

## A survey of stakeholders' opinions on the priority issues affecting the welfare of companion dogs in Great Britain

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### Abstract

An online survey, using open and prompted response questions, was undertaken to collate the views of stakeholders on the priority welfare issues currently facing companion dogs (*Canis familiaris*) in Great Britain and on dogs' general quality of life. The stakeholder sectors targeted broadly comprised Education, Government, Industry, Charity and Veterinary. Overall, respondents described companion dogs as, at minimum, having a life worth living. Whether welfare issues were openly described or ranked within a set list, those of high priority in the perceptions of stakeholders matched those cited in published scientific literature; particularly, exaggerated physical features, inherited disease, obesity and inappropriate socialisation. Puppy farming and status dogs, which have been highlighted recently in the media, were also viewed as important. Lack of appropriate mental stimulation, irresponsible ownership and inappropriate environment were raised as priority issues by stakeholders and are under-reported in scientific literature. Significant differences between stakeholder sectors in ranking of welfare issues perceived importance, urgency to rectify, impact (on the individual) or prevalence in Britain may be explained by vested interests, organisational roles, differences in terminology and the contexts within which stakeholders came into contact with companion dogs. Pet travel, dew claw removal and complementary and alternative medicines were amongst those issues thought to be of least urgent welfare concern. Issues perceived to enhance welfare included the quality of veterinary care, physical stimulation, educational resources, responsible ownership, the high status of dogs in society and the work of welfare organisations.

**Keywords:** animal welfare, companion animal, dog, quality of life, stakeholder, survey

### Introduction

Humans have played a significant role in shaping the evolution of the domestic dog (*Canis familiaris*) (Clutton-Brock 1995) and have a legal responsibility in many countries to protect those that are kept as companions. Recent work estimates the companion dog population to be approximately ten million in the United Kingdom (UK: Murray *et al* 2010; Asher *et al* 2011). Surveillance of welfare standards within the companion animal population has received relatively little scientific attention compared with farm (eg Webster 2001) and laboratory (eg Balcombe 2006) species; although there are exceptions regarding specific welfare concerns (eg pedigree dog health: Bateson 2010; Collins *et al* 2010). The availability of empirical scientific evidence limits objective welfare assessments, and qualitative methods are increasingly used (eg Heleski *et al* 2006; Collins *et al* 2009). In this study, we aimed to survey the views of companion animal stakeholders regarding the relative priority of canine health and welfare issues. The primary objectives were to identify those welfare issues perceived to be of the greatest and least importance to the welfare of the companion dog and to determine the current opinions of stakeholders on the

current quality of life of UK companion dogs. Secondary objectives were to identify issues which stakeholders considered to exist, but which are not currently well documented in published scientific literature and to ascertain key differences in the opinions of stakeholder sectors on the importance of dog welfare issues. For the purposes of this study, a companion dog was defined as a domesticated pet, living as part of a family unit and not kept primarily for sport or work.

### Materials and methods

#### Recruitment

A questionnaire was distributed to 520 institutions, organisations and members of various UK national committees and councils concerned with companion dogs. Recipients were invited to circulate a web-link to the online survey to all members of their organisation. A reminder was sent two weeks later to encourage participation and completion. The survey was hosted online ([www.rvc.ac.uk/survey](http://www.rvc.ac.uk/survey)) between 1st May and 30th June 2009. Twelve main categories of stakeholders with a recognised interest in dog health and/or welfare were identified; these were subsequently grouped into six sectors for analysis (Table 1).

**Table 1** The categories within which stakeholders identified themselves and their broad, overarching sectors.

Sector	N	Category	N	Examples of main employer/affiliated organisation
Education	22	Clinical behaviourist or welfare scientists	22	Association for the Study of Animal Behaviour (ASAB), Association of Pet Behaviour Counsellors (ABPC), University of Lincoln, University of Edinburgh
Industry	103	Dog breeder, exhibitor or show judge	51	The UK Kennel Club, self employed
		Obedience or behaviour trainer	35	Academy of Dog Training, DogPsycheUK, self employed
		Member of pharmaceutical, pet insurance or pet food industry	3	Waltham Centre for Pet Nutrition, Hills Pet Nutrition
		Owner or worker at private kennels	5	n/a
		Owner or worker at grooming parlours	9	n/a
Government	28	Member of an advisory, governing or regulatory body	15	Companion Animal Welfare Council (CAWC), Department for Environment, Food and Rural Affairs (Defra), The UK Kennel Club, Passport for Pets
		Welfare officer or inspector or Local Authority dog warden	13	National Dog Warden, Royal Society for the Prevention of Cruelty to Animals (RSPCA)
Charity	67	Rescue or re-homing centre, sanctuary or welfare charity: administrative role	56	Royal Society for the Prevention of Cruelty to Animals (RSPCA), Dogs Trust, Blue Cross, Battersea Cat and Dogs
		Rescue or re-homing centre, sanctuary or welfare charity: kennel assistant	11	Home, Scottish Society for Prevention of Cruelty to Animals (SPCA), Cinnamon Trust for the elderly, the terminally ill and their pets
Veterinary	105	Veterinary nurse or care assistant	35	Royal College of Veterinary Surgeons (RCVS), British
		Veterinary surgeon	70	Veterinary Association (BVA), British Veterinary Nursing Association (BVNA), People's Dispensary for Sick Animals (PDSA), Blue Cross
Other	115	Animal rights campaigner	24	People for Ethical Treatment of Animals (PETA), Animal Concern Advice Line, League Against Cruel Sports
		General stakeholder	91	Journalists (eg Dogs Today), unemployed, student, retired, pet owner, un-assigned

The Other sector was not targeted directly in the questionnaire but was created for analysis. N represents complete responses for survey part 1 per sector and category. Examples of respondents' main employer or affiliated organisation in the represented categories are also given, however, since the question was optional, the examples shown may not represent all organisations that participated in the survey.

## Questionnaire design

The questionnaire was constructed using QuestionMark™ Perception™ (version 4.4). It was designed to allow anonymous responses and comprised five discrete parts, from which independent data could be returned.

### Part 1

Recorded information on respondent gender, age, and (self-identified) stakeholder categories (Table 1).

### Part 2

Requested that stakeholders describe up to five (each) of the current issues they perceived to most adversely affect and most positively enhance the welfare of companion dogs using open responses (unprompted).

### Part 3

Requested that respondents rate the overall quality of life (QoL) of companion dogs in Great Britain using a seven-point Likert scale, where a score of 7 represented a good life, a score of 4 represented a life worth living and a score of 1 represented a life not worth living (terms used by the UK Farm Animal Welfare Committee [FAWC 2009] but left undefined so as not to constrain responses).

### Part 4

Invited the relative prioritisation of each of 29 specific welfare issues that were previously identified from published scientific literature. Literature was found via searches in three bibliographic databases (Science Direct, PubMed and VetMed Resources), between 8/12/2008 and 10/01/2009 using the keywords: 'dog', 'canine', 'welfare', 'companion animal', 'review articles' (Table 2; issues without asterisks). Issues were presented alphabetically and respondents were able to select five issues they regarded as the least and most urgent, respectively, to rectify.

