Knowledge of animal welfare and prevalence of dog care practices in New Providence, The Bahamas

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Abstract

Interviews with 509 adults in New Providence indicated that many people have a limited knowledge of the law and animal welfare issues. For many dogs, care is limited to food and water and to a lesser extent shelter. Primary care givers were found to give the impression that dogs were better cared for than non-primary care givers. Potcakes were offered the least health care and "breed" dogs the most. Educational efforts must distinguish between those who do and do not live in dog keeping households. For example: myths associated with neutering are more deeply entrenched in the general population than within members of dog keeping households.

Introduction

Dog ownership in the Caribbean pre-dates the arrival of Columbus (Schwartz, 1997) and since the arrival of Europeans, the number and variety of dogs has increased, an observation made by Catesby as early as the 1720s (Feduccia, 1985). The number of dogs in The Bahamas was first regarded as a "nuisance" in 1841, and it has remained "a problem" ever since (Fielding, Mather & Isaacs, 2005). Current dog keeping practices are often in breach of the law and are associated with unplanned litters being transferred from the cared-for to unowned dog populations. For example, the law requires that all dogs be licensed and only licensed dogs are allowed to roam in the day, provided they are not on heat. In practice, it is estimated that less than 5% of owners license their dogs (Fielding & Mather, 2002) and some 40% of households allow their dogs to roam (Fielding, Mather & Isaacs, 2005). The relatively low number of dogs neutered allows an excess of puppies

to be born which can then augment the roaming dog population (Fielding & Plumridge, 2005).

The pet over-problem in The Bahamas is not singular in the Caribbean. Studies in Antigua (Dipeolu, 2006), Barbados (World Health Organisation, 1979), Dominica (Alie, Davis, Fielding, & Galindo, 2007), Providenciales (Turks & Caicos Islands (Fielding, 2004a), St. Maarten (Romney, 2004), and St Lucia (Witt, Shaw, Tasker, Steeves, Neiger, 2006), the general Caribbean (Fielding, 2004) and the Yucatan, (Ortega-Pacheco, Rodriguez-Buenfil, Bolio-Gonzalez, Sauri-Arceo, Jimenez-Coello & Linde Forsberg, unpublished) indicate similarities in the ways dogs are kept and common problems resulting from these practices as those seen in The Bahamas.

In response to long-standing concerns associated with pet over-population in tourist based economies (Bryant, 1994), both Dominica (Alie, *et al*, 2007) and The Bahamas have decided that it is essential to instigate public programmes on animal welfare to better educate people on the subject; for example: the *Community Lead Animal Welfare* programme in Dominica and the work of the *Ad hoc Committee for responsible animal ownership* in The Bahamas.

As this study was intended to provide baseline information on the public's knowledge of animal welfare prior to an animal welfare education programme, the questions reflected the animal welfare issues to be highlighted in the education programme. It also sought

information which would allow the education programme to be orientated to maximise its chances of improving awareness of responsible animal ownership.

Methodology

A convenience sample consisting of 500 adults (aged 18 and over) was used with quotas set so that equal numbers of females and males aged over and under 35 years of age were included. This quota was set so that the sample would reflect the general adult population, which is broadly equally distributed between these four groups (Department of Statistics, 2002). Only about 30% of dog keeping households take their pets to the veterinarian (Fielding, 1999) and a previous study (Fielding, unpublished data) has shown that carers who visit a veterinary clinic can provide different responses to the same questions from the wider population of dog carers. Consequently, a street-based study was preferred to a veterinary clinic based study in order to describe the wider, dog carer population. Five trained data collectors were used to interview participants in a range of public locations throughout New Providence.

The questions on the survey form were devised to discover participants' knowledge of local animal welfare issues and to obtain information as to how dog keepers care for their animals. Previous studies (for example: Fielding & Plumridge, 2005) have focused on the characteristics of the owned dog population and currently little is known about the daily care of dogs and, in particular, health care.

Access to a motor vehicle was used as proxy indicator of household poverty (Fielding, Scriven, Ballance, McDonald & Johnson, unpublished). Respondents who lived in dog keeping households but who were not the principal care-givers were termed non-principal care-givers.

