

Not all dogs are equal: perception of canine welfare varies with context

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Abstract

Community attitudes drive societal expectations, influencing government and industry regulations that determine standards of care for industries reliant on animals. It is important for dog industry stakeholders to understand public perceptions and attitudes, to inform management strategy priorities relating to animal welfare. This study sought to determine if the welfare status of dogs (*Canis familiaris*) is important to people and whether the perceived level of welfare varies with dog context (eg companion, protection, stock herding, assistance, sporting, free-roaming, wild, etc). Over 2,000 self-selected adults completed a voluntary, internet-based questionnaire. Responses were received from more than twelve countries and from a range of stakeholders with varied experiences. Perceived welfare status of dogs varied significantly across 17 dog contexts and roles, from extremely low (eg fighting dogs) to very high (eg guide dogs). Over 95% of respondents agreed that the welfare of dogs was very important to them. Demographic features of respondents did not relate to meaningful differences in reported importance of canine welfare or ratings of perceived welfare of dogs. The constructs underlying how people perceive the welfare of dogs appear complex and multi-dimensional. As public scrutiny forces reassessment of the welfare status of animals used in various contexts, proactive management of perceived welfare issues by companion and working dog industry stakeholders, including government, industry organisations, advocacy groups, and animal welfare researchers, is likely to be key to the sustainable participation of dogs in these roles.

Keywords: animal welfare, attitudes, dogs, public, sustainability, working dog

Introduction

General community attitudes drive societal expectations and consequently influence government and industry regulations that govern recommended standards of care for animals (Verbeke 2009). Several studies, including those by Coleman *et al* (2003) and Rohlf *et al* (2012), demonstrate that perceptions and attitudes determine human behaviour towards animals, and that human behaviour governs the welfare of animals in our care. Animal welfare is a growing consideration for the sustainability of industries utilising animals (Broom 2010; Cobb *et al* 2015; Kasperbauer 2018), and so it is important for industry stakeholders to understand how people perceive the welfare of animals in different contexts.

Domestic dogs (*Canis familiaris*) are currently found in a wide range of contexts, including companion, research, security, stock herding, detection, assistance and sporting roles, as well as urban stray and ecological feral niches. The wide range of settings in which domestic dogs can be found

attracts a diversity of industry stakeholders. These include regulators at industry group and government levels, animal advocacy groups and those involved directly with the daily management of dogs, such as veterinarians, veterinary nurses, facility managers, breeders, trainers, handlers, animal management officers and primary caregivers (eg kennel attendants), in addition to the general public. Identifying any differences in perceived animal welfare will allow for proactive communication and education with transparency by industry and management groups. Such action should ideally be taken prior to worker or community dissatisfaction, subsequent media exposé, legal action or industry disruption. Examples of such disruption have recently been seen in the Australian livestock (Tiplady *et al* 2013; Ferguson *et al* 2014; Goodfellow *et al* 2014) and New South Wales racing greyhound (Baird & Grant 2016; Burritt & Christ 2016; Markwell *et al* 2017) industries.

Attitudes towards animals and their treatment can vary by animal type and how they are perceived (Sims *et al* 2007).

For example, research has shown that people's attitudes towards animals kept as companions differ from those perceived as pest species and also those categorised as commercially valuable animals managed for profit. These differences are thought to be underpinned by our assessment of the animals' perceived intrinsic and extrinsic significance, or a lack thereof (Taylor & Signal 2009). Thus the 'Pet, Pest, Profit' scale, developed by Taylor and Signal (2009), suggests that humans perceive more value in animal companions than in animals kept for profit or categorised as pest species. Studies have also shown that pet ownership can relate to attitudes and beliefs relating to animals and their use in different contexts (Driscoll 1992; Toukhsati *et al* 2007).

In addition, Serpell (2004) proposes that people's emotional response to animals (affect) and their perception of the animals' instrumental value (utility) provide the foundation for human attitudes to non-human animals. This model acknowledges the influence of an individual's culture, maturation, personality and experience with animals, in addition to the attributes of the specific focal animal (Serpell 2004). To date, the perceived welfare of one species, living in multiple contexts and undertaking numerous roles relating to humans, such as the domestic dog, has not been examined directly. Informed by these models, it is likely that human attitudes towards dogs may vary, depending on the context in which the dogs are found.

