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Highlights

- UK dog trainers and behaviorists are equally consulted about unwanted behaviors
- Both dog trainers and behaviorists were able to improve unwanted behaviors
- More behaviorists favored reward-based training
- More dog trainers favored balanced training (reward and punishment)

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A survey of dog behavior modification practice in the UK: Who is offering it, what methods are they using and how effective do their clients perceive practitioners to be?

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Abstract

Thousands of dogs are relinquished each year in the UK owing to behavioral problems. Hence, there is a clear role for behavior modification therapy in the mitigation of this canine welfare risk. Since statutory regulation and a universal register of canine professionals (CPs) does not yet exist in the UK, it remains unclear who is offering such therapy, which behaviors are being treated, what types of approaches various CPs may be taking and the success (or otherwise) CPs are having. This study aimed to provide some insight into these issues from the perspective of pet dog owners (clients).

An online survey of 235 participants showed that the primary reason for seeking behavior help from a CP was related to aggression, although often more than one issue was reported. Regardless of the behavior problem, no significant differences were found for the type of CP consulted (dog trainer versus behaviorist). Furthermore, in the client's opinion, there were no significant differences between CP types in their ability to improve their dog's unwanted behavior. Interestingly, behaviorists were significantly more likely than dog trainers to use 'reward-based' methods over 'balanced training' (balanced being a mix of reward and punishment; $\chi^2=8.226$, $df=1$, $p=0.004$).

In conclusion, in the current UK vacuum of statutory regulation, clients are just as likely to employ a trainer as a behaviorist, regardless of their dog's unwanted behavior. However, both CP types were equally able to facilitate behavior improvement, as reported by the client, regardless of the type of training methods (reward-based versus balanced) adopted. This study raises further questions to be explored including the client's opinion of the extent to which the ends (behavior outcomes) justify the means (e.g. punitive training methods which are likely to be aversive for the dog). Also, the general public's understanding of the potential welfare implications of the type of behavior modification plan they may or may not choose to follow.

Key words

Behaviorist, behavior modification, dog, dog trainer, training methods

Introduction

Approximately 44,000 dogs are taken to shelters or euthanised annually in the UK owing to behavioral problems that their owners were unable to change or cope with (Diesel et al., 2010; Clark et al., 2012; O'Neill et al., 2013). This situation represents a significant welfare issue for dogs and their caregivers (Overall, 2013). Encouragingly, effective behavior modification therapy aimed at improving the human-canine relationship could reduce the number of dogs being relinquished (Buller et al., 2020).

For this study the term canine professionals (CPs) includes veterinarians, dog trainers (who plan and manage the general training of dogs e.g. in group classes) and behaviorists (who are specifically trained to work with undesirable, problematic and / or dangerous behavior). However, of these CPs may offer behavior modification services in the UK. Furthermore, there is no statutory regulation of the animal behavior industry nor is there a central database of all CP activities in the UK (McBride et al., 2018). Therefore, it is unclear which type of CP is commonly approached by the public for behavior help. This might be important to understand if the levels of knowledge and practical behavior modification skills vary significantly between the different CP types (Luescher et al., 2007; McBride et al., 2018).

Regarding the behavior modification plan (BMP) itself, there is controversy surrounding the appropriateness of the different types of training methods available (simplistically reward versus punishment) (Bradshaw et al., 2009; Schilder et al., 2014; Westgarth, 2016; Todd, 2018). Again, data are lacking in the UK about which training methods are typically employed to resolve unwanted canine behaviors and which category of CP is using them.

This study aimed to begin to address some of the described data gaps. Specifically, who is conducting canine behavior modification in the UK, what types of training methods they are adopting and how successful (or not) their clients perceived them to be.

Materials and methods

Questionnaire

A questionnaire enquiring about the client experience of the initial behavior consultation and their subsequent compliance with the prescribed behavior modification plan was conducted. Here, a targeted sub-section of that data is presented to address the aim of this study, who is doing what in the UK regarding dog behavior modification. Multiple-choice questions and Likert scale responses (Appendix 1) were collected using Online Surveys (JISC, Oxford, UK). A pilot survey of six volunteers (one veterinarian, one dog trainer and four lay people) was conducted. Their responses were used to refine question clarity and to assess completion time (<20 minutes for the entire survey).