### Part 5

Invited respondents to score for each of those issues described in part 4, what they perceived to be: i) their impact on the individual dog (−3, compromises welfare significantly to 0, no impact to +3 improves welfare significantly); and ii) the perceived importance of rectifying the issue (−3, totally inconsequential to 0, no more or less important than any other issue to +3, of utmost importance), using seven-point Likert scales. Respondents also used an 11-point scale to estimate the percentage of dogs in Britain affected by each

**Table 2 Adverse welfare issues.**

Adverse welfare issue	Description
† Palliative 'supportive' care	Palliative care is the relief from pain or associated symptoms through supportive, but not curative, management of a terminal disease
† Quantity over quality of life	Reluctance to euthanise aged dogs, improving veterinary treatments and financial support has allowed dogs to live longer, ie quantity of life is given preference to quality of the dog's life
† Physical harm	Severe physical punishment or neglect
† High cost of maintaining good welfare	Maintaining a high level of welfare during a dog's life, including veterinary care, is costly. Inability to afford this high cost may impact on the dog's welfare
† Routine spaying	Female dogs may be surgically spayed as a routine procedure and not due to any immediate medical necessity
† Status and accessory dogs	Status dogs are companion dogs that are used for aggressive, intimidating or anti-social behaviour. Accessory dogs are those as a symbol of fashion
† Inappropriate levels of exercise	Different breeds and ages require varying levels of exercise. Exercise may be considered as the ability of the dog to run at the speed and distance it chooses to and be able to play
† Chronic disease # (Dental disease)	A long-lasting or recurrent disease, eg diabetes and osteoarthritis and dental disease. Part 4 scenario: <i>Regular brushing and dental checks can prevent dental disease in dogs. Treatment of dental disease may involve invasive and expensive surgery</i>
† Inappropriate socialisation	Puppies have a sensitive period for socialisation, during which they learn a template of appropriate interactions with conspecifics and other species, and commonly encountered situations. Inadequate or inappropriate socialisation may result in behavioural problems in adulthood
† Pet travel scheme	Current legislation permits the travel of dogs around Europe and selected non-European countries, via rail, road, sea or air
† Inherited disease	A disease or disorder that is inherited genetically. Certain breeds have a genetic predisposition for the development of a wide variety of diseases. This issue refers to inherited disease caused by selective breeding, and does not consider naturally occurring inherited conditions
† Cancer and its therapies	Many types of cancer affect dogs. Therapies may also affect dogs, including chemotherapy, radiotherapy or surgical
† Separation-related behaviour	Companion dogs may exhibit separation-related behaviours when they become detached from their owner or attached individuals. Behaviours include destructiveness, vocalisation, elimination, vomiting, pacing and other behaviours
† Puppy farming	Companion dogs may be sourced from puppy farms, which have intensive rearing conditions
† Professional incapacity	Professionals may be unable to treat disease or behavioural problems effectively. a delay in diagnosing and treating problems may be experienced, or inappropriate treatments administered
† Complementary and alternative medicine	Alternative treatments for medical or surgical conditions include homeopathy, acupuncture and herbal medicine. These may or may not be scientifically proven to be efficacious
† Euthanasia of healthy dogs	Healthy dogs may be humanely euthanised, for severe behavioural problems or reasons not associated with disease
† No identification	Dogs may be identified by a number of methods, eg collar/name-tag, micro-chipping or tattooing. Identification of dogs may result in owners being notified about their dog becoming a stray and facilitate them being reunited
† Repeated pregnancies	Breeding bitches or family pets may undergo repeated pregnancies
† Routine castration	Male dogs may be surgically castrated as a routine procedure, and not due to any immediate medical necessity
† Incorrect interpretation of behaviour	Humans may respond incorrectly to a dog's exhibited behaviour
† Stray dogs	Companion dogs that do not have an owner, have become lost or were abandoned by their owners
† Noise phobia	Loud, unusual or sudden noises can be a source of fear for dogs
† Mutilations # (Dew claw removal)	Any procedure that involves interference with the sensitive tissues or bone structure of a dog, other than for medical purposes. Part 4 scenario: <i>a dew claw is an accessory vestigial claw found on either front or hind limb. It may be removed in some breeds to prevent potential damage in later life</i>
† Obesity	Excessive feeding and lack of exercise may cause obesity
† Exaggerated physical features	Features that are perceived to be desirable in pedigree breeds are made more prominent by breeders, which can have a detrimental impact on health and welfare of the individual dog
† Malnourishment	A general term describing animals that are underfed or fed inappropriately
† Kennelling	Dogs may be kept in individual kennels for a long period of time, eg temporary kennelling (< 1 month) or waiting for re-homing
† Owner unawareness # (Owner unawareness of disease)	Owners may be unaware of a dog's health or welfare needs. Part 4 scenario: <i>Slow progressing chronic disease or disease with few symptoms may go initially unnoticed by owners</i>
* Lack of appropriate mental stimulation	A lack of appropriate mental stimulation adequate for the breed, eg in the form of substrate and activity-based enrichment. This issue includes the lack of appropriate training, which may provide mental stimulation for dogs (the use of negative training methods is inappropriate)
* Inadequate legislation	Inadequate welfare legislation and/or poor law enforcement. Issue also includes a lack of clear codes of practice
* Inappropriate environment	A subgroup broadly referring to issues related to physical and social limitations of the environment within which the dog is kept, including environmental changes (eg a change in location or household members), inappropriate husbandry, space, comfort, companionship and/or owner (eg time)
* Negative media portrayal	A negative portrayal of dogs in the media and publicity of the negative aspects of dog-keeping may cause an increased negative public attitude towards dogs
* Bad breeding	A subgroup broadly referring to traditional selective breeding practices for pedigree dogs, collating the issues of inherited disease and exaggerated physical features (frequencies for which are incorporated into this subgroup). Respondents also referred to the lack of registration of breeders
* Health problems	Natural disease, health problems and accidental injury such as RTAs may lead to a decrease in an animal's quality of life
* Lack of neutering	A lack of spaying or castration of healthy dogs, including the availability of neuter programmes
* Irresponsible ownership	Owners may be regarded as irresponsible where they choose to ignore information or disregard practices that provide a basis for good welfare, eg participation in prophylactic medication, insurance or identification. Purchasing or re-homing a dog that is unsuitable to the environment may also be deemed irresponsible (where owners are made aware of this but choose to ignore the information)

† Pre-determined based on review of available literature and were included in parts 4 and 5. \* Issues described in open responses in part 2, and are additional to those available for prioritisation in parts 4 and 5. Issues are defined using open-text collective responses of stakeholders in survey part 2; where appropriate, the specific scenario provided in part 5 is described (# and italics).

issue (prevalence), using percentage grades, from 0, then in 10% bins up to 91–100%. Each question included a brief description of the welfare issue using example scenarios. Neutral wording was used for controversial topics, eg dew claw removal instead of mutilation. Where appropriate, direction on whether secondary welfare issues should be considered was given (eg therapies for cancer).

The questionnaire was lengthy and to reduce respondent exhaustion, an option to omit questions, move to the next survey part or terminate participation at any point was provided. Parts 4 and 5 were provided in reverse order to avoid influences of relative ranking on the assessments of each issue. The issues in part 5 were ordered randomly for each respondent so that unbiased information could be obtained. Those choosing to terminate completion prematurely were prompted to first answer part 4.

### Data and statistical analyses

Responses to each survey part were recorded independently and, due to incomplete questionnaires, the number of valid responses obtained for each part differed. Data were excluded if the respondent did not complete part 1, completed less than two questions in part 5 or did not complete the prioritisation of welfare issues in part 4.

The open-text responses obtained from part 2 were coded into numerical categories for descriptive and statistical analysis. Where respondents listed more than one issue within a single open response option, only the first was coded. Irrelevant answers and those that could not be interpreted were excluded from analysis. Certain responses lacked sufficient specificity to be categorised into explicit issues. To allow statistical analysis, two umbrella groups were constructed, based on non-specific text and low frequencies of related specific issues to which these responses were allocated: ‘bad breeding’ encompassed issues relating to indiscriminate breeding practices (merging exaggerated physical features and inherited disease but excluding puppy farming as much as possible); and ‘inappropriate environment’ encompassed issues related directly to the environment in which the dog was maintained, such as lack of space, inappropriate housing conditions and instability.

Statistical analysis was conducted in SPSS (version 17.0) and R (version 2.9.2) to test for significant effects of demographic variables (age, gender, stakeholder type) on the citation of the most frequently reported welfare issues identified in the different survey parts. For parametric tests, and to account for differences in response rates, stakeholder categories were grouped into six sectors based on complementary interests and similarities within frequency data (Table 1). The sector ‘Other’ combined a number of categories that were not targeted in survey advertisement and were too small for separate analysis, including journalists, animal rights activists, students, dog owners and those that did not assign themselves to a stakeholder category. For comparison to more uniform sectors,

we include the sector ‘Other’ in analysis but we interpret our findings with caution since the position of these stakeholders within society and their knowledge of canine welfare is impossible to determine. Groupings with the largest number of respondents were used as the reference categories for odds ratios calculations; females were the reference category for gender and the Veterinary sector was the reference for stakeholder sectors.