Participants with post-high school education are referred to as “more educated” and those with at most a high school education are termed “less educated”. Dog keeping households were classified by the type of dogs kept: “Potcakes only” (when all dogs were local mongrels, which are called potcakes), “Potcakes plus” (at least one potcake and at least one pure-breed dog) and “Breeds only” (no potcakes). It should be noted that respondents provided information on the breed/type of dogs in the household. For the purposes of this study pit bulls are regarded as a breed, but we make no distinction between pedigree dogs and pure-breed dogs as most “breed” dogs are probably unregistered (Fielding, Mather & Isaacs, 2005).

Results

Five hundred and nine participants were interviewed. The additional interviews arose when data collectors inadvertently used extra forms which had been included in their packages to allow for spoilage or for interviewees refusing to complete an interview early on. Participants did not always respond to each question and so N indicates the number of responses.

Demographics of participants

Almost equal numbers of males (51.9%) and females were interviewed (Binomial test: p=0.43, N=509) and respondents were equally distributed under and over 35 years of age. Over 95% of participants had a high school education or more (N=503) and 53.8% had at least two years of college education. Younger participants (under 35 years old) were less likely than older participants to have a post-secondary education (46.4% compared to 61.2%, Fisher's exact test, $p<0.001$, N=502). If each participant is assumed to represent a different household then, most households had a motor vehicle (84.9%, N=496) and 32.7% (N=502) of households kept dogs.

Attitudes and knowledge of all respondents towards animal welfare

Only 2.2% of respondents (N=505) thought that dogs did not feel pain but participants were equally divided as to whether it was acceptable to hit a dog as means of discipline (49.7% agreeing, Binominal test: p=0.929, N=505). Most respondents (65.8%, N=506) agreed that that people who are cruel to animals are also likely to be cruel to human beings but 6.5% "did not know".

Most respondents (87.7%, N=504) thought it was better for a dog's welfare for it to be confined; when dogs were kept for security, 91.3% (N=504) of respondents thought that they should be confined. Few respondents thought it acceptable to allow dogs (9.1%, N=508) or cats (11.6%, N=508) to roam. Most respondents (76.8%, N=504) had seen roaming dogs on their street in the last seven days and most (64.7%, N=484) thought that

it was acceptable to feed roaming dogs. Many of respondents had felt physically threatened by dogs; 37.6% (N=484), 23.3% (N=481) and 15.9% (N=490) had felt threatened in the last five years, one year, and one month, respectively.

Most respondents thought that it was "all right" to feed dogs manufactured dog food (93.3%) or table scraps which might include chicken bones (61.9%) but fewer thought that it was "all right" to feed table scraps which might include fish bones (7.9%).

Most respondents thought that dogs should either not be neutered at all, or not until the dogs had bred at least once (female dogs: 69.3% N=462; male dogs: 64.6%, N=464).

When respondents had dogs they no longer wanted or needed to have a dead dog removed, the most popular option in each case was to contact the Bahamas Humane Society (45.6% and 27.3% respectively) (Tables 1 and 2).

Table 1 about here

Table 2 about here

Knowledge of the law

Participants showed a lack of knowledge of the law as it relates to animal welfare, and the legal responsibilities of dog owners with over a third thinking that food, water, shelter

and licensing were not legally required (Table 3). Although many people thought that a dog required an identification tag, the only tag that is required is the dog license tag.

Table 3 about here

Sources/potential sources of information

Most respondents obtained their local news from the state run TV station (82.0%, N=490). There was a wide difference in the choice of radio stations. Of nine local radio stations, only three were listened to by at least 30% of respondents; none of these were state owned. The two most popular times on weekdays for listening to the local radio was before 8.30am (59.9%) and after 6pm (56.1%, N=508). Only two (of five) local newspapers were read by about 50% of respondents or more (60.5% and 48.7%).

Most respondents had been to the movies at least once in the last month (53.2%, N=506) and 47.9% of respondents' households usually did most of their shopping at only one of two super-market chains.

Influence of participant sex on knowledge

The sex of participants influenced some responses. Males were more likely than females to think male dogs should never be neutered (21.1% compared with 14.2%, Fisher's exact test, p=0.053, N=464). However, this sex effect was not found in participants from dog caring households (Fisher's exact test, p=0.82, N=144). Of those respondents who provided an earliest age at which dogs could be neutered, females thought that the earliest

age was 0.54 years (SE:0.055) while male respondents thought the earliest age was 0.79 years (SE:0.095), a difference which was significant (t-test, df=136, p=0.027). In the case of earliest age of spaying, females thought the age should be 0.51 years (SE: 0.063) and males, 0.71 years (SE:0.076), a difference which was almost significant (t-test, df=140, p=0.055). Males were also more likely than females to see dogs on their street in the last week (80.4% compared to 71.7%, Fisher's exact test, p=0.028, N=504).