Participants

Survey participants (clients) were drawn from a convenience sample of UK residents, aged 18 and above, who had sought paid professional help for their dog's unwanted behavior within the last 2 years. Dogs with behaviors relating to medical issues or requiring behavioral medication or supplements were not eligible to take part in the study.

Data collection

The survey URL was shared on multiple Facebook pages, including the author's own. Data were collected from 16th December 2020 until 11th February 2021.

Data preparation

Data were exported from the JISC Online Survey tool into Excel. Three of 238 clients were excluded from the study as they were not UK based. One further participant indicated that they had not consulted a CP. However, this was assumed to be a mistake, as a free text response question demonstrated that a consultation had occurred, hence zero was changed to 'one' for analysis. It was possible to re-assign all CP types identified by clients as 'other' to one of the named based on their free text response. Likert data extracted from the JISC survey tool were attributed numerical scores; 5=strongly agree, 4=agree, 3=neutral, 2=disagree and 1=strongly disagree.

Statistics

Descriptive statistics were used to present survey demographic and unwanted behavior data. Correlations between co-presenting behaviors were identified using the phi coefficient. Contingency tables using the Pearson Chi-square (χ^2) were used to explore relationships between variables for example CP type (trainers and behaviorists) and the top five unwanted primary behaviors of concern. Behaviors other than the top 5 were excluded from analysis as there was insufficient data. Prior to any data analysis, the option of neutral on the 5-point Likert scale was combined with strongly agree and agree. This assumed that if the client felt no improvement had been made, they would have at least opted for 'disagree'. This interpretation was designed to give an equitable and favourable benefit of the doubt to all CPs regardless of type. SPSS Statistics version 25 was used for all statistical analyses. A level of $p < 0.05$ was accepted as significant

Results

Demographics

The demographics of the 235 eligible clients are summarised in Table 1. The majority were female (86.81%). One dog was described as working, the rest were pets. Three quarters of clients (75.31%) had consulted 1 or 2 CPs for behavioral help, with dog trainers (61.13%) being the most frequently consulted. Slightly more female (58.3%) CPs were employed than male (41.7%), and most consultations were held in person (87.66%).

Demographic	Category	Number of respondents (<i>n</i>)	Proportion of respondents (%)
Client gender	Female	204	86.81
	Male	31	13.19
Role of dog	Pet	234	99.57
	Working	1	0.43
No. CPs consulted	1	114	48.51
	2	63	26.80
	3	39	16.60
	>3	19	8.09
Canine professional type most recently consulted	Veterinarian	4	1.70
	Dog trainer	146	62.13
	Behaviorist	85	36.17
Canine professional gender	Female	137	58.30
	Male	98	41.70

Consultation type	In person	206	87.66
	Remote	29	12.34

Table 1 Participant demographics. The number and percentage of client answers associated with each demographic category are shown in the table.

Unwanted behaviors

Clients were able to select one or more behaviors (152 selected multiple behaviors) and to describe an additional behavior(s) for which they had sought help (Figure 1). They were also asked to identify the primary behavior of concern. 'Others' included, but were not limited to, lead reactivity, prey drive and barking. However, there was no consistent primary 'other' behavior. Considering all unwanted behaviors recorded, the top three were aggression towards other dogs/animals (28.6%), obedience related (21.79%) and fearfulness (14.01%). However, more than half (55.32%) of the primary reasons for seeking CP advice were aggression related (towards other dogs / animals or people) (Figure 1A).

Case complexity

Regarding case complexity, it was most common for clients to seek CP help for dogs exhibiting one, two or three unwanted behaviors (35.32%, 30.64% and 22.98% respectively) (Figure 1B). However, up to 8 behaviors were reported in one case. Several unwanted behaviors were found to present together (Table 2), with the strongest association occurring between fearfulness and fear of noises (phi coefficient, $p < 0.001$).

Behaviors	Phi coefficient	Approx. Significance
Human aggression + animal aggression	0.177	0.007
Separation + fearfulness	0.13	0.046
Fearfulness + fear of noises	0.247	0.000
Lack of obedience + fear of noises	0.168	0.010

Table 2: Correlating unwanted behaviors. The phi coefficient was used to identify correlations between unwanted behaviors reported to occur together.

