</tr>
<tr>
<td>Excessive barking</td>
<td>43</td>
<td>11.3</td>
</tr>
<tr>
<td>Aggression towards dogs</td>
<td>34</td>
<td>8.9</td>
</tr>
<tr>
<td>Aggression towards humans</td>
<td>21</td>
<td>5.5</td>
</tr>
<tr>
<td>Sexual problems</td>
<td>13</td>
<td>3.4</td>
</tr>
</tbody>
</table>
None of the respondents indicated that their dog had shown a behaviour problem other than one listed in the survey.

A one-way Chi-squared analysis revealed a significant difference in the type of behaviour problem exhibited by the respondents’ dogs \((P < 0.001)\). Dogs exhibited more fearfulness and excessive activity than other behaviour problems.

### 3.2.1. Effect of sex on the likelihood of a behaviour problem

The sex of the dog was not significantly associated with the exhibition of an overall behaviour problem within the first month of leaving the shelter, but it was significantly associated with several specific behaviour problems. Male dogs were more likely to have shown aggression towards other dogs, sexual problems, and straying tendencies than females. Female dogs were more likely to have shown fearfulness than their male counterparts (Table 3).

### 3.2.2. Effect of background on the likelihood of a behaviour problem

Stray dogs were significantly more likely to have shown an undesirable behaviour within the first month of being re-housed than unwanted dogs, specifically straying tendencies (Table 3).

### 3.2.3. Effect of age on the likelihood of a behaviour problem

Fewer puppies exhibited an undesirable behaviour within the first month of leaving the shelter, than adults or juveniles. Puppies were less likely to exhibit fearfulness,

<table>
<thead>
<tr>
<th>Behaviour problem</th>
<th>Sex</th>
<th>Background</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (%)</td>
<td>Female (%)</td>
<td>Stray (%)</td>
</tr>
<tr>
<td>Fearfulness</td>
<td>31.1</td>
<td>41.0</td>
<td>40.4</td>
</tr>
<tr>
<td>Excessive activity</td>
<td>27.9</td>
<td>24.1</td>
<td>28.6</td>
</tr>
<tr>
<td>Destructiveness</td>
<td>16.4</td>
<td>17.3</td>
<td>16.3</td>
</tr>
<tr>
<td>Inappropriate elimination</td>
<td>12.3</td>
<td>16.3</td>
<td>17.7</td>
</tr>
<tr>
<td>Straying</td>
<td>12.3</td>
<td>6.2</td>
<td>10.8</td>
</tr>
<tr>
<td>Coprophagy</td>
<td>7.4</td>
<td>10.1</td>
<td>9.4</td>
</tr>
<tr>
<td>Excessive barking</td>
<td>7.8</td>
<td>7.8</td>
<td>10.8</td>
</tr>
<tr>
<td>Aggression towards dogs</td>
<td>8.6</td>
<td>4.2</td>
<td>7.4</td>
</tr>
<tr>
<td>Aggression towards humans</td>
<td>4.9</td>
<td>2.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Sexual problems</td>
<td>4.1</td>
<td>0.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Overall</td>
<td>68.4</td>
<td>68.4</td>
<td>77.8</td>
</tr>
</tbody>
</table>

\( \chi^2 P < 0.002 \) for overall.
sexual problems, and/or straying tendencies than juvenile or adult dogs. Juvenile dogs were more likely to show excessive activity than puppies or adults. Adult dogs were more likely to exhibit aggression towards other dogs than puppies or juveniles (Table 3).

3.3. Dog behaviour problems and the risk of relinquishment

A significantly ($P = 0.03$) greater proportion of those dogs which were returned to the shelter exhibited a behaviour problem within the first month of purchase (89.7%) than those dogs which were kept by their owners (67.1%).

Of those dogs returned to the shelter, 31 exhibited a behaviour problem within the first 4 weeks of purchase, whilst only five dogs which did not display a problem behaviour were returned ($P < 0.001$).

The type of behaviour problem exhibited by the respondents’ dogs was significantly associated with whether or not the animal was returned to the shelter ($P = 0.0001$). Of those dogs which exhibited aggression towards humans, 30% were returned to the shelter. A lower proportion of dogs which exhibited aggression towards other dogs (15.6%), sexual problems (15.4%), straying tendencies (13%), excessive activity (10.9%), excessive barking (10.5%), destructiveness (8.8%), fearfulness (7.3%), coprophagy (6.1%) or inappropriate elimination (5.2%) were returned to the shelter.