Influence of participant education on knowledge

Less educated participants were more likely than more educated participants to think that dogs should never be neutered (spayed: 18.1% compared to 10.5%, Fisher's exact test, p=0.022, N=458; neutered: 21.2% compared to 14.9%, Fisher's exact test, p=0.087, N=460). More educated respondents were less likely to think that people who are cruel to animals can be cruel to humans (63.7% compared to 67.8%, Chi-squared, p=0.019, df=2, N=500). More educated participants were more likely than less educated participants to give dogs "a chance" by abandoning unwanted dogs (11.4% compared to 4.7%, Fisher's exact test, p=0.009, N=503) and likewise they were less likely to surrender unwanted animals to the Bahamas Humane Society (40.2% compared to 51.7%, Fisher's exact test, p=0.012, N=503).

Dog keeping households only

Respondents living in 161 dog owning households provided information on 275 dogs; 61.6% of respondents identified themselves as being the principal care-giver to the

household dogs. Of 113 dogs, 54.9% were female which did not suggest a preference for dog of a particular sex (Chi-squared= 1.07, $p>0.05$, df=1, N=113).

Although a similar percentage of female respondents were interviewed from dog and non-dog keeping households (48%, Fisher's test: $p=0.44$, N=502), male respondents were more likely than females to identify themselves as the principal care-giver (70.5% of males and 53.6% of females, Fisher's exact test: p=041, N=147).

Level of care associated with educational attainment

Level of educational attainment had some important inflences on the level of care offered dogs. Access to daily food and water, and shelter was similar ($p>0.05$) irrespective of the educational attainment of the respondent (Table 4). However, dogs were less likely to receive health care when the respondent had less education (Table 4).

Table 4 about here

Care offered to different types of dogs

The type of dog (potcakes only, potcakes plus, breeds only) kept in a household was not associated with the level of the respondent's education (Chi-squared, $p=0.35$, df=2, N=150) or with the household owning a motor vehicle (potcakes only and potcakes plus, breeds (Fisher's exact test, $p=0.79$, N=150).

The most popular "breed", after potcakes (40.4% of 275 dogs), was the pit bull (14.5%). "Pure-breed" (or close to pedigree dogs) cost most ($325, SE:$39.9), then mixed, dogs of known breeds, ($25.6, SE:$20.2) and then potcakes were typically free ($0.12, SE:$0.119); just one potcake (of 84 for which prices were reported) was actually bought ($10).

Although all classes of dog keeping homes provided similar access to food and water, potcakes were less likely to be provided shade, dog food and received less health care and they were most likely to roam (Table 5).

Table 5 about here

Responses from principal and non-principal care givers

When the responses were classified by type of respondent, principal care-giver or not, different answers were often obtained about the general care and health care offered to dogs ($p<0.05$), Table 6. In many cases, the principal care-giver gave results which were more likely than those of the non-principal care-giver to create a favourable impression of the level of care offered. For example: principal care-givers gave the impression that their dogs got a higher level of health care than non-principal care-givers. When a dog was sick, both types of care-givers would be most likely to seek the help of a veterinarian (46.0%, N=139) or someone who did not have a dog (29.5%). Non-principal care-givers thought that a puppy needed at least two sets of vaccinations, but most 73.1% (N=52) did not know, while only three principal care-givers thought puppies needed only one set and

51.7% (N=89) did not know; three or four times were the most common of the other responses (40.4%).

Most respondents reported that they exercised their dogs on a leash outside of their yard (43.4%, N=143), but it should be noted that there was disagreement between the principal and non-principal care givers over this (Table 6). However, both types of respondent agreed that dogs were most likely to be exercised three or more times a week (61.9%, N=139) and some (6.9%) were never exercised at all.

Table 6 about here

It was also noted that non-principal care-givers were more likely than principal care-givers to think that it was acceptable for dogs (19.0% v 4.3%, Fisher's exact test: p=0.005, N=151) and cats to roam (22.4% v 5.4%, Fisher's exact test: p=0.003, N=151).

Discussion

When using a convenience sample it must be noted that the data may be biased in unknown ways and so the results from the sample may not be representative of the larger population of New Providence. However, the quotas placed on the sample ensured that the respondents were distributed according to age group and sex in a way which reflected the general population. For example: the sample included a lower percentage of households without access to motor vehicles (15% compared to 27%) than would have

been expected from the census which may indicate that the sample over-represented higher income households.