Canine welfare issues have attracted attention and research over the past decade; for example, the investigation of canine inherited breeding disorders (Rooney *et al* 2008; Summers *et al* 2010; Collins *et al* 2011; Beausoleil & Mellor 2015), and management of free-roaming dog populations (Slater *et al* 2008; Farnworth *et al* 2012; Tenzin *et al* 2015). These studies understandably focus on dogs in only one context. However, a broader perspective offering insight into the perceived welfare of dogs across a variety of contexts could aid prioritisation of activities intended to improve the welfare of dogs, such as research funding, or the development of educational materials.

This study was conducted to determine if the perceived level of canine welfare varies with the context of the dog's role and whether the welfare status of dogs is considered important to people.

Materials and methods

Questionnaire and participant recruitment

After reviewing the relevant literature, a questionnaire was developed comprising of four sections. The first section asked respondents if they were currently dog owners (1 item) and, if they were, requested that they rate the welfare of their own dog today, and in general (2 items) using a five-point Likert-style scale that varied from 'extremely low' to 'extremely high'. Survey participants were instructed: "The term welfare is used to refer to the animals' quality of life. This question asks you to rate the welfare of different types of dogs. If you are unsure, please rate to the best of your knowledge". No

further definitions of 'welfare' or 'quality of life' were provided, as we wanted to gauge people's perceptions without priming their responses. In the second section of the questionnaire, all participants were asked to rate how they perceived the welfare of dogs in different roles (17 items) using the same five-point Likert-style scale that varied from 'extremely low' to 'extremely high'. The contexts for dogs, outside of those owned by respondents, were limited to 17, with a primary focus on working dogs, our key area of interest. Dogs not in working dog roles (such as feral wild dogs, pet companion dogs and pedigree show dogs) were included to provide perspective as to how the welfare of working dogs is perceived in relation to other domestic dogs. The survey software randomised presentation order of dog contexts for rating. The third section of the questionnaire asked respondents to agree or disagree with the statement "The welfare of dogs is very important to me" (1 item) on a five-point Likert scale that varied from strongly disagree to strongly agree. The final section sought demographic features of respondents (15 items), including country of residence, highest level of education attained, residence locality and household descriptors, and if they had work or volunteer experience relating to dog kennel facilities. A copy of the questionnaire can be obtained from the corresponding author on request. The questionnaire and project were approved by the Monash University Human Research Ethics Committee (Project number: CF09/2370 – 2009001379).

Self-selected, voluntary, adult participants ($n = 2,309$) responded to the internet-based questionnaire that was hosted on a secure website and distributed using various social media platforms, web forums and email distribution. The data presented in this study were collected over a 15-week period, concluding 31 December 2009, and are likely biased toward respondents with positive attitudes about animals. One hundred and sixty-three responses were discarded as unfinished; 2,146 complete responses were retained for analysis.

Participants

Most responses came from Australia (55.3%), the UK (13.9%) and the USA (12.1%). Responses received from Canada, the Republic of Ireland, New Zealand, South Africa, Denmark, Norway, Germany, Spain and Finland accounted for a further 9.7% of participants, with the remaining 6% of participants coming from other minimally represented countries. Some respondents (3%) chose not to disclose their home country. Respondents were 81% female, 17% male and 2% not specified, which is consistent with similar research in this field (King *et al* 2009; Rohlf *et al* 2010; Mornement *et al* 2012). Mean (\pm SD) participant age was 37.43 (\pm 12.70) and ranged from 18 to 84 years. Table 1 provides additional demographic information.

The majority of respondents (82%) currently owned a dog, and 43% had past or present employment in a kennel facility. Table 2 provides additional employment information.