Binary logistic regression models with backwards elimination were used to determine the effects of gender, age and stakeholder sector on the likelihood of citing or not citing the priority welfare concerns most frequently reported (by over 5% of all respondents; 5% binary response rule) in survey parts 2 and 4 to remove the effects of respondents reporting the same issue twice. Model fit was determined by examining residuals and, in all cases, confirmed that there were no substantial discrepancies between observed and expected values in the model. No statistical analysis was conducted to determine equivalent effects on the citation of issues that positively enhance welfare (part 2), or adverse issues perceived as of least urgent concern (part 4).

Non-parametric analyses were used to investigate the effects (where response rate = > 5%), of the 14 relevant stakeholder categories (Kruskal Wallis), age (Spearman’s rank correlation) and gender (Mann-Whitney *U*) on the QoL Likert scores from survey part 3.

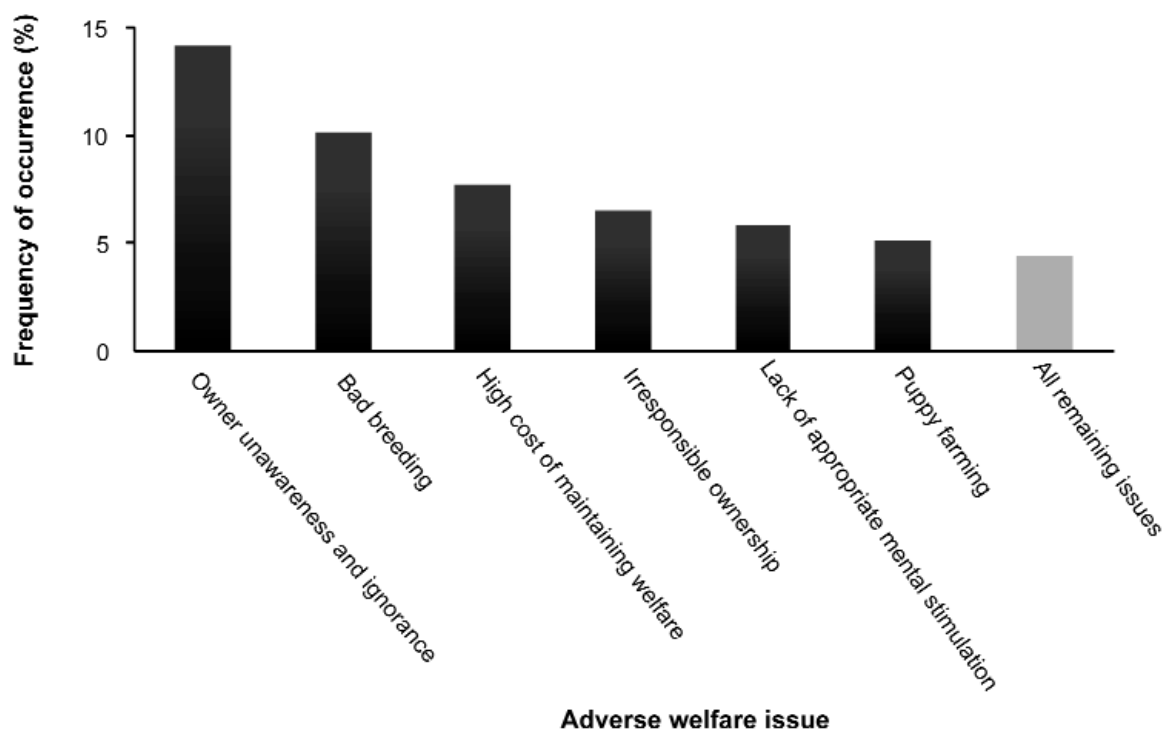
Ordinal logistic regression models were used to examine the effect of stakeholder sector on scores of importance, impact and prevalence for the pre-determined welfare issues (Table 2; issues without asterisks) in survey part 5, using ‘lrm’ in Design version 2.3 (Harrell 2003) in R. Ordinal logistic regression models are an extension of binary logistic regression and in this case the models assumed proportional odds. To reduce the likelihood of type I errors in statistical analysis of the large data set, we considered only those issues prioritised as most urgent in the survey part 4 (ie those reported by > 5% of respondents) and applied a Bonferroni correction. Each increasing value of the variable under consideration was compared with all preceding values. Squared terms were also included to examine both linear and non-linear effects. Model fit was confirmed by examining residuals.

## Results

### Response rate

The open distribution of the survey within organisations and the unspecified population in some stakeholder categories (eg animal rights campaigner) did not allow for a traditional calculation of response rate; however, the survey’s scale and completion rate can be estimated from the number of online visits and relative survey completion. A total of 919 respondents registered a visit to the website, of which 261 fully completed the survey and a further 233 partially completed. The mean ( $\pm$  SEM) time to complete the questionnaire was 38.80 ( $\pm$  3.31) min.

Figure 1



Stakeholders' perception of issues that most adversely affect companion dog welfare in Great Britain. The frequency of occurrence of open responses is plotted per issue, each reported at least once by over 5% of all respondents, encompassing 56% of total responses (binary data). Bad breeding includes the separate responses of exaggerated physical features (1.03%) and inherited disease (1.59%).

### Survey part 1 — sample population

The number of respondents completing the survey varied between the self-assigned stakeholder categories and their overarching sectors (Table 1). There was a large gender bias; over 80% of respondents were female. However, particular stakeholder categories were male-biased, eg pharmaceutical, pet insurance or pet food industries; welfare officer/inspector or Local Authority dog wardens. The respondents' ages ranged from 21 to 78 years, with a mean ( $\pm$  SEM) of 44.74 ( $\pm$  0.61) years.

### Survey part 2 — Identifying welfare issues using open-text responses

#### Adverse issues

Stakeholders identified 37 welfare issues — 29 of which corresponded to the pre-determined welfare issues in survey parts 4 and 5 and a further eight issues were novel: lack of appropriate mental stimulation; inadequate legislation; inappropriate environment; negative media portrayal; bad breeding; health problems; lack of neutering and irresponsible ownership. Bad breeding was an umbrella issue, encompassing pre-determined issues (exaggerated physical features and inherited disease) and unregulated breeding, as well as the general term. Of the total 37 issues described, six were each reported at least once by more than 5% of respondents and encompassed over 50% of total responses (Figure 1;  $n = 1,067$ ; binary data).

Binary logistic regression analysis revealed Industry (OR = 8.56, CI = 3.00–24.44,  $P < 0.01$ ), Charity (OR = 6.95, CI = 2.30–21.06,  $P < 0.01$ ) and Other (OR = 3.72, CI = 1.13–12.27,  $P = 0.03$ ) stakeholder sectors were significantly more likely to report puppy farming than the reference Veterinary sector. No other effects of stakeholder sector, gender or age on likelihood of respondents reporting any of the six most adverse issues were identified.

#### Positive issues

Of the 246 respondents who described issues that they perceived positively enhance dog welfare (Table 3), 68.7% (169) described the maximum of five issues. Of 31 issues described by stakeholders as positive to welfare, seven were reported at least once by over 5% of respondents, encompassing 53% of total responses ( $n = 1,000$ ). These were: veterinary care (cited by 11.8% respondents); physical stimulation (7.5%); educational resources (7.4%); responsible educated owners (7.1%); nutrition (6.7%); high status of dogs in society (6.5%); and welfare organisations (5.4%).