CP type consulted

No significant association was found between the main CP types consulted (trainers and behaviorists) for the top five primary behaviors of concern (aggression towards animals / humans, fear, obedience and other $\chi^2=6.789$, $df=4$, $p=0.148$, Figure 2). Trainers were consulted more often for all behaviors except aggression towards humans and separation-related problems.

CP type and client perceived behavior improvement

For reference, the distribution of the raw data Likert scores prior to grouping for analysis is presented (Figure 3A). Behavior improvement, as perceived by the clients, was independent of CP type (Figure 3B, $\chi^2=0.002$, $df=1$, $p=0.967$).

CP type and choice of BMP training methods

Behaviorists were statistically significantly more likely than trainers to use reward-based rather than balanced training (Figure 4, $\chi^2=8.226$, $df=1$, $p=0.004$). (The 'correction BMP' categories received too few responses for statistical analysis).

Discussion

Demographics

Interpretation of the survey was limited to mainly female client opinion, perhaps reflecting the predominance of females in dog training class attendance (Gabrielsen, 2017) and therefore the potential population willing/able to complete a dog behavior-related survey. Interestingly, the gender of CPs consulted was more balanced.

Unwanted behaviors and case complexity

Regarding the unwanted canine behaviors of primary concern, more than 50% involved aggression towards other dogs, animals and/or humans. In many cases more than one unwanted behavior was reported, in agreement with previous work (Didhehban et al., 2020). Significant co-morbidity was found between separation-related problems and fearfulness, fearfulness and fear of noises, and lack of obedience and fear of noises. In agreement with a large study of pet dogs (Salonen et al., 2020), the strongest behavior correlations occurred between fearfulness and fear of noises. This suggests that the survey

sample may not be dissimilar to the wider population of pet dogs with unwanted behaviors. The correlation between lack of obedience and fear of noises was unexpected and warrants further investigation.

CP type consulted

The authors were interested to gauge which CP type(s) are consulted in the UK for canine behavior problems. In the survey a behaviorist was defined as someone who works with the owner and dog to address unwanted behaviors on veterinary referral. However, it became apparent from the survey answers that there are CPs who consider themselves to be behaviorists (or whom their clients believe to be behaviorists) who do not always work via veterinary referral. Therefore, for the purposes of this study all responses for behaviorists were pooled regardless of whether they worked via veterinary referral or not. This enabled exploration of any differences in practice between behaviorists and dog trainers (those who offer classes or 1:1 training). These definitions are imperfect as individuals can be both behaviorists and dog trainers. However, the CP classification selected by survey participants indicated their perception of the CP, which may or may lead to engaging the most appropriate practitioner.

Furthermore, trainers and behaviorists were equally likely to be consulted for the top five primary behaviors of concern, including aggression. The reasons for this are unclear. A survey of clients attending dog training schools in Melbourne, Australia, found client satisfaction to correlate with instructors' knowledge, approachability, articulation, and kindness in their training. There was also a desire for instructor professional body accreditation (Bennett et al., 2007). Moreover, for young dogs (6-9 months), owners are more likely to seek help from a dog trainer (rather than a behaviorist) for behavioral problems. This pattern may be because in some cases the owners did not recognize the potential seriousness of the problem and requirement for specialist advice (Lord et al., 2020). This finding highlights a quandary for clients about whom to approach for behavioral help with their dog, especially as the title of 'behaviorist' is not protected in the UK, meaning that anyone can practice under that guise (McBride et al., 2018).

Not all CPs employed by surveyed clients worked through veterinary referral which could be concerning from a canine welfare perspective because pain has been shown to be a contributing factor in up to 80% of select behavior cases (dogs and cats) (Mills et al., 2020). For example, fear of noise (highlighted in this survey) may be linked to or heightened by musculoskeletal pain (Fagundes et al., 2018). Without veterinary involvement from the outset, some dogs may be at risk of unrecognized physical and psychological harm. Hence, nations including Australia and New Zealand support the UK call for statutory regulation of the animal behavior and training industry which considers CP qualifications and practical experience and recommends working only on veterinary referral (Skyner et al., 2020; McBride et al., 2018). To facilitate this, it is equally important for veterinarians to maintain continuing professional development in behavioral medicine and to work with CPs in their appropriate capacity (Groetzinger-Strickler, 2018; Shalvey et al., 2019). Interestingly, a study of Australian dog trainers revealed that only 7.9% would refer a dog to a veterinarian for diagnosis of separation-related problems, with balanced trainers less likely to do so than reward-based trainers (Hunter et al., 2020). Furthermore, the trainers' opinions of whether separation-related problems constituted an anxiety disorder or were preventable with training differed between reward-based and balanced trainers respectively. It is possible that in this study that the presence of unrecognized pain – whether undiagnosed or caused by the punitive techniques in balanced training - could have affected the client's perception of the efficacy of the CP and / or the BMP if the dog was unable to fully engage due to pain.