In 1998, a study found that 98% of adult respondents wanted children educated on pet care issues (Fielding, 1999). This finding suggested that adults were either unwilling or felt unable to provide education to children on animal welfare. This response was obtained despite the efforts of animal welfare groups and veterinarians to educate school children and pet carers since the 1890s (Fielding, Mather & Isaacs, 2005). More recently both new and established animal welfare organisations have been active in schools (Anon, 2005) and in attempts to get animal welfare incorporated into the school curriculum. However, these educational efforts have not been monitored so that their effects, if any, cannot be measured. This study provides a baseline of the awareness of animal welfare issues before the Department of Agriculture's public awareness campaign is started, so that its success, if any, can be ascertained.

Roaming dogs were present in most streets in which respondents lived and many participants had felt physically threatened by a dog within the last year. Despite this, most respondents condoned feeding roaming dogs, an action which encourages roaming dogs onto people's premises (Fielding, 1999) but exhibits the ambivalence which society shows towards roaming dogs, that of a cared-for nuisance.

It is clear that publicity associated with an educational campaign can be concentrated on relatively few newspapers and radio stations and only one TV station. Messages shown at

movie houses should reach a substantial number people as would messages placed with just one supermarket chain. It should also be noted that due to differences between replies from respondents in different sub-populations (e.g.: caring and non-dog caring households) different messages may need to be directed to these groups, including carers of different types of dogs, so as to maximise their impact.

Attitudes and knowledge of all respondents towards animal welfare

The responses towards animal welfare issues and the laws of The Bahamas showed that many people could be better educated on animal welfare. Some respondents would dispose of unwanted dogs in ways which could be regarded as inhumane (Table 1) and others would merely "give them away", which may be a form of abandonment, unless the new carers are responsible. Contrary to the responses in Table 2, it is only the responsibility of the government's Environmental Health Division (Solid Waste) to collect dead dogs, not The Bahamas Humane Society. Other methods of disposal which are utilised by dog keepers are burning, burying or putting dead animals in the garbage (Plumridge, Fielding & Bizzell, unpublished data). Clearly the improper disposal of dead animals could be considered a pubic health issue and so an important area for educating dog keepers.

Many respondents thought that dogs should be neutered after they have bred once, and some thought that dogs should never be neutered. Issues surrounding the reluctance of carers to get their dogs neutered and the gender implications have been reported elsewhere (Fielding, Samuels and Mather, 2002). This finding confirms the lack of

knowledge about neutering reported in the 2002 study. Addressing these issues will be important if more carers are to be encouraged to get their animals neutered. Currently, the level of neutering is low and this results in unwanted puppies being born (Fielding & Plumridge, 2005). This, combined with a large number of households allowing dogs to roam, even though it is recognised as being unacceptable, allows unplanned litters to be too common.

Many participants were unaware of the laws relating to animal welfare (Table 3). In fact there is no requirement for a dog to have an identification tag (other than the dog license tag), but this aspect was one which most people thought was required by law. These responses may result from the fact that laws on animal welfare are not often enforced. The lack of people knowing of the need to provide shelter in a hot sub-tropical environment may be cause for concern. A consequence of this limited knowledge is that animals may suffer from neglect, a common abuse in The Bahamas (Fielding, Mather & Isaacs, 2005) and elsewhere. A lack of knowledge about the laws concerning dogs was reported by Alie *et al* (2007), and so is not singular to The Bahamas.

Dog keeping households

Replies from non-principal carers support the view that many animals may be neglected; the fact some dogs are not fed each day may explain why dogs roam, particularly when other residents are willing to feed them. The feeding of table scraps is a long-standing tradition in The Bahamas and it is for this reason that local mongrels are called potcakes (Fielding, Mather & Isaacs, 2005). This tradition continues without much awareness as to

the implications for the dog's health. The findings confirm that mongrel dogs (potcakes) receive less care than other dogs; this is probably associated with potcakes being considered worthless (as well as being worthless) and so not worth having money spent on them. A letter to a newspaper (All dogs need is food and shelter, 2006) confirms the limited extent of "care" which is offered dogs by many who, like the writer of the letter, claim to be animal lovers.