There was no significant association between the number of behaviour problems shown by the dogs and whether they were returned to the shelter.

4. Discussion

The results of this study indicate that most of the sheltered dogs exhibited problem behaviours, that undesirable dog behaviours increased an animal’s chances of being returned to its source of purchase, and that the chances of a dog developing a behaviour problem were related to its sex, background and age. It must be borne in mind that, as with many postal surveys, the response rate to the study was relatively low. In the absence of knowledge regarding why individuals chose not to participate in the study, generalisations relating to the findings arising from the work should be avoided.

The majority of the respondents (68.3%) indicated that their dog had exhibited behaviour that they considered to be undesirable within the first month of acquisition. Wells (1996) discovered that 31% of dogs abandoned by their owners to the same rescue shelter were relinquished because of behaviour problems. Taken together with findings from the present study it would appear that considerably more dogs purchased from rescue shelters display problem behaviours than are knowingly admitted to rescue shelters with undesirable behaviour problems. This may indicate that owners who relinquish their dog to rescue shelters either do not believe that their pet has any undesirable behaviours, or are reluctant to admit that their dog has a problem behaviour, believing that this will jeopardise the animal’s chances of future adoption. The large number of stray dogs admitted to the shelter in relation to unwanted animals may also explain the relatively high proportion of behaviour problems in dogs purchased from the study site. Many stray dogs may originally have been abandoned by their owners.
because of their undesirable behaviour or developed problem behaviours whilst living loose on the streets, thereby increasing the number of dogs admitted to the shelter with existing behaviour problems.

The most commonly reported behaviour problem was fearfulness. Dogs can exhibit fearful behaviour for a wide variety of reasons, including, for instance, genetic predisposition, negative previous experiences, inappropriate owner responses (see for example Askew, 1996). It is possible that the period of time spent in captivity, albeit relatively short, induced fears in some of the dogs in the present study. Jagoe (1994), for example, found that dogs purchased from animal shelters and pet stores showed a higher prevalence of social fear than dogs acquired from other sources, suggesting that caged environments may predispose animals to become fearful to the approach of unknown humans. Recent research has furthered our understanding of the effects of cage environment on the behaviour and welfare of dogs housed in rescue shelters and provided rescue organisations with a useful source of information and recommendations on how to house dogs in more favourable conditions (e.g. Hubrecht, 1993; Hubrecht et al., 1992; Wells, 1996; Wells and Hepper, 1992, 1998).

Surprisingly, few dogs were reported to have exhibited aggression, despite the fact that this particular behaviour problem is the most common cause for dog referral to behaviour therapy clinics (e.g. Knol, 1987; Mugford, 1995), and is reported to be widespread in the domestic dog population (e.g. Wright, 1985, 1991). This is clearly a positive finding. Although aggression is undoubtedly one of the most serious canine behaviour problems, findings from the present study suggest that in relation to other behaviour problems, it is not particularly common (although see later).

The sex of the dog was significantly associated with the exhibition of a behaviour problem. Previous work has indicated that male dogs are more prone to behaviour problems than their female counterparts (e.g. Jagoe, 1994; Mugford, 1995), and the results of the present study also showed that male dogs were more likely than female dogs to have a behaviour problem, specifically aggression towards other dogs, undesirable sexual behaviours, and straying tendencies. These particular problems are often under hormonal control (e.g. Fox, 1972), thus explaining the sex difference found in the present study. Castration (particularly if combined with behaviour modification) can often help to remedy hormone-induced behaviour problems in dogs (e.g. Maarschalkerweerd et al., 1997; Neilson et al., 1997). Most of the male dogs in the present sample were entire at the time of the study. Since the research was conducted, however, the shelter involved has introduced a blanket policy requiring all of the dogs in its care to be neutered before they are purchased. The effect of this scheme on the incidence of dogs purchased with behaviour problems, particularly hormone-related, is soon to be explored.