CP type and client perceived behavior improvement

In the opinion of the participants surveyed, dog trainers and behaviorists were equally able to achieve improvement in the unwanted behaviors of their dogs. However, the definition of the CP could have been incorrectly perceived by the survey participants. A further confounding factor with regards to accurate CP category determination was that trainers were offering behavior modification and not all behaviorists were working through veterinary referral. Furthermore, dogs treated with psychopharmacology were excluded which could have inadvertently omitted data from veterinary behaviorists or behaviorists working with a veterinarian. Nevertheless, around half of the survey respondents had consulted more than one CP, suggesting that they had failed to find a solution on first attempt. This outcome indicates room for CP practice improvement through education and

practical counselling training. In the light of the push towards statutory CP regulation (McBride et al., 2018) there is a challenge in deciding who should be doing what since the breadth and depth of knowledge and experience within the CP groups may vary significantly. Processes to assess CP academic knowledge and practical skills are being implemented (e.g. through the Association for the Study of Animal Behavior, the Animal Behavior and Training Council and the UK Dog Behavior and Training Charter in the UK to name a few). These initiatives should encourage more practitioners to gain accreditation / certification appropriate to their skill set, which in turn will reassure referring veterinarians and the public who seek behavior help and / or training.

CP type and choice of BMP training methods

The participants of this survey indicated that the CPs they employed differed in their choice of training methods recommended in the BMP. Specifically, behaviorists were more likely to use reward-based training and dog trainers were more likely to use balanced training. While statistically significant, caution is warranted in interpretation of these results. First, the type of CP consulted was determined by the survey participant so error in CP categorization was possible. Second, the survey participants do not represent the entire population of CPs operating in the UK. A wider study would be needed to generalize these findings.

It has been argued that taking a non-authoritarian (reward-based) training approach leads to dog aggression (Perez-Guisado et al., 2009). However, the opposite view has also been proposed (Herron et al., 2009). Indeed, problematic behaviors in general, not just aggression, have been found to correlate with the use of positive punishment (Hiby et al., 2004). The increase in problematic behaviors may be associated with the increased anxiety shown to occur with positive punishment (Hiby et al., 2004). In a convenience sample survey of dog owners, a correlation was found between dogs displaying fewer unwanted behaviors and the absence of punishment in training (Blackwell et al., 2008).

Concerns have also been raised about the stress experienced by dogs being trained using positive punishment (Beerda et al., 1997). The highest levels of aggression were identified where owners used a mix of positive rewards and positive punishment (balanced training) (Blackwell et al., 2008). It was suggested that the increased aggression was the result of the

dog experiencing conflict and uncertainty about owner predictability. Interestingly, two literature reviews investigating the relationship between aversive training methods and compromised canine welfare found little empirical data on this topic beyond police and experimental dogs (Fernandes et al., 2017) and individual case reports (Ziv, 2017). However, both authors agreed that aversive training does cause stress to dogs and that evidence is lacking to support the efficacy of balanced over reward-based training. Despite this, pressure on CPs and clients to obtain quick results may encourage the use of P+ to suppress unwanted behavior, regardless of the potential for negative consequences for the dog (Greenebaum, 2010, Todd, 2018).