Statistical analysis

Descriptive statistics were compiled for demographic data and the item relating to the importance of canine welfare to respondents. Preliminary analysis using multivariate analysis of variance showed that country of origin was not a significant factor in participant ratings of canine welfare, so data from all respondents were combined for the main analyses. Analyses were undertaken using the IBM SPSS Statistics 25 software package. The assumptions of normality underlying analyses were met following visual inspection of histograms, expected normal probability plots, de-trended expected normal probability plots and boxplots, which all support that the data are approximately normally distributed. Skewness and kurtosis values indicate no substantial departure from normality (West *et al* 1995) across dog contexts, with the pooled data exhibiting skewness of -0.41 (SEM = 0.01) and kurtosis of -0.95 (SEM = 0.03). A one-way repeated measures analysis of variance (ANOVA) with *post hoc* pair-wise comparisons based on marginal means (and Bonferroni probability adjustment for multiple comparisons) was conducted to compare perceived welfare scores across the 17 types of domestic dog contexts listed. Subsequent analyses (one-way ANOVA and independent sample *t*-tests) were conducted to identify where the significant differences relating to respondents' demographic features lay. Effect size is always reported where statistically significant findings are identified.

Results

Importance of dog welfare to people

Most respondents (95%) agreed or strongly agreed that the welfare of dogs is very important to them (Table 3). An independent-samples *t*-test was conducted to compare agreement with the statement "The welfare of dogs is very important to me" for males and females. There was a statistically significant difference with scores for males (4.41 [\pm 0.91]) lower than females 4.72 [\pm 0.78]; $t_{2,107} = -6.73$; $P < 0.001$, two-tailed). However, despite reaching statistical significance, the magnitude of difference in the means (mean difference = 0.31, 95% CI: -0.41 to -0.21) was quite small (eta squared = 0.02). Further independent samples *t*-tests showed a statistically significant difference in scores for dog owners (4.73 [\pm 0.76]) and non-owners (4.34 [\pm 0.96]); $t_{2,145} = 7.52$; $P < 0.001$, two-tailed). The difference (mean difference = 0.40, 95% CI: 0.29 to 0.50) in the means was small (eta squared = 0.03). A one-way between-groups analysis of variance revealed a statistically significant difference between respondents who had completed secondary school or equivalent (4.79 [\pm 0.59]) and those who had completed an undergraduate (4.62 [\pm 0.87]) or postgraduate university degree (4.59 [\pm 0.85]); $F_{2,2066} = 4.04$; $P = 0.001$. Again, the difference in mean scores had a very small effect size (eta squared = 0.01). Respondent age, experience working in kennels, presence of children in the household, household income and locality were not related to a statistically significant difference in scores for this variable.

Table 1 Demographic details of survey participants (n = 2,146).

Variable	Factor	%
Gender	Female	81
	Male	17
	Not specified	2
Age (years)	18–29	29
	30–39	27
	40–49	18
	50–59	12
	60+	6
	Not specified	8
	Highest level of education	Primary school
Part of secondary school		4
Completed secondary school		22
Vocational/TAFE/Trade school		15
Undergraduate university degree		33
Postgraduate university degree		23
Not specified		3
Household income		Less than A\$25,000
	A\$25,001–A\$50,000	13
	A\$50,001–A\$75,000	16
	A\$75,001–A\$100,000	16
	A\$100,001–A\$125,000	10
	A\$125,001–A\$150,000	7
	A\$150,000+	11
	Not specified	17
	Number of adults in household	One
Two		49
Three		13
Four		6
Five or more		2
Not specified		12
Number of children in household		None
	One	10
	Two	8
	Three	2
	Four or more	1
	Not specified	10
Household locality	City (Inner/Central Business District)	6
	Inner suburbs	27
	Outer suburbs	32
	Regional/rural town	14
	Regional/rural property	11
	Other	1
	Not specified	9

Table 2 Dog ownership and kennel facility experience details of survey participants (n = 2,146).