The dogs’ background was significantly associated with the occurrence of a behaviour problem. More stray dogs exhibited a behaviour problem upon leaving the shelter than unwanted animals. Specifically, stray dogs were more likely to exhibit straying tendencies than their unwanted counterparts. Whilst somewhat circular, this finding has important implications. It has previously been assumed that a large proportion of dogs labeled as strays may not be strays in the true sense of the word; rather, they may actually be abandoned animals. The present study indicates, however, that
many dogs labeled as strays do indeed exhibit straying tendencies. The labeling of dogs admitted to rescue shelter may thus be more accurate than is commonly assumed.

Dog age exerted an influence on the occurrence of undesirable behaviours. Puppies were less likely to have shown a behaviour problem upon acquisition than juveniles or adults, specifically fearfulness, sexual problems and straying tendencies. This finding may be largely related to an owner’s perceptions of what behaviour is ‘acceptable’ at a given age. The same behaviours, which are displayed by puppies and are considered unproblematic, may not be seen as acceptable when they are exhibited by an older dog.

Juvenile dogs were more likely to have displayed excessive activity and/or excessive barking than adults or puppies. Although both features of relatively ‘normal’ behaviour in juvenile dogs, it would appear that many owners regard this as undesirable. This again highlights the notion that owners may have preconceived ideas regarding what constitutes acceptable behaviour at any given age.

More adult dogs exhibited aggression towards conspecifics than juveniles or puppies. This finding supports previous suggestions that aggression may be age-related, with the average age for dogs showing aggression problems falling at around 3.4 years (Wright and Nesselrote, 1987).

Almost all the respondents who returned their dog to the shelter did so because the animal was misbehaving. The chances of a dog being returned, however, were largely related to the type of behaviour problem. Dogs showing more serious problems, such as aggression, were much more likely to be returned than dogs showing more minor problems, such as coprophagy or inappropriate elimination. Fortunately, as outlined earlier, aggression was not found to be particularly common in relation to other dog behaviour problems. This may be partly due to the study shelter’s policy of not re-homing any dog which has a history of aggression or has displayed aggressive tendencies whilst in their care. Findings indicate that this policy is a relatively powerful filter and one that appears to be working.

Although not directly life-threatening, dog behaviour problems can be a huge source of distress to owners, and as this study has demonstrated, can frequently result in the animal’s relinquishment, and in some cases their ultimate destruction. It must be borne in mind that the term ‘behaviour problem’ is an extremely subjective one. What may be considered a problem behaviour by one owner may be regarded as relatively ‘normal’ by another. Inexperienced, or naive dog owners may be more inclined to consider their dog’s undesirable behaviour as a problem than more experienced owners. Terminology of what constitutes a genuine dog behaviour ‘problem’ aside, however, the fact remains that dogs are frequently abandoned because their behaviour is considered undesirable by their owner (e.g. Patronek et al., 1995; Salman et al., 1998; Wells, 1996). This is a very real issue and one that cannot be overlooked because of a confusion regarding what constitutes ‘problem’ behaviour.

Behaviour therapy may be one solution to reducing the incidence of dogs which are abandoned because of problem behaviour. Whilst there are many behaviour therapy practices throughout the UK and USA, the large number of dogs relinquished because of behaviour problems would suggest that only a small proportion of owners are aware of, or utilise, such a service. By raising public awareness of the benefits associated with behaviour counselling, it may be possible to reach owners before they reach the point of
giving up on their pet, thereby reducing the incidence of dogs which are admitted to rescue shelters with behavioural problems.

The introduction of behaviour therapy programmes to rescue shelters may also produce great benefits, serving to reduce the incidence of dogs which are sold with undesirable behaviours. Some rescue shelters are starting to introduce behaviour therapy schemes into their care practices to ensure that pets are relatively ‘problem-free’ before they are sold. Some rescue organisations are also beginning to pay more attention to the care environment of sheltered dogs in an attempt to reduce the likelihood of dogs developing behaviour problems whilst in captivity.

Dog behaviour problems are always likely to be a cause of great concern for owners. By raising public awareness regarding the value of behaviour therapy, and introducing behaviour therapy schemes to rescue shelters, however, it may be possible to eventually reduce the incidence of dogs which are relinquished to, and purchased from, rescue shelters, with undesirable behaviours.

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