### Survey part 3 — Quality of life of UK companion dogs

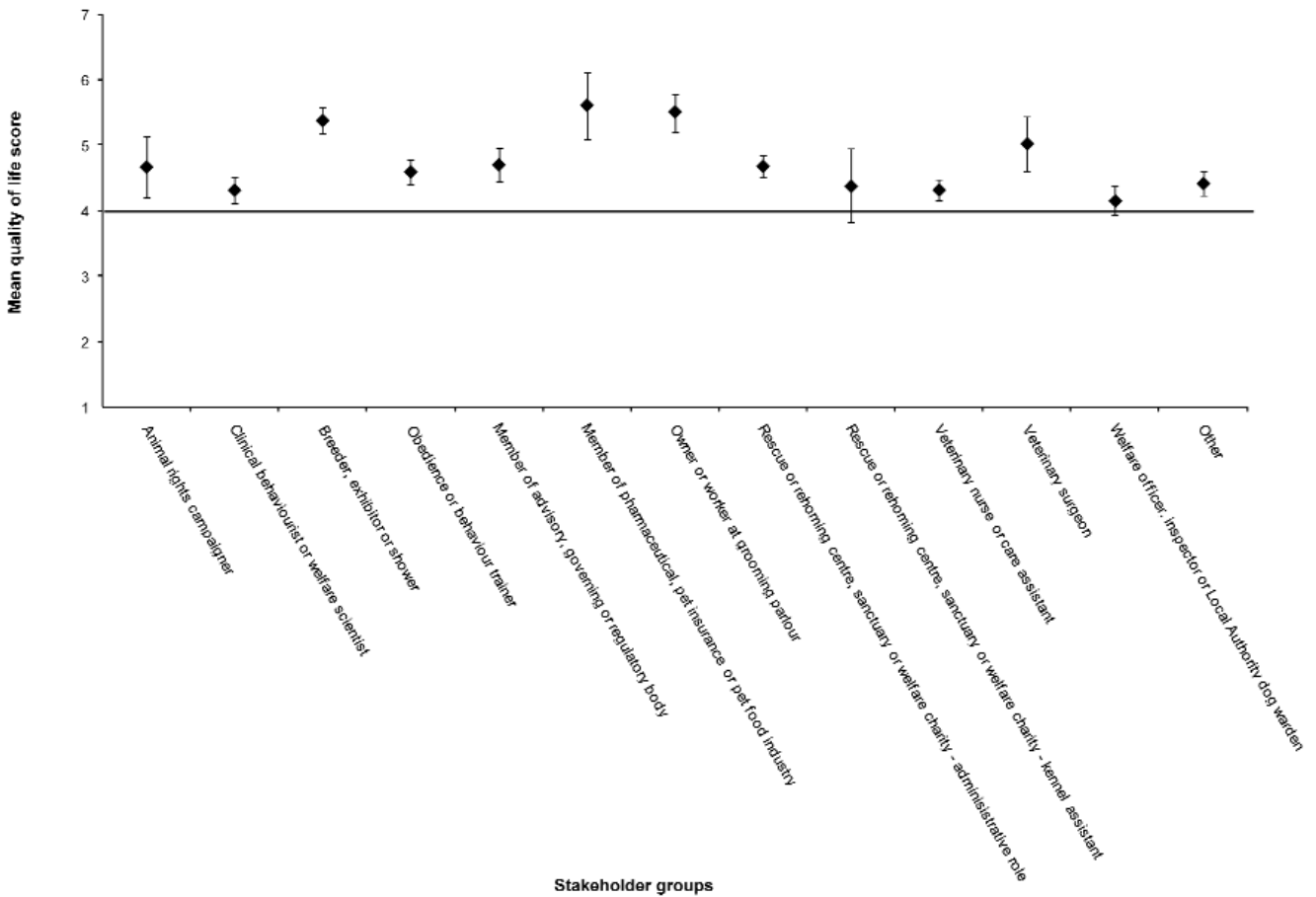
On average, respondents across all 14 stakeholder categories (Table 1) reported that dogs in Great Britain have, at least, a life worth living (Figure 2). However, significant differences between the original stakeholder categories in their scoring of QoL were found (Kruskal

**Table 3** Issues that positively enhance the welfare of companion dogs, identified from free-text responses of stakeholders in part 2 of the survey.

Issue enhancing welfare	Description
Acceptance of dogs on vacations	An increasing number of accommodation providers in Great Britain accept dogs; the pet passport scheme allows for companion dogs to be taken abroad
Adaptability of domestic dog	Ability of the dog, as a domesticated species, to adapt to the lifestyle requirements of the human population, within reason
Alternative medicine/treatment	Availability of alternative treatments, such as homeopathy, acupuncture or herbal medicine
Animal welfare in the media	High media attention to animal welfare, such as documentaries on animal health
Appreciation of benefits of owning a dog	An increasing awareness of the human benefits of owning a dog, eg companionship, Pets as Therapy
Available of insurance	The widespread availability of pet insurance to pay for healthcare
Behaviour training opportunities	Increased availability and opportunity for participation in behaviour training clubs and classes, providing mental stimulation and exercise
Companionship	Both conspecifics and other species provide companionship and opportunities to perform species-specific social behaviours
Educational resources	Educational resources are more accessible to the public through dog magazines, leaflets from charities, dog shows/events, web-based information and educational schemes
British legislation	The legal network to protect animals is provided in Great Britain, including the Animal Welfare Act (2006; and similar legislation in Scotland)
High status/human-animal bond	Dogs are generally accepted in society and viewed as family members. A good human-animal bond is viewed as a cultural tradition in Great Britain
Identification	Increased awareness of the benefits of identification and schemes to encourage micro-chipping/tattooing
Influence of professional bodies in behaviour modification	Accreditation of behaviour counsellors and education of the veterinary team on behavioural issues, including improving education of veterinary students on behavioural issues
Kennel Club schemes	Schemes that focus on health, accredited breeding and good citizenship are increasingly popular, providing education to owners, and a stable environment for the pet
Mental stimulation	A large number of enrichment products are available, eg puzzle feeders, home agility kits. This also includes the availability of sporting opportunities, eg dancing with dogs, agility, fly-ball
Mutilation prevention	The ban on tail docking of most dogs and exemption from other mutilations
Nutrition	The widespread availability, provision and choice of complete, balanced foodstuffs
Owner affluence	The affluence in GB has increased over decades, thereby enabling expenditure on companion animals
Physical stimulation	Opportunities for off-lead exercise, eg public footpath and park systems, allowing exercise
Police intervention	Campaigns to tackle dogs used for intimidation and fighting purposes, often in inner cities
Positive reinforcement-based training	Positive training is now more widespread and dominance theory is diminishing
Prophylactic medicine and disease control	An awareness of the use of prophylactic medicine, such as vaccinations to control disease control
Protection from cruelty	Active cruelty prevention and prosecution
Rescue and re-homing practices	Centres which take in stray and abandoned dogs and utilise dedicated staff/volunteers to re-home dogs
Responsible and educated breeding	Education of breeders about responsible breeding practices. Increased awareness of hereditary disease/bad breeding practices by the public and breeders. Campaigns to promote mongrel breeds and/or move away from 'problem' breeds
Responsible and educated ownership	Many caring owners take responsibility to provide good welfare for their pets and ensure they have a good quality of life
Scientific research	Scientific research on the welfare of dogs, including veterinary advances
Socialisation opportunities	Access to appropriate socialisation information and opportunities, eg puppy classes through veterinary practices
Spaying and neutering	Raised awareness of the benefits of spaying and neutering, especially in bitches; mainly in the context of population control
Veterinary care	The quality of veterinary healthcare available, including nurse clinics and specialist referral care. There is good access to treatment, including subsidised services, and a good vet-owner bond can be seen
Welfare organisations	The large number of welfare charities (and volunteers) that are active in education, re-homing, cruelty cases and subsidised healthcare

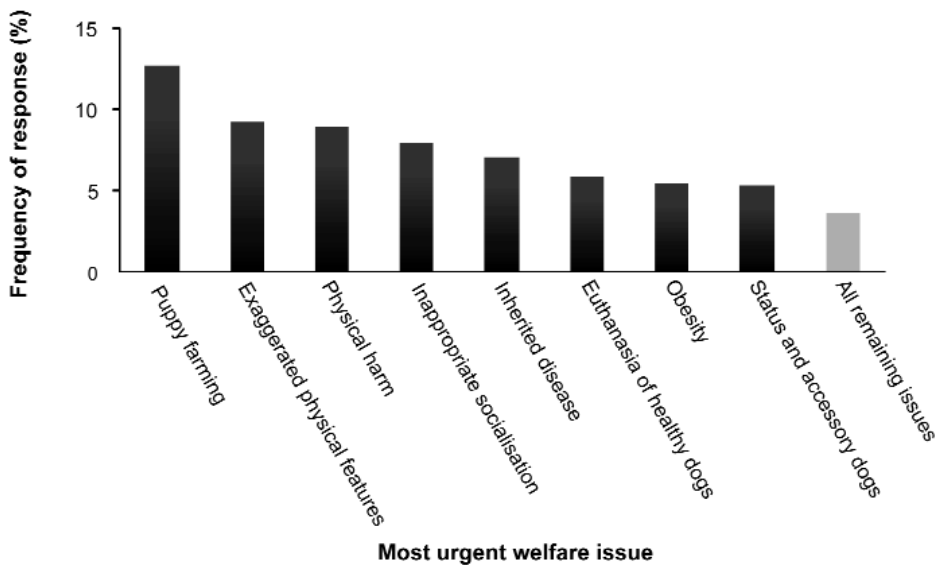
The issues are defined using collective responses of the respondents.