Variable	Factor	%	
Dog owner	No	18	
	Yes	82	
Previous/current employment in kennel facility	No	53	
	Yes (detail below)	43	
	Not specified	4	
Type of experience (most recent role)	Volunteer	42	
	Animal attendant	21	
	Dog trainer	12	
	Veterinary nurse	9	
	Administrative	7	
	Facility manager/owner	7	
	Veterinarian	2	
	Type of experience (kennel facility)	Animal welfare shelter	30
		Commercial dog boarding	17
Vet clinic		17	
Working dog		10	
Commercial breeding		10	
Council pound		9	
Commercial training		4	
Greyhound racing		3	
Experience in multiple types of kennel facility	24		

Perceived welfare of domestic dogs in different contexts

Perceived welfare scores are presented as varying between -2 (extremely low) and 2 (extremely high), with 0 representing the neutral welfare score of neither high nor low, to clearly illustrate the valence of perceived welfare. Mean (\pm SD) of the perceived welfare rating for each dog context type is presented in Table 4. The ANOVA used to compare perceived welfare ratings for each dog context showed a significant effect for dog type (Wilks' Lambda = 0.13, $F_{16, 2130} = 892.86$; $P < 0.0005$, multivariate partial eta squared = 0.87). Thus, perceived welfare of domestic dogs varied significantly, and with a very large effect size, with the context or role of the dog. *Post hoc* pairwise comparisons between all contexts can be seen in Appendix 1 (see supplementary material to papers published in *Animal Welfare*: <https://www.ufaw.org.uk/the-ufaw-journal/supplementary-material>).

Although the range for responses varied from extremely low (-2) to extremely high (2) (Table 3), over 95% of respondents rated their own pet (companion) dog as having an 'extremely high' or 'high' perceived welfare rating (own dog [today] 1.52 [\pm 0.62]; own dog [in general] 1.53 [\pm 0.59]). The welfare of other people's pet (companion) dogs was rated lower (0.55 [\pm 0.73], see

Table 4). Independent-samples *t*-tests conducted to compare the ratings for dog owners and non-owners showed the only statistically significant difference, using a Bonferroni adjusted alpha level of 0.003, was perceived welfare rating for sled racing dogs (dog owners 0.53 [\pm 0.98]; non-owners 0.32 [\pm 1.05]; $t_{2144} = 3.50$; $P = 0.001$; eta squared = 0.006). However, the difference in the means was very small. For all other contexts, ratings of perceived canine welfare did not differ significantly between dog owners and non-owners. There was no significant difference in perceived welfare of dogs between those with voluntary, non-voluntary employment, or no experience with kennel facilities.

Discussion

This study demonstrated that people's perception of the welfare of domestic dogs varies from extremely low to extremely high, depending upon the context or role of the dog. This investigation is the first of its kind to illustrate that the perceived welfare of one animal species varies across 17 different contexts in our society and the environment. The findings represent respondents' beliefs and opinions and are not easily explained using previous models that attempt to decipher our attitudes towards the treatment of animals, such as the 'Pet, Pest, Profit' model (Taylor & Signal 2009) and the 'Affect-Utility' model (Serpell 2004). Differences in ratings of participants grouped by demographic features achieved statistical significance, but with a small effect size on some items, most likely as a result of the large sample size (Pallant 2016), or possibly recruitment bias. These differences were of a very minor magnitude, with little practical importance. By comparison, the role or context of the dog explained a very large amount of the variance in perceived welfare scores.

Respondents rated stray/street and feral/wild dogs as having low levels of welfare. Dogs that have recently been displaced from companion homes into stray or street contexts probably do experience reduced welfare. Free-roaming dogs are often associated with abandonment, personal safety and disease risks, and threat to wildlife or livestock (Dalla Villa *et al* 2010; Villatoro *et al* 2019). However, people living in areas with established populations of these dogs will commonly cite the dogs' welfare as a concern and will advocate for non-lethal solutions (Slater *et al* 2008; Farnworth *et al* 2014). Some wild populations, such as dingoes in Australia, are protected as a native species within national parks, while simultaneously being declared a pest across much of the country, where they are subject to control measures such as shooting and poisoning (Hyttén 2009). However, in several sections of their seminal book, *What is a Dog?* Coppinger and Coppinger (2016) suggest that wild and free-ranging dogs may enjoy a better quality of life than many companion or working dogs in first world settings, given their comparative social, behavioural and reproductive freedom.

Dogs used for fighting, in greyhound racing, as guards (property protection) and for pig hunting had the lowest perceived welfare ratings of owned dogs included in the questionnaire. Such low perceived welfare ratings could

Table 3 Self-rated items (% response).