In contrast, R+ (reward-based training) has been advocated not only as a more welfare-friendly method for training dogs, but also as a means of building harmonious human-canine relationships (Deldalle et al., 2014, Pregowski, 2015). If taught well, R+ also enables the dog to learn a desirable behavior in place of the unwanted problem behavior (Lindsay, 2005). However, this often requires implementation of management strategies to help the dog to make good choices and also time for the dog to feel comfortable enough to offer desirable behaviors that can be rewarded (B.S.A.V.A., 2012). For some clients, this may require more time and effort than they are able or willing to give. Alternatively, clients may lack the appropriate skills needed to effectively train their dog using R+. For example, the client may give up on R+ if the CP is inflexible and insists upon using specific methods with additional complexity e.g., clicker training when simpler solutions may also work (Feng et al., 2018a, Feng et al., 2018b). Hence, to the detriment of the dog, seemingly quick fix approaches involving P+ may be resorted to (Greenebaum, 2010, Todd, 2018). 'Therefore, to minimise stress and optimise learning in dogs already struggling with problematic behavior, it is imperative that CPs can competently coach their human clients to effectively and efficiently implement R+ methods'.

Study limitations

Internet-based surveys offer participant convenience, enable data collection with minimal financial and time costs to the researcher, and can be targeted to relevant populations through social media (Rea et al., 2014). However, the findings may not represent the wider canine behavior client population. For example, those not active on social media (Facebook)

were excluded in this study. Also, individuals insufficiently motivated to participate yet holding valuable opinions (positive and negative) for informing CP best practice could have been missed, compromising the generalisability of the results. Nevertheless, web-based study findings are at least consistent with traditional alternatives such as questionnaire recruitment through newspaper advertisements (Gosling et al., 2004). Moreover, the present survey was able to reach participants who had employed various UK-based CPs.

Conclusion

There are different types of CP including veterinarians, trainers and behaviorists – including specialists in behavioural medicine - from whom help with unwanted behaviors may be sought. We explored which types of CP are conducting canine behavior modification in the UK, a field which currently lacks statutory regulation. It was found that clients were just as likely to employ a dog trainer as they were a behaviorist, regardless of the type of unwanted behavior to be addressed. Both CP types were equally able to facilitate behavior improvement, as reported by the client, regardless of the type of training methods (reward-based versus balanced) adopted in the BMP. This study raises further questions to be explored including the client's opinion of the extent to which the ends (behavior outcomes) justify the means (training methods).

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Ethical approval

Ethical approval (HERC_632_20) was obtained from the University of Edinburgh Human Ethical Review Committee. Since the survey could evoke participant memories of sadness, guilt or regret with respect to their dog's behavioral problems, the survey followed the do no harm principles of the British Psychological Society (B.P.S., 2014). A comprehensive study explanation and links to support sources support were provided (A.B.T.C., 2020, I.C.A.N., 2021). Informed consent was obtained, and no identifiable data were collected. Data will be

securely stored at the UoE for up to 10 years post-publication. The study is General Data Protection Regulation 2016/679 compliant.

Conflict of interest statement

The authors have no competing interests to declare.

Authorship statement

The idea for the paper was conceived by JTD. The experiments were designed by JTD, DB and SB. The experiments were performed by JTD. The data were analysed by JTD and MCT. The paper was written by JTD, DB, MCT and SB.