Figure 2



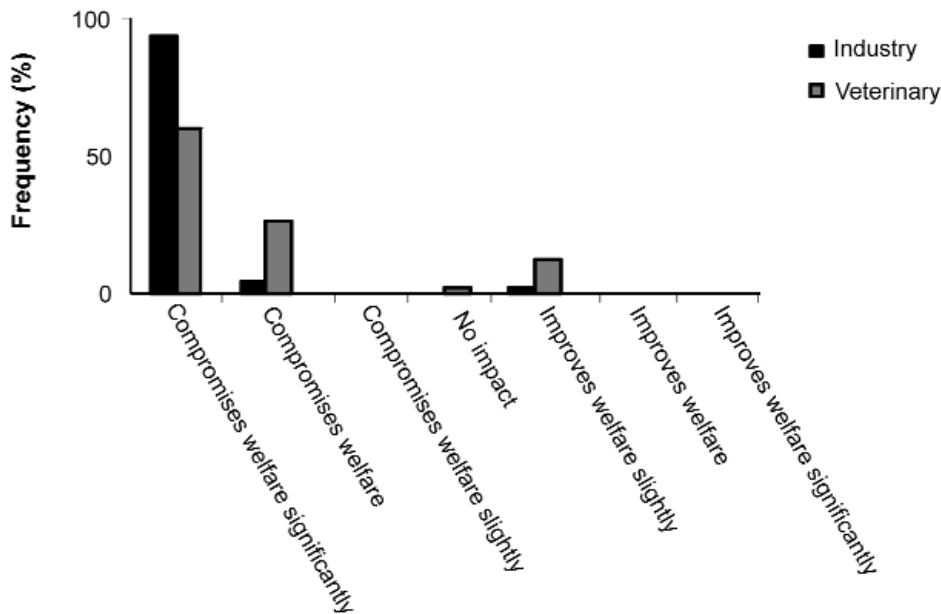
Mean scores (and 95% confidence intervals) for the overall quality of life of British companion dogs, as perceived by each stakeholder category (where N = > 3 responses; excluding other). The horizontal reference line represents a life worth living; the minimum standard, as recommended by FAWC (2009).

Figure 3



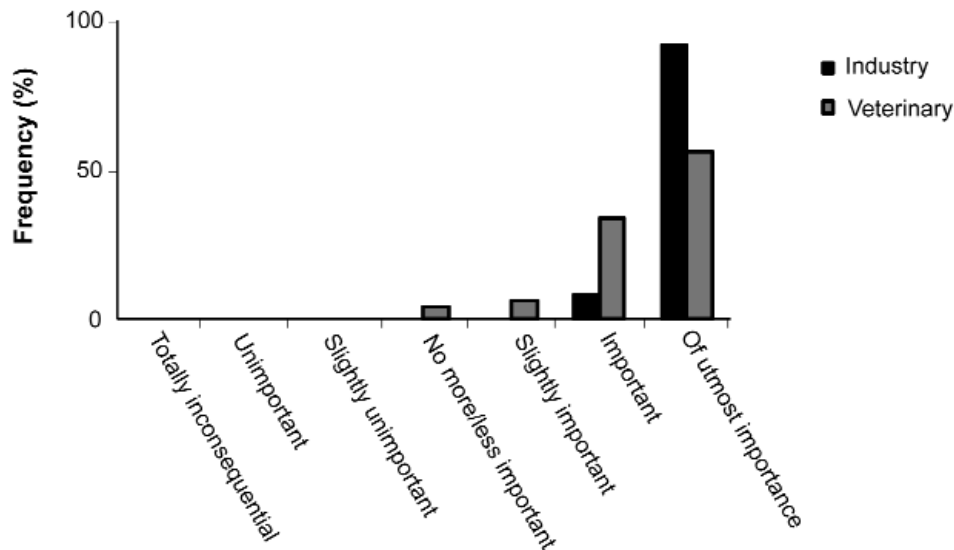
Stakeholders' perception of issues that are most urgent to rectify in Great Britain. Responses were selected from a pre-determined list of 29 welfare issues. The frequency of responses per issue is plotted per issue, reported each at least once by over 5% of all respondents, and encompassing 64% of total responses (using binary data).

Figure 4



Plots of the frequency of respondents (percentage; ordinate) against scores for the impact (on the individual dog; abscissa) of issues in puppy farming where significant differences were found between stakeholder sectors and the Veterinary reference category, revealed by ordinal logistic regression models.

Figure 5



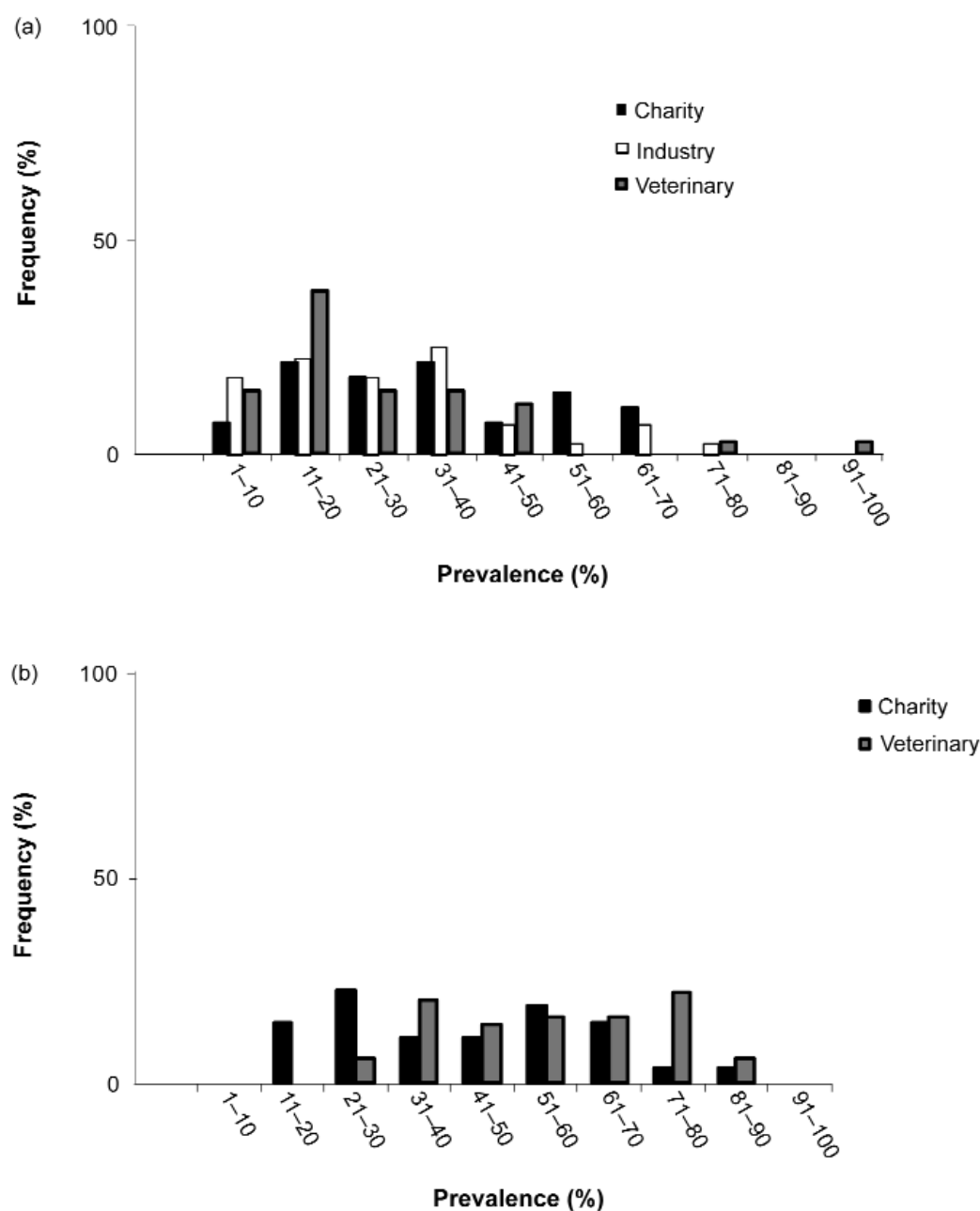
Plots of the frequency of respondents (percentage; ordinate) against scores for the importance (to rectify; abscissa) of issues in puppy farming where significant differences were found between stakeholder sectors and the Veterinary reference category, revealed by ordinal logistic regression models.