Variable	Strongly disagree (1)	Disagree	Neither agree nor disagree	Agree	Strongly agree (5)
The welfare of dogs is very important to me (n = 2,146)	3.2	0.4	1.7	16.3	78.4
	Extremely low (-2)	Low	Neither low nor high	High	Extremely high (2)
Rate the welfare of your dog today (n = 1,765)	0.3	0.3	3.7	38.7	57.0
Rate the welfare of your in general (n = 1,765)	0.3	0.3	2.0	41.0	56.4

flag future issues relating to the public support and social licence to operate for individuals and industry groups utilising dogs in these ways. Social licence (sometimes also referred to as public licence) to operate can be understood as the public acceptance or approval of the activity by the general population and stakeholders. In relation to the companion, working and sporting industry sectors in which dogs participate, stakeholders include the general public, government legislators, veterinarians, industry employees and animal welfare advocacy groups. Indeed, the racing greyhound industry in the Australian state of New South Wales was recently scrutinised and the sustainability of ethically concerning practices relating to training methods and so-called wastage have been questioned at community, media and government levels (Baird & Grant 2016; Burrill & Christ 2016; Markwell *et al* 2017).

The perceived welfare of pedigree purebred show dogs was lower than dogs kept in pet (companion) contexts and many of the working dog roles. This may reflect increasing awareness of the known health and welfare concerns affecting many pedigree purebred dogs, such as inherited defects linked to breed standards (Asher *et al* 2009), exaggerated anatomical features (eg brachycephalic obstructive airway syndrome; Beausoleil & Mellor 2015), and prevalence of other inherited disorders in dogs from a closed breeding pool (Rooney & Sargan 2010).

Welfare of sled-racing dogs and farm livestock-herding dogs was rated about the same as that of other people's pet (companion) dogs. Both of these contexts involve dogs that may participate across companion, recreational and commercial roles (Fennell & Sheppard 2011; Arnott *et al* 2014). Exposure to forces of nature, housing conditions, and level of risk inherent in the work of these dogs may impact their perceived welfare.

Dogs living closely aligned with humans in professionalised working dog roles (such as guide/seeing eye dogs, assistance dogs, drug detection dogs and police dogs) were perceived as having high to very high levels of welfare. Perception of the life experience of dogs in these working roles may be influenced by trust in brand association, media representation, hero dog affiliation, or the assumption that dogs of high social value are well maintained. This flags a potential area of concern, in that the welfare of dogs in these kinds of well-known working roles may often be assumed to be very high, when the reality may not always reflect this

Table 4 Mean (\pm SD) perceived welfare rating (-2 = extremely low, 0 = neither high nor low, 2 = extremely high) for domestic dogs in different contexts (n = 2,146).

Dog type	Perceived welfare rating
Fighting dog	-1.53 (\pm 1.05)
Stray/street dog	-1.36 (\pm 1.09)
Feral/dog	-0.79 (\pm 1.14)
Racing greyhound	-0.47 (\pm 1.17)
Guard dog	-0.34 (\pm 1.04)
Pig hunting dog	-0.34 (\pm 1.09)
Pedigree purebred show dog	0.44 (\pm 1.14)
Sled racing dog	0.49 (\pm 1.00)
Farm livestock (cattle/sheep) herder	0.53 (\pm 0.94)
Other people's pet (companion) dog	0.55 (\pm 0.73)
Firearm/explosive detection dog	0.89 (\pm 0.96)
Plant/food detection dog	1.03 (\pm 0.79)
Police (tracking/apprehending) dog	1.11 (\pm 0.79)
Drug detection dog	1.13 (\pm 0.79)
Assistance/service dog (to physically impaired)	1.15 (\pm 0.77)
Search and rescue dog	1.18 (\pm 0.70)
Guide/seeing eye dog	1.28 (\pm 0.77)
Own pet (companion) dog	1.53 (\pm 0.59)

perception. There is ongoing global, scientific attention directed toward improving the welfare of dogs kennelled and trained in these working contexts (Serpell *et al* 2006; Toffoli & Rolfé 2006; Burrows *et al* 2008; Rooney *et al* 2009; Denham *et al* 2014; Cobb *et al* 2015; Broach & Dunham 2016; Bray *et al* 2017; Hayes *et al* 2018).