The level of health care offered to dogs is a cause for concern. For example, heart worm and ticks are endemic in The Bahamas and there are periodic outbreaks of distemper. A previous study (Fielding, Mather & Isaacs, 2005) suggested that dog carers do not always know if their pets are sick, so making regular visits to a veterinarian important. The fact many dog carers sought advice on their sick dog from non-dog carers makes education of the entire population on animal welfare issues important. The high percentage of respondents who did not know how many sets of vaccinations dogs needed to be protected probably suggests that many puppies are not immunised against common diseases. The inattention to health care has also been found in Dominica, where many dogs were found to be unvaccinated (Alie, Davis, Fielding, Morters, Galindo, unpublished). Public health issues with roaming dogs in the Caribbean are real, as they are confirmed vectors of a number of diseases (Dipeolu, 2006).

While educational attainment was not always indicative of a greater awareness of animal welfare issues, dogs in homes where respondents had more education were more likely to receive better health care than dogs in homes where the respondent had less education

(Table 4). This suggests that while formal education has failed to sensitise the public on animal welfare, a higher education may allow carers to become more responsible carers than those who have less formal education.

Many dogs were untrained and this indicates a lack of interaction between carers and their pets. The lack of contact is manifest in many dogs being kept outside the home (Fielding & Plumridge, 2005). Physically exercising dogs is beneficial to both parties and allows for interaction between carer and dog. The notion of "exercising the dog" is sometimes confused locally with allowing dogs to defecate or urinate and leads to the idea that "the dog exercises himself" (Fielding, unpublished data). Our observations suggest that relatively few dogs are exercised by their carers and so we feel that the responses in Table 6 continue to reflect this confusion. The lack of interaction between carers and dogs was also noted in Dominica and gave rise to the notion of "passive ownership" (Alie *et al*., 2007). This concept may also apply to The Bahamas.

Wider implications

The findings from this study are not unique to The Bahamas. A study in Dominica also found that many people were ignorant of laws concerning animal welfare and that the level of care offered dogs gave cause for concern (Alie *et. al*, 2007). It is interesting to note that most respondents in the Dominican study only had a primary school education whereas most people in this study had at a post-high school education. This contrast indicates that the education system is failing to teach residents about animal welfare and

so highlights the need for animal welfare groups to provide this education until such times that animal welfare in institutionalized in schools.

The findings from these two studies start to suggest that there are regional similarities in dog keeping which can be exploited in devising generic "Caribbean" educational materials which could be used in several territories without sacrificing cultural sensitivity. Producing materials for use in many territories would reduce the cost of educational initiatives and may encourage extra-regional bodies to underwrite the cost of educational programmes.

Methodological issues

The differences between answers from respondents who were the principal care-givers and other who lived in dog keeping households (non-principal care-givers) are of interest and raise questions of reliability of self-reporting of dog caring practices. The responses show that assessing the level of care offered dogs may need to be made by direct observation (which would also be problematic). Case studies from The Bahamas have indicated that some carers can give unrealistic impressions as to the level of care offered (Fielding, Mather & Isaacs, 2005), and so non-primary care givers may be more reliable informants. At the very least, the differences allow a range to be put on answers (for example: between 1.1% and 9.6% of households never exercised their dogs). Further studies are required to discover if differences in replies from different household members persists within the same dog keeping household.

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Table 1: Actions people would use to dispose of dogs they no longer wanted. (Respondents could choose more than one option).

Action	**%**
Take them to the Bahamas Humane Society	45.6
Give them away	18.5
Sell them	11.6
Take them to the Animal Control Unit	10.6
Take them to a safe place to given them a chance	8.3
Take them to a clinic to be enthanised	6.7
Kill them yourself	3.9

Table 2: Organization participants would contact to remove a dead dog. N=497). (Respondents could choose only one option).

Organisation	**%**
Bahamas Humane Society	28.0
Department of Environmental Health	26.2
Animal Control Unit	18.5
Other form of disposal	13.1
Do not know	7.4
An animal welfare group	6.0
Police	0.08

Table 3: Participants agreeing that the following are legally required by dogs.

Required by law:	**%**
Have an identification tag attached to it	80.4
Be licensed each year	62.3
Have access to water	62.1
Be fed regularly	61.3
Have access to shelter	59.3

Table 4: Level of care classified by educational attainment of respondent. (Replies: "yes" compared to "no", "do not know" replies ignored.).