Wallis:  $\chi^2_{13} = 37.31, P < 0.001$ ) with private kennel owners or workers generally reporting the highest scores (6) and welfare officers/LA dog wardens reporting the lowest (4) on the seven-point scale. It is worth noting that individuals in particular categories, eg kennel assistants in rescue or re-homing centres or animal rights campaigners, stated that dogs have less than a life worth

living, although no respondents scored the lowest score — a life not worth living (error bars; Figure 2). Individuals within industry and grooming parlour categories rated the highest QoL scores — above a life worth living, towards a good life. There was no correlation between respondent age and QoL score (Spearman's rank correlation:  $\rho = 0.63, n = 262, P = 0.3$ ); nor was there an



Figure 6



Plots of the frequency of respondents (percentage; ordinate) against scores for the prevalence (percentage affected in Great Britain; abscissa) of issues where significant differences were found between stakeholder sectors and the Veterinary reference category, revealed by ordinal logistic regression models for (a) physical harm and (b) obesity.

effect of gender (Mann Whitney:  $U = 5,698$ ,  $n = 262$ ,  $P = 0.65$ ; median QoL scores [ $\pm$  95% confidence interval]: female 5.00 [ $\pm$  0.15], male 5.00 [ $\pm$  0.03]).

#### Survey part 4 — Relative prioritisation of welfare issues identified in the literature

##### Of most urgent concern

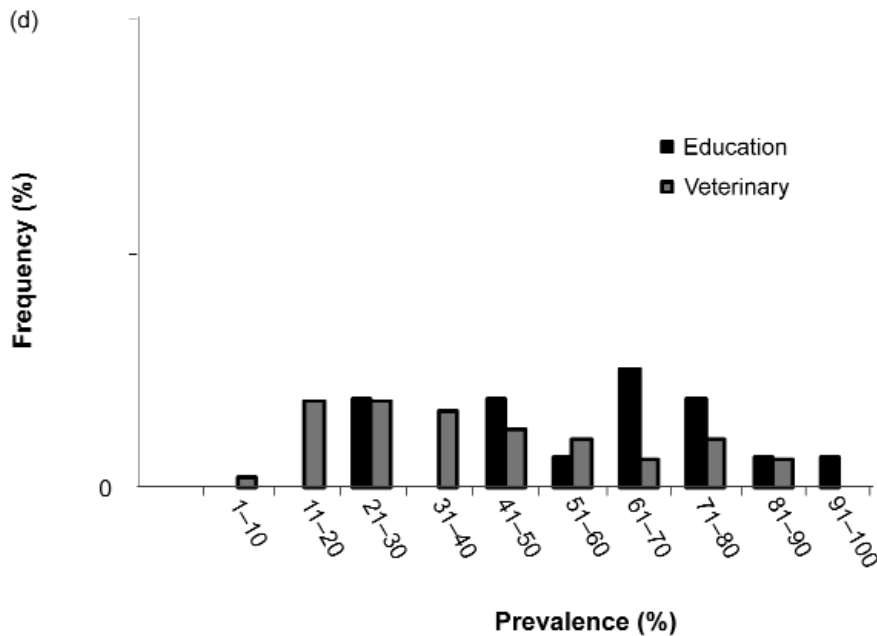
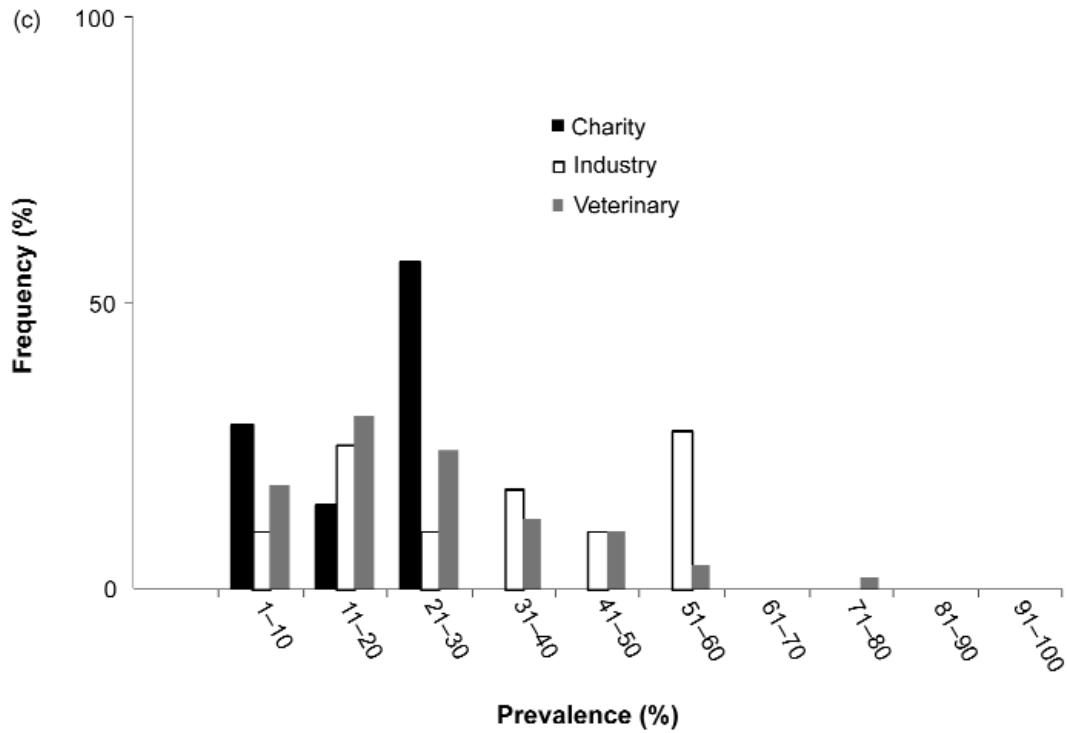
Eight of the 29 presented issues were most frequently prioritised as most urgent concerns (Figure 3); with each

issue reported at least once by over 5% of respondents, encompassing 62% of total responses ( $n = 975$ ).

Binary logistic regression analysis revealed that compared to the Veterinary reference sector:

- Education (OR = 5.99, CI = 1.71–20.94,  $P < 0.01$ ), Industry (OR = 7.98, CI = 3.20–19.93,  $P < 0.01$ ), Charity (OR = 3.22, CI = 1.31–8.10,  $P = 0.01$ ) and Other (OR = 5.53, CI = 2.80–14.66,  $P < 0.01$ ) were significantly more likely to cite puppy farming as of urgent concern to rectify;

Figure 6 (cont)



Plots of the frequency of respondents (percentage; ordinate) against scores for the prevalence (percentage affected in Great Britain; abscissa) of issues where significant differences were found between stakeholder sectors and the Veterinary reference category, revealed by ordinal logistic regression models for (c) puppy farming and (d) inappropriate socialisation.

• Government (OR = 7.87, CI = 1.56–40.00,  $P < 0.05$ ), Industry (OR = 2.41, CI = 1.08–5.32,  $P = 0.03$ ) and Charity (OR = 3.14, CI = 1.27–7.81,  $P = 0.01$ ) sectors were significantly less likely to cite exaggerated physical features;

• Government (OR = 18.21, CI = 3.25–102.10,  $P < 0.01$ ) and Charity (OR = 3.3, CI = 1.31–8.32,  $P = 0.01$ ) sectors were significantly more likely to cite urgency for rectifying physical abuse;

- The Education sector was significantly more likely (OR = 32.00, CI = 3.93–260.81,  $P < 0.01$ ) to cite inappropriate socialisation;
- Industry (OR = 4.65, CI = 1.83–11.77,  $P < 0.01$ ), Charity (OR = 3.45, CI = 1.28–9.26,  $P = 0.01$ ) and Other (OR = 6.49, CI = 2.00–21.23,  $P < 0.04$ ) sectors were significantly less likely to cite obesity;
- No other effects of respondent age, gender or stakeholder sector on likelihood of citing any of the most urgent issues for rectification was observed.