Although dog owners rated the welfare of their own dogs most highly, both dog owners and non-owners rated the welfare of other people's pet dogs similarly, close to 'neither high nor low'. This may represent a bias in the self-selected participants in this study, reflecting that they may be highly motivated caretakers of their canine companions. Alternatively, it may suggest a self-enhancement bias, or positive illusion in belief, similar to that seen in other studies of self-assessed driving (Roy & Liersch 2013) and

parenting skills (Wenger & Fowers 2008). Owners have demonstrated limited ability to correctly identify early stages of stress in their canine companions, with research reporting one in five owners believe stress has no physical or psychological consequences for their dog (Mariti *et al* 2012). This suggests some owners may not possess the knowledge to accurately assess the welfare of the dogs they live with. As a preliminary investigation, this study did not seek additional information about respondents' own dogs. For example, age, breed, how many dogs have been owned previously, or whether cohabiting dogs might fall into more than one context (eg pet companion and livestock herding). This is a limitation of the design and something that future research in the area should be careful to accommodate.

It is important to note that the results of this study do not reflect the actual welfare experience of dogs in these various roles; attitudes and beliefs underpin our findings. Fishbein and Azjen (1972) provide an excellent overview of how belief formation may occur. Drawing on their analysis, it is possible that respondents based their ratings of dog welfare on beliefs formed through direct observations of dogs in various contexts. Alternatively, ratings may be based on inferred assumptions regarding the quality of care given to dogs based on other factors (such as assumed purchase price, owner or organisation prestige, perceived social value of the dogs' role). A third possibility is that respondents were relying on external sources to inform their beliefs. In this regard, marketing and media relating to professionalised working dogs' roles as 'hero dogs' (Bacon & Aiello 2012), and the subsequent 'halo effect' may be influencing the belief that these dogs enjoy a high level of welfare.

Future research in this area should aim to identify the factors that underlie people's beliefs and opinions about the welfare of dogs in different roles. Retesting respondents would provide an indication of the test-retest reliability of these results, perhaps yielding additional information about uncertainty of beliefs at individual and population levels, but was unfortunately beyond the scope of this investigation.

The data presented in this study were collected in 2009 and may not be representative of the general community or all cultures. The key findings that perceived welfare of dogs varies with context and that people perceive the welfare of their own dog as better than other people's dogs are nonetheless unaffected by these limitations and are novel. Although it did not relate to a significant difference in results for this study, nearly half of the participants had voluntary or paid work experience in a kennel facility, most commonly in animal welfare shelters, boarding kennels and veterinary clinics. These people may be more highly motivated to participate in a study with a focus on the welfare of dogs. It is important for additional investigation in this area to endeavour to determine the attitudes and beliefs of a representative sample. Future research should examine the stability of perceived welfare of dogs in various contexts across time, and in light of the changes in information-sharing with the increased use of social media over the last decade.

Future research in this area should aim to identify the factors that underlie people's beliefs and opinions about the welfare of dogs in different roles. For example, it could identify what importance respondents assign to features such as perceived usefulness, likeability, prestige, transparency of training processes, purchase cost, physical health, intra- and inter-specific social opportunities, longevity, etc when determining how people rate the dogs' perceived welfare. Different organisations or individuals raising and training dogs for similar roles may use completely different breeding and rearing processes, house dogs differently, and train the dogs with vastly differing methodologies, but this survey asked for overall ratings for dogs in that context, not allowing participants to specify any limits or assign confidence ratings to their perceived welfare scores. Enabling respondents to include additional detail or such limits when reporting their perceptions would provide additional information to aid interpretation of results. Exploring what people believe the terms 'welfare' and 'quality of life' mean when applied to dogs is also an area warranting additional research investment. Although this study provided 'quality of life' as a definition of 'welfare' it is not clear that all respondents interpreted this in the same way. Although working and sporting dogs live public lives in many ways, their husbandry is often undertaken out of public view, in kennel facilities or on private property. It is possible that many people do not know what is involved in the everyday training and care of these dogs. Surveying the perceived importance of various kennel management practices to the welfare of kennelled working dogs, and any differences across stakeholder groups, would be informative.