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Figure 1

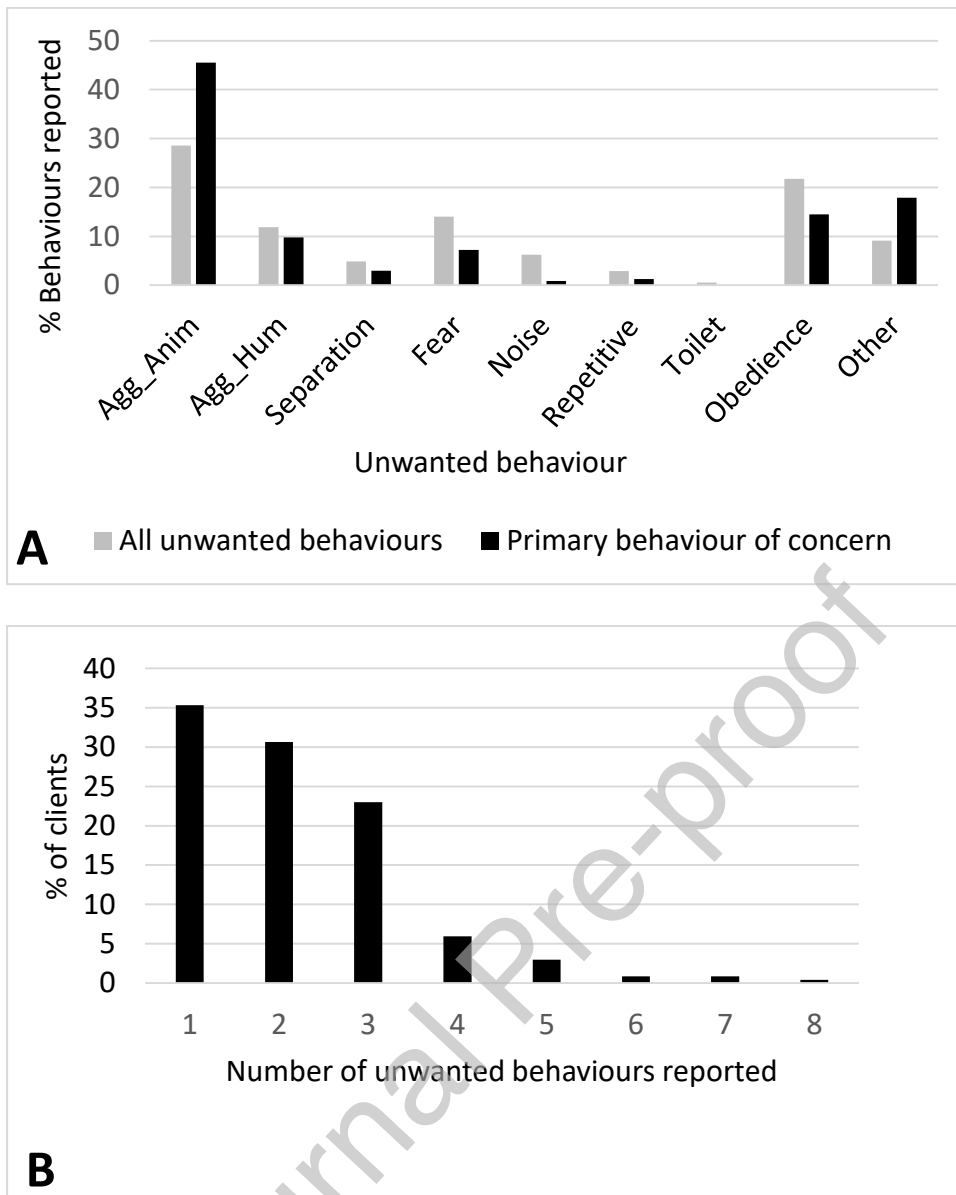


Figure 2

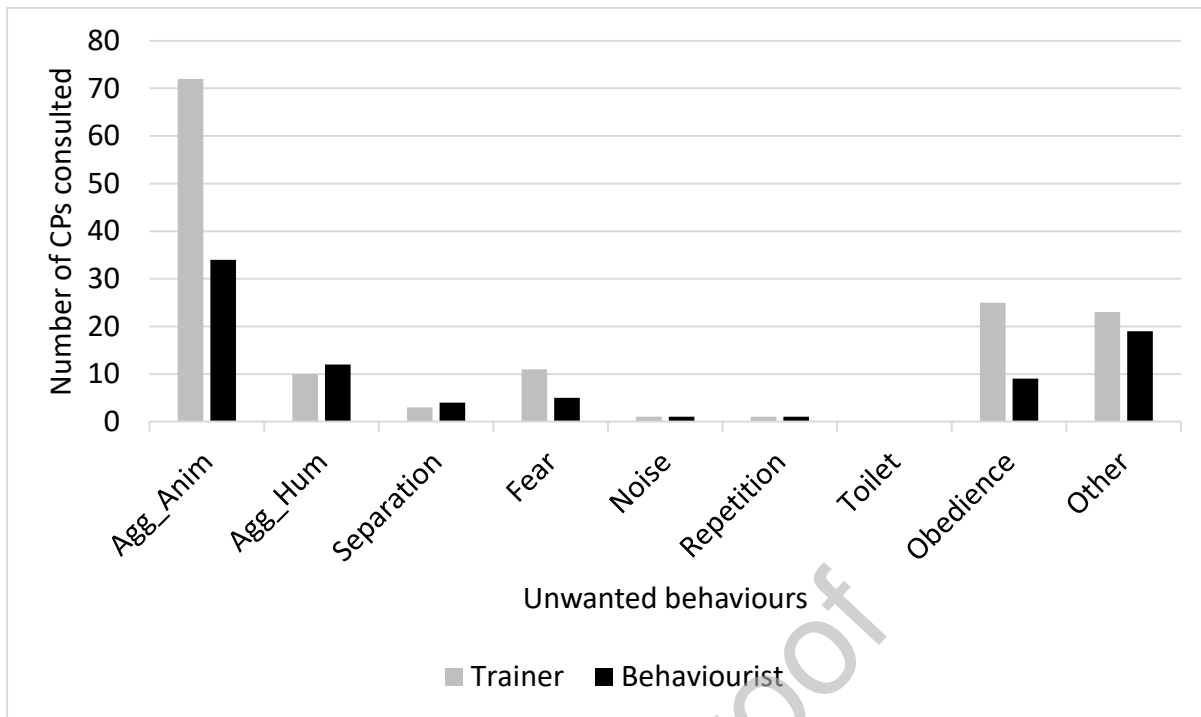


Figure 3

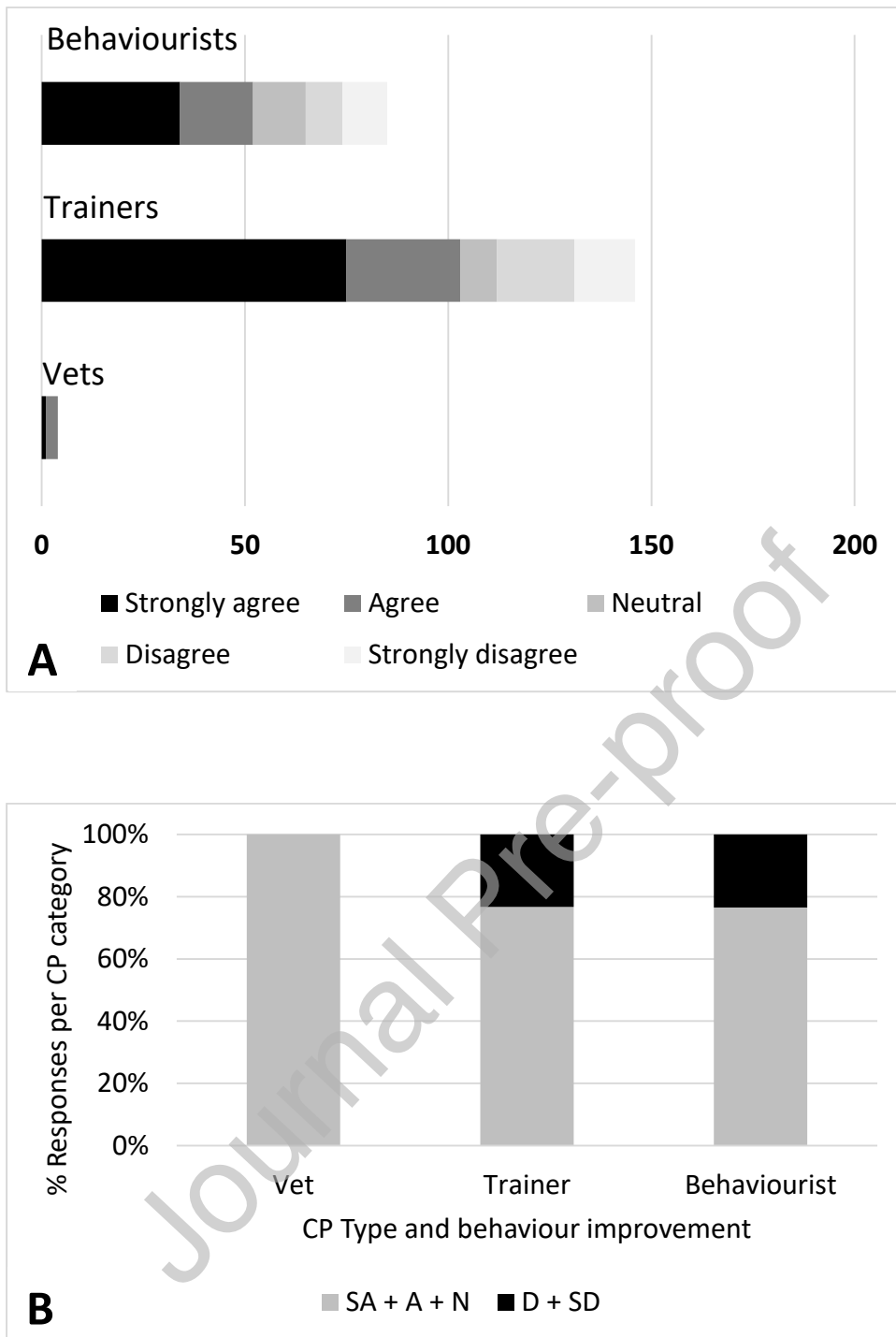


Figure 4

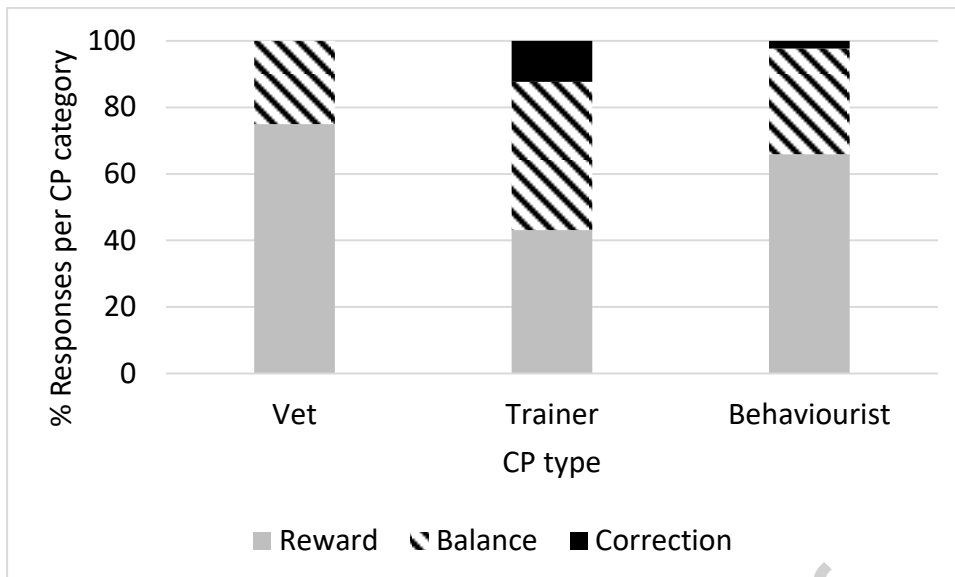


Figure legends

Figure 1: Frequency and number of unwanted behaviours reported in the survey.

The percentage of the total of all unwanted behaviour(s) and the primary behaviour of concern is shown in A. The percentage of clients reporting one or more unwanted behaviours is shown in B.

Abbreviations key:

Agg_Anim = Aggression towards other dogs / animals

Agg_Hum = Aggression towards people

Separation = Unable to be left alone

Fear = Fearfulness

Noise = Sensitivity to noises