#### Of least urgent concern

Of the 29 issues presented to stakeholders, seven were rated most frequently as of least urgent concern (at least once by over 5% of respondents;  $n = 958$ ; binary data, encompassing 64% of total responses); these were: the pet passport travel scheme (rated by 13.57% respondents), mutilations — dew claw removal (11.59%), complementary and alternative medicine (11.38%), short-term social isolation (8.04%), routine castration (7.2%), routine spaying (6.89%) and the high cost of maintaining good welfare (5.01%).

#### Survey part 5 — Stakeholder sectors' scores for impact, importance and prevalence of adverse priority issues identified from the literature

Ordinal logistic regression analyses revealed statistically significant differences in stakeholder sector ratings for the impact (on the individual dog), importance (to rectify) and prevalence of some of the issues identified as most urgent to rectify in survey part 4. Compared to the reference Veterinary sector:

- Industry was significantly more likely to rate the impact of puppy farming as greater (OR = 10.25, CI = 2.80–37.57,  $P < 0.05$ ; Figure 4);
- Industry was more likely to rate the importance of rectifying puppy farming as higher (OR = 8.57, CI = 2.68–27.37,  $P < 0.001$ ; Figure 5);
- Charity (OR = 4.99, CI = 2.13–11.68,  $P < 0.001$ ) and Industry (OR = 2.82, CI = 1.34–5.95,  $P < 0.05$ ) both estimated the prevalence of physical harm to be greater (Figure 6[a]). Charity estimated the prevalence of obesity to be significantly less (OR = 3.26, CI = 1.40–7.55,  $P < 0.05$ ; Figure 6[b]);
- The Education sector rated the prevalence of inappropriate socialisation to be significantly greater (OR = 4.39, CI = 1.58–12.23,  $P < 0.05$ ; Figure 6[c]);
- The prevalence of puppy farming (Figure 6[d]) was estimated to be significantly higher by sectors Charity (OR = 5.39, CI = 2.38–12.21,  $P < 0.001$ ) and Industry (OR = 3.69, OR = 1.77–7.68,  $P < 0.01$ ).

Further, significant differences were found between the Veterinary and Other sectors; the Other sector being significantly more likely to give a greater score for the impact of euthanasia of healthy dogs (OR = 4.48, CI = 1.78–11.32,  $P < 0.05$ ); the importance of rectifying inappropriate socialisation (OR = 4.97, CI = 1.26–19.52,  $P < 0.05$ ) and the prevalence of puppy farming (OR = 3.52, CI = 1.53–8.10,  $P < 0.01$ ) than the Veterinary reference sector.

## Discussion

This study invited stakeholders in canine welfare to identify and prioritise the most important welfare issues currently affecting companion dogs in Great Britain. To the best of our knowledge, this is the first large-scale survey to have addressed such a wide range of canine welfare issues and identified which were perceived to be most pressing by those working most closely with companion dogs.

#### Survey method and respondent demographics

Independent return of data for each survey part provided analysis of data without complications of missing data due to respondent drop-out. Survey part 5 had the lowest completion rate, likely due to its length and complexity. Ultimately, this may have affected the completion of part 4 (as these sections were presented in reverse order) if respondents chose to terminate their participation, regardless of prompts. Randomisation of the order in which issues were presented ensured similar representation of respondents in part 5.

A strong female bias was apparent in this survey, though this was unsurprising given the predominance of women in biology, veterinary and animal welfare-related fields (Heath *et al* 1996). The range in respondents' age suggests interest in companion dog welfare was independent of this variable; the mean age of 44 years probably reflected the professional nature of stakeholders.

#### The views of stakeholders about the QoL of companion dogs in Great Britain

Various definitions of QoL exist but it is generally regarded as an animal's collective experiences, expressed as or moderated by its affective states, over its lifetime and including the manner of its death (eg Appleby & Sandøe 2002; Morton 2006; Taylor & Mills 2007a; FAWC 2009). QoL is a socially constructed concept (Michalos 2001) and for the purposes of reducing the survey length and avoiding biased responses, a fixed definition of QoL was not provided in the survey but it was scaled according to FAWC's guidelines. The Farm Animal Welfare Council describe that for a life worth living:

the balance of an animal's experiences must be positive over its lifetime. Any pain, suffering, distress or lasting harm must be necessary, proportionate and minimal, and the system of husbandry and care should provide for the animals' needs and certain wants.

An imbalance towards negative experiences describes a life not worth living and a good life is described as "an animal's quality of life is over and beyond a life worth living" (see discussions in FAWC 2009; Wathes 2010). However, it is important to note that respondents of the current survey will have used their own definitions of QoL, which may or may not correspond to FAWC's guidelines.

Stakeholder categories had differing views regarding the QoL of companion dogs in Great Britain: industry and grooming parlour staff rated QoL highest; breeders, exhibitors and judges also scored dogs towards having 'a good life'. The majority of stakeholders, however, scored QoL as just above or at 'a life worth living'. Welfare officers

scored QoL lowest. The scores likely reflect the contexts within which stakeholders have contact with dogs. Within the context of their business, grooming parlour staff, breeders and industry (pharmaceutical, pet food or insurance) are less likely to experience, first-hand, matters that cause concern for dog welfare and thus may have less practical knowledge of adverse issues than professionals dealing regularly with dog health or displaced dogs. Specific experience of companion dogs in certain stakeholder groups may alter perceptions (positively or negatively) for welfare assessments on a National scale and care must be taken to avoid using the opinions of select stakeholder groups, rather than from all aspects of the dog community.

### Important and most urgent welfare issues to rectify for companion dog welfare

Prompted, closed-text responses provide valuable information about the relative priority of issues that have been pre-determined by the researcher; yet an open-text format can give a reliable measure of important concerns from the direct and initial thoughts of the respondents (Geer 1991). The current study used a combination of these formats to provide a more comprehensive overview of stakeholder opinion. Despite a wide-ranging list of welfare issues obtained from the body of literature reviewed, respondents of the survey further identified seven issues that were not included within the set list (lack of appropriate mental stimulation, irresponsible ownership, inadequate legislation, inappropriate environment, negative media portrayal, health problems and lack of neutering). Respondents also described 'bad breeding' but this is covered by separate issues from the set list (inherited disease, exaggerated physical features and puppy farming), though unregulated breeding was also described under this broad heading. While it is possible that such opinion-based suggestions, unsupported by scientific research, may not ultimately prove of valid concern, the respondents in this survey are likely to have a good working knowledge of issues that are emerging or that may be difficult to report empirically, such as inadequate legislation, or negative media portrayal. In a study of Swiss media, negative media reports were more common than positive reports, and the potential threat by animals (eg dog bites) was portrayed more frequently in recent decades. The authors suggest that such anthropocentric views in the media can challenge human-animal relationships, including concern for animal welfare (Burton-Jeangros & Losa 2011). The importance of problems relating to indiscriminate breeding practices, including conformation-related and non-conformation-related disorders and puppy farming was highlighted in numerous survey parts — in ranking of identified issues in parts 4 and 5 and in frequency of reporting issues in unprompted survey part 2. Stakeholders' concern for this group of issues is not surprising given the recent reports and media interest (APGAW 2009; Rooney *et al* 2009; Bateson 2010). Though more research is needed to quantify the scale of the problem, an unacceptably high number of disorders are present within the British pedigree dog population,

many with the potential to severely affect health and welfare (Asher *et al* 2009; Summers *et al* 2010). Owner unawareness and irresponsible ownership are broad concerns, and may be encompassing specific problems that were provided in the prompted parts (4 and 5) of the survey, such as inappropriate socialisation, social isolation, puppy farming (through unsuitable purchasing), physical harm, status and accessory dogs, obesity, and euthanasia of healthy dogs. The Peoples Dispensary for Sick Animals (PDSA) commissioned a survey of the public to establish how well legislation covering UK pet welfare was being met by pet owners (PDSA 2011). The survey indicates a number of areas where UK owners are still falling short, including provision of appropriate nutrition and social companionship. It is interesting to note that in apparent conflict with stakeholder views, environmental needs of dogs were considered to be generally well met by the PDSA (2011) report, for example with 75% owners walking their dogs at least once a day, though owners may have had a vested interest in how they reported their own treatment of pets. In the current survey, inappropriate environment covered a number of specific issues including husbandry, space limitations and instability in environment as well as social companionship.