The tenets of naturalness, health and humane treatment are reported as central to what people consider good animal welfare (Clark *et al* 2016). When evaluating animal welfare, people think about the life the animal is living as well as the emotions the animal may be experiencing (Robbins *et al* 2018). When welfare is considered as a thick concept in philosophy, moral views about the acceptability of various human-animal interactions are likely to alter opinions about how an animal is faring (Robbins *et al* 2018). Applying the notion of naturalness to animals living under human control is challenging; scrutiny of the topic suggests that when people notice an unnatural state, we have a responsibility to ensure that we have not made those animals' lives worse (Yeates 2018). The social legitimacy of greyhound racing seems to have eroded significantly, with decreasing public tolerance as greyhound racing is perceived by many as outdated and systemically cruel (Markwell *et al* 2017). This may explain why racing greyhounds, despite having lifestyles that share commonalities with other working dog contexts (ie housed in kennel facilities, people employed to train and care for them, regular training sessions and veterinary checks, etc) are perceived as having low welfare, when other working dog roles that serve human interests with a degree of responsibility, beyond entertainment, are perceived as having high welfare. It appears that perceived welfare is influenced by, or acts as a reflection of the perceived social legitimacy of, the role or context that the dog is fulfilling.

Dogs in roles of responsibility, those working closely with a human handler, were perceived to have high welfare levels. In addition, respondents who lived with a canine companion rated the welfare of their own dog as very high. When people perceive animals as human-like, they are more likely to have empathy for them (Amiot & Bastian 2015). In addition, research shows that when anthropomorphised animals have apparent human qualities, such as friendliness and intelligence, humans perceive more similarity and show higher pro-social behaviour toward them (Sevillano & Fiske 2016). It is possible that the anthropocentric responsibilities of these professionalised working dogs and the family member status of highly valued companion dogs may produce a similar effect, informing how their welfare is perceived. To consider that dogs living in roles of such perceived significance and closeness to humans could lead a life of compromised welfare may be uncomfortable for many people, possibly causing cognitive dissonance. People often need to reduce cognitive dissonance by describing animals as wanting to be or benefiting from being utilised (Plous 2003). Cultural customs and utilitarian views held by people may also limit their capacity to feel emotions, such as pity or compassion toward animals (Sevillano & Fiske 2016). This study has shown that the welfare of dogs is considered very important to most people, and that they perceive the welfare of different working, companion and wild dogs from extremely low to extremely high. This information can be used to help inform actions and effective resource allocation towards improved canine welfare (Reed & Upjohn 2018). A challenge ahead lies in identifying if people will advocate and act for uniform welfare standards for this species, the domestic dog, across the many roles and contexts we find them in today.

Animal welfare implications and conclusion

This study has shown that the welfare of dogs is considered very important to most people, and that they perceive the welfare of different working, companion and wild dogs from extremely low to extremely high. This information can be used to help inform actions and effective resource allocation towards improved canine welfare (Reed & Upjohn 2018). A challenge lies ahead in identifying if people will advocate and act for uniform welfare standards for this species, the domestic dog, across the many roles and contexts we find them in today. The constructs underlying how people perceive the welfare of dogs are clearly complex and multi-dimensional, deserving of additional exploration. It is hoped that future research will further explore the welfare of dogs in these sometimes difficult-to-access populations, as transparency of processes and an increased evidence base about the physiology and behaviour of dogs kept in these roles would inform industry, government and public stakeholders. Consumers have been shown to change their behaviour based on the perceived welfare of livestock animals, indicating that perception of animal welfare can be a significant trigger for human attitudinal and behavioural change. This may signal that for dogs

perceived to have lower welfare, human attitudes and behaviour may change. This may be evident through industry groups requiring that participants demonstrate continuous improvements in welfare standards, or alternatively with the removal of the social licence to operate for activities such as greyhound racing, or in societal trends away from owning pedigree dogs. A demonstrated commitment to assuring the public that the welfare of dogs is a priority will be integral to ongoing social licence for the continued and sustainable participation of dogs in utility, service and entertainment roles.

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