	Educational level		
	Less education	More education	P
All dogs have access to shelter at all times	87.7%	92.7%	0.415
All dogs have access to water at all times	93.2%	97.5%	0.257
Dog are fed everyday	91.2%	94.9%	0.515
At least one dog bathed in the last four weeks	68.2%	68.9%	0.999
All dogs taken to the veterinarian in the last 12 months	54.0%	69.6%	0.080
All dogs received heartworm within the last four weeks	44.4%	67.1%	0.010
At least one dog received flea treatment in the last four weeks	56.3%	78.2%	0.007
All dogs vaccinated in the last 12 months	60.0%	72.4%	0.145
At least one dog wears an identity tag	44.8%	51.9%	0.411
At least one dog got onto the road within the last month	56.2%	40.5%	0.068

More education: Less education: a high school education or less; Post high school education
Fisher's exact test, N≈146

Table 5: Level of care offered by household with different types of dogs

	Potcakes only	Potcakes plus	Breeds only	P
All dogs have access to shelter at all times*	82.6%	82.6%	96.3%	
The dogs are fed everyday *	93.0%	100.0%	91.3%	
All dogs have access to water *	93.5%	95.5%	97.6%	
Type of food: Table scraps Dog food Dog food & table scraps	 37.0% 39.1% 17.4%	 17.4% 30.4% 30.4%	 7.4% 65.4% 24.7%	 <0.001
At least one dog bathed in the last four weeks*	41.3%	61.9%	80.5%	0.004
All dogs taken to the veterinarian in the last 12 months*	34.1%	58.8%	77.9%	<0.001
All dogs received heartworm medicine within the last four weeks*	27.3%	64.7%	73.3%	<0.001
At least one dogs received flea treatment in the last four weeks*	47.7%	58.8%	83.3%	<0.001
All dogs vaccinated in the last 12 months*	40.0%	64.7%	81.6%	<0.001
At least one dog wears an identity tag*	25.9%	45.0%	62.0%	<0.001
Dogs got on to the street*	57.8%	63.2%	42.3%	0.119

N≈140
* "Yes" v "no", "do not know" replies omitted. Fisher's exact test. No p value is given when the Chi-squared test (df=2) is invalid.

Table 6: Level of care offered to dogs, percentage of those households which provided the attribute; respondents classified by principal care-giver or not.

		Role of respondent in household		
	Overall	**Principal care-giver**	**Non-principal care-giver**	**P**
All dogs have access to water at all times*	94.4%	97.8%	88.7%	0.058
All dogs have access to shelter at all times*[1]	89.7%	93.5%	83.0%	0.086 (df=1)
The dogs are fed everyday*	87.6%	90.2%	83.0%	0.398
At least one dog bathed in the last four weeks*	62.9%	72.2%	47.2%	0.006
At least one dog received flea treatment in the last four weeks*	62.2%	70.3%	48.1%	0.003
All dogs vaccinated in the last 12 months*	57.6%	63.0%	48.1%	<0.001
All dogs taken to the veterinarian in the last 12 months*	54.9%	62.6%	41.5%	0.005
All dogs received heartworm medicine within the last four weeks*	50.7%	60.0%	34.6%	0.008
At least one dog got onto the road within the last month*	45.8%	45.7%	46.2%	0.254
At least one dog wears an identity tag*	44.1%	48.9%	35.3%	0.063
The dogs were fed:				
Table scraps	17.4%	12.1%	26.4%	
Dog food	52.1%	60.4%	37.7%	0.014
Dog food and table scraps	22.9%	23.1%	22.6%	df=3
Dogs have a collar and leash: Some dogs	21.1%	22.8%	18.0%	0.096
Each dog	57.0%	60.9%	50.0%	df=2
Person responsible for training dogs:				
Nobody	37.1%	33.0%	44.2%	
Household member	51.7%	51.6%	51.9%	0.165
Professional	6.3%	8.8%	1.9%	df=3
Trained before dogs were acquired	4.9%	6.6%	1.9%	
How dogs are physically exercised:				
Supervised with a leash outside of the yard	43.1%	48.9%	32.7%	
Supervised without a leash outside of the yard	11.8%	15.2%	5.8%	
Unsupervised outside of the yard	16.7%	12.0%	25.0%	0.007
Within an enclosed yard only	24.3%	22.8%	22.8%	df=4
Never exercised	4.2%	1.1%	9.6%	

Chi-squared, N≈140

*Respondents could answer: yes, no, do not know, df=2

[1] Fisher's exact test, no "do not know" replies were obtained