Repetitive = Repetitive behaviours that are difficult to interrupt e.g., licking, shadow chasing or similar

Toilet = Indoor toileting

Other = Other behaviours as determined by the participants

Figure 2: Type of CPs consulted for the primary behaviours of concern.

The graph represents the number of dog trainers versus behaviourists consulted for the primary behaviour of concern.

Abbreviations key:

Agg_Anim = Aggression towards other dogs / animals

Agg_Hum = Aggression towards people

Separation = Unable to be left alone

Fear = Fearfulness

Noise = Sensitivity to noises

Repetitive = Repetitive behaviours that are difficult to interrupt e.g., licking, shadow chasing or similar

Toilet = Indoor toileting

Other = Other behaviours as determined by the participants

Figure 3 Client opinion of behaviour improvement relative to type of CP employed.

The distribution of the raw data Likert scores is shown in A. Following analysis the percentage of total participant responses received for the Likert statement 'My dog's behaviour has improved as a result of the behaviour treatment plan' for vets, dog trainers and behaviourists is shown in B.

Abbreviations key:

SA = Strongly agree

A = Agree

N = Neutral

D = Disagree

SD = Strongly disagree

Figure 4 The emphasis of BMP used by different CP types.

The percentage (%) of total participant responses indicating the main focus of the BMP used by vets, dog trainers and behaviourists.

Abbreviations key:

Grey bars = Rewarding the behaviours you want

Hashed bars = A balance of reward and correction

Black bars = Correction of the behaviours you don't want