Less than 1% of stakeholder respondents perceived abandonment or noise phobia as important to dog welfare in the current survey; which contradicts scientific reports of their serious welfare problems. Abandonment gives rise to a number of welfare problems (Wells & Hepper 1992), and the negative effects of kennelling whilst waiting to be rehomed are well documented (eg Hubrecht 1993; Wells 2004; Taylor & Mills 2007b). Noise phobia can cause severe distress and is estimated to affect a large number of dogs (Overall 2002; Blackwell *et al* 2005), though is likely to be under-reported since owners may interpret this anthropomorphically as a 'normal' behavioural response (Bradshaw & Casey 2007).

### Welfare issues of least urgency for companion dog welfare

The pet travel scheme and complementary or alternative medicine were regarded by stakeholders as of least welfare concern; both issues have caused considerable debate in the veterinary profession (Anon 2008; Hektoen 2005, respectively) and this finding may relate to the lack of empirical evidence on the impact of the issues on dog welfare. Dew claw removal and neutering were also considered of least concern. These are routine procedures in veterinary practice and though there may be welfare connotations associated with both, there are also benefits to the individual (and to the population for neutering), and respondents may have considered these benefits to outweigh any costs to welfare. Social isolation is a potential cause of anxiety and distress for companion dogs (Schwartz 2003), yet stakeholders viewed short-term social isolation as of low importance. The PDSA (2011) reported that 23% of owners leave their dogs alone for 5 h or more, and Bradshaw and colleagues (2002) suggested that separation-related anxiety is under-reported since these behaviours often go unnoticed.

Stakeholder responses are likely to have been influenced by availability of information and media highlighting. Issues recently or recurrently raised in public and/or professional domains may be regarded as more pressing, and thus of greater priority; whereas less significance may be attributed to issues for which there is a lack of available information or a general lack of awareness. The latter may be true of behavioural problems, which often go unnoticed or are accepted as part of the dog's normal repertoire (Bradshaw & Casey 2007). In a review of discussions amongst international experts in companion dog welfare, Hout *et al* (2007) suggested important welfare issues lack sufficient scientific investigation, including behaviour problems and unwanted dogs. Stakeholder responses may also be influenced by the relative tractability of welfare problems. For example, obesity is often cited as a serious welfare concern for the companion dog population, yet it seems resistant to change due to owner compliance (Gossellin *et al* 2007).

#### Issues that enhance the welfare of companion dogs

The top-cited welfare-enhancing issues place considerable onus on the owner's capabilities. Physical stimulation, owner responsibility, good nutrition and veterinary care are inherent to an owner's duty of care towards his/her animals under British legislation. The dog's high status in Britain is likely to promote greater concern for its welfare, although merely a positive attitude, without appropriate education, may have a contrary effect, for example anthropomorphic views may lead to inappropriate nutrition, obesity or behavioural problems (Wensley 2006).

Several conflicts were found between perceptions of promoting or compromising welfare in the open-text responses of the survey. Stakeholders reported that whilst the cost of veterinary treatment is high (potentially compromising welfare), the quality and availability of veterinary treatment within Great Britain is a welfare-enhancing factor. Similarly, owner unawareness was frequently reported as a welfare concern, yet respondents also reported the quantity and ease of access to educational resources as enhancing welfare. It is plausible that some respondents answered the question in terms of what, in their opinion, is required to promote welfare rather than what is currently in place. These findings may highlight the need for carefully designed strategies to protect dog welfare but, more positively, may suggest that new solutions are unnecessary for some problems. Rather, it may require further promotion of awareness of and incentive to engage with resources already available. For example, owners may not consider themselves to be ignorant and in need of education.

#### Differences between stakeholders in identifying the priority of welfare issues

Notable significant differences amongst stakeholder sectors on the relative importance of priority welfare issues affecting companion dogs were revealed across all examined survey parts. These may be explained by vested interests and the knowledge and experience of specific companion dog welfare issues in different professions.

The Veterinary sector largely differed in their views on the importance of puppy farming as an issue currently affecting British dog welfare, rating it of lower importance (though relatively still important) than did other sectors. In particular, Industry strongly considered puppy farming as highly important and urgent to rectify, perceiving the impact on the individual dog as higher and (together with Charity) scoring its prevalence higher than did Veterinary stakeholders. This difference is likely to be associated with the recent media interest and charity campaigns, which highlight puppy farming (APGAW 2009; Rooney *et al* 2009; Bateson 2010). It may also suggest that those stakeholders closely associated with pedigree breeding (eg breeders, and pedigree exhibitors included in the Industry sector) believe that it is those unregulated and intensive breeding practices that are more responsible for the high incidence of inherited defects within the dog population (Bateson 2010).

Veterinary stakeholders perceived exaggerated physical features as an important welfare concern; significantly more so than stakeholders in Government, Industry or Charity sectors. This may relate to the direct and practical experience of health disorders associated with morphological characteristics within the veterinary practice; and is a finding that counters the notion that veterinarians are desensitised to the problems (Arman 2007). The Veterinary sector also perceived the importance of obesity to be higher than did Industry and Charity sectors, which may again relate to practical knowledge and experience of obese companion animals seen within veterinary practices, compared with other professions. This concern appears justified since the PDSA (2011) survey findings showed that 29% dogs are fed table scraps, 45% owners use either 'common sense' or 'past experience with dogs' to decide how much to feed them and 35% dogs health-checked by PDSA in 2010 were overweight.

Although Veterinary stakeholders were more likely to estimate a higher prevalence of physical harm, the Government and Charity sectors were more likely to cite the issue as most urgent to rectify. Education stakeholders perceived inappropriate socialisation as more urgent to rectify, of higher importance and a higher estimated prevalence compared with Veterinary stakeholders. Both examples further demonstrate the possible influence of specific experience and knowledge held by individuals within a profession on their general perception of canine welfare issues. Again, the PDSA (2011) survey owners indicated poor knowledge of canine behaviour and behavioural needs, with 25% of puppy owners not adequately socialising young dogs.

Our analysis suggests that the uncategorised respondents within the sector Other also differed from Veterinary stakeholders in their views of the importance of specific welfare concerns (euthanasia of healthy dogs; inappropriate socialisation; puppy farming). Interpretation of the views within this mixed and inhomogeneous group is difficult, especially since the majority of respondents did not identify a stakeholder category. However, these results remain useful since they may represent views of the 'general public', and that

there is a difference between these and veterinary stakeholders may indicate where education is required to improve companion dog welfare and quality of life. In future surveys, a forced assignment to a stakeholder position may provide better transparency in the results.

### Animal welfare implications and conclusion

Asking the opinions of a variety of stakeholders about the importance of welfare issues is relatively uncommon in companion animal research, yet this study shows that it can provide valuable information. The survey highlights that, though individual perceptions of the dog population and respective welfare problems are likely to be selective and based on refined knowledge of a single profession, taken collectively from a variety of professions, stakeholders can judge welfare concerns in terms of the relative nature of the problem using practical and direct knowledge of companion dogs in the public domain. In this survey, companion dogs in Great Britain were rated overall as having a 'life worth living', yet it is generally held by society that, due to the special relationship with us, that they should actually have 'a good life'. British companion dog QoL can be improved by tackling important issues currently compromising welfare, and by maximising positive influences. Stakeholders perceived owner unawareness and irresponsibility, poor health due to breeding practices, intensive puppy rearing and a lack of appropriate provision for welfare needs, including mental stimulation and environmental needs as most important and urgent to rectify for improvement of British companion dog welfare. Most concerns, other than those relating to owner responsibility and awareness, are documented within the literature but specific data regarding their severity and prevalence are urgently needed for all welfare concerns. Irresponsibility and lack of awareness by the owner may be initiating factors in other, specific welfare concerns.

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