Applied Animal Behaviour Science 151 (2014) 75–83

Contents lists available at ScienceDirect

Applied Animal Behaviour Science

journal homepage: www.elsevier.com/locate/applanim

Development of the behavioural assessment for re-homing K9's (B.A.R.K.) protocol

Kate M. Mornement[a], Grahame J. Coleman[b], Samia Toukhsati[a], Pauleen C. Bennett[c,*]

[a] School of Psychology and Psychiatry, Monash University, Clayton Campus, Building 13D, Wellington Road, Clayton 3800, VIC, Australia
[b] Animal Welfare Science Centre, School of Land and Environment, The University of Melbourne, Building 162, Parkville 3010, VIC, Australia
[c] Anthrozoology Research Group, School of Psychological Science, La Trobe University, PO Box 199, Bendigo 3552, VIC, Australia

ARTICLE INFO

Article history:
Accepted 12 November 2013
Available online 21 November 2013

Keywords:
Shelter dogs
Behaviour assessment
Welfare
Reliability
Predictive validity

ABSTRACT

Globally, millions of dogs enter the welfare shelter system each year. Before being made available for adoption dogs are typically screened for their suitability as companions by way of a "temperament test" or behavioural assessment. In Australia, the majority of dogs that fail their behavioural assessment are subsequently euthanased. Previous research has identified a lack of standardisation, in both the content and methodology, and a lack of scientific validation of such screening procedures. This poses a significant welfare concern for shelter dogs; life and death decisions might be made based on invalid assessments of behaviour. The aim in this study was to develop a standardised shelter dog behaviour assessment, called the behavioural assessment for re-homing K9's (B.A.R.K.) protocol, implement it into an operational animal shelter and evaluate the reliability and predictive validity of the tool. The B.A.R.K. protocol consists of 12 subtests that aim to imitate everyday situations a pet dog is likely to encounter. The behavioural trait with the highest overall, and statistically significant ($n = 48$, $P < 0.01$), inter-rater reliability was 'fear', with a mean correlation of 0.95 across all B.A.R.K. subtests. 'Fear' also had the highest overall, and statistically significant ($n = 46$, $P < 0.01$), test–retest reliability with a correlation of 0.82 across all B.A.R.K. subtests. The overall inter-rater reliability of the B.A.R.K. protocol was moderate to strong however the test–retest reliability was relatively weak. Amongst dogs that initially passed the test and were subsequently rehomed, the predictive validity of the protocol was also quite poor, with 'fear' ($r = 0.42$, $n = 67$, $P < 0.01$) and 'friendliness' ($r = 0.49$, $n = 67$, $P < 0.01$) being the only measures that proved to be predictive. The results of the study imply that a standardised behavioural test may be of less value in identifying the suitability of dogs for placement in the community than is currently believed. If so, this has significant implications for how such tests are employed.

1. Introduction

A number of tests have been developed to assess dogs' aptitude for a variety of different purposes. These include working roles such as police dogs (Slabbert and Odendaal, 1999), military dogs (Haverbeke et al., 2009) and guide dogs for the blind (Serpell and Hsu, 2001). They also include assessment of dogs' suitability as pets (Lucidi et al., 2005).

* Corresponding author. Tel.: +61 3 5444 7460/+61 438 569 610; fax: +61 3 5444 7850.
E-mail addresses: katemornement@gmail.com (K.M. Mornement), Pauleen.Bennett@latrobe.edu.au (P.C. Bennett).

0168-1591/$ – see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.applanim.2013.11.008

Despite the depth and breadth of canine behavioural testing, there remains a lack of standardisation in the way such tests are implemented (Diederich and Giffroy, 2006), especially in animal shelters where the implications of using invalid protocols are significant.

Prior to being made available for adoption, shelter dogs in Australia and elsewhere typically undergo a behavioural assessment or "temperament test". Information collected during the assessment, in which dogs are exposed to a series of stimuli intended to replicate real world situations, is used to identify stable behavioural tendencies in order to predict future behaviour that may be expressed in similar circumstances (Dowling-Guyer et al., 2011). The purpose of the assessment is to determine whether a dog will make a suitable companion for potential adopters (Christensen et al., 2006) and, more recently, to optimise the match between adopter and dog (Bollen and Horowitz, 2008). Dogs that pass the assessment are deemed "adoptable" and made available for sale. Those that fail, usually because of chronic health or behavioural problems, are euthanased or undergo rehabilitation, being subsequently reassessed at a later date.

Approximately 30% of dogs that enter the shelter system in Australia are euthanased and rehoming rates of 21% (Marston and Bennett, 2005) and 27.2% have been reported (Royal Society for the Prevention of Cruelty to Animals Australia National Statistics, 2010–2011). Worldwide, millions of dogs enter the welfare shelter system (Bollen and Horowitz, 2008) so there is a strong imperative for behavioural assessments to be valid. Deficiencies in assessment have the potential to be a significant welfare concern if dogs are wrongly euthanased. They also may expose members of the general public to harm, if aggressive dogs are inadvertently sold as pets.

The quality of a behavioural test (whether a test is a good measure, the right measure and a useful measure) is determined by three characteristics: reliability; validity; and feasibility (Martin and Bateson, 1993). It is critical, therefore, that behavioural assessment protocols used to determine the adoptability of shelter dogs are supported by empirical evidence to show that they meet accepted criteria regarding these characteristics (Taylor and Mills, 2006). At the very least, agreement between experienced raters conducting independent assessments of the same dog at the same time (inter-rater reliability) needs to be demonstrated, as does test–retest reliability, where the same dog is tested using an identical test on two or more occasions. In the case of shelter dogs, predictive validity is also of particular importance because, as identified by Duffy and Serpell (2012), behavioural tests are typically used to make generalisations about how dogs will behave in other environments, based on a limited sample of the dogs' complete behavioural repertoire, observed within a short time period. This need for shelter tests to permit inferences about future dog behaviour makes thorough validation of such tests critical. In tests of predictive validity, rather than reassessing dogs in the original test location, one probes the experiences of new owners who have lived with the dog for a period of time. This enables questions to be asked about the dog's behaviour in a range of normal everyday situations (Duffy and Serpell, 2012) and provides an opportunity to explore the relationship the owner has formed with their new dog and whether this could have been predicted by the results of the original, in-shelter, assessment.

A review of shelter dog assessment protocols used in Australia (Mornement et al., 2010) revealed that shelters have made commendable attempts to ensure that only appropriate dogs are adopted. However, standardisation in assessment content and methodology, and empirical evidence to support the reliability, validity and feasibility of such protocols, is lacking. The aim in this study was to begin to address these issues by developing a scientifically informed and evaluated shelter dog assessment protocol, for use in Australia and elsewhere. Here we describe the initial development of the Behavioural Assessment for rehoming K9's (B.A.R.K.) and report on inter-rater reliability, test–retest reliability, predictive validity and feasibility of the instrument.

2. Method

2.1. Development of the B.A.R.K. protocol

2.1.1. Focus group

Nine canine experts, including dog trainers (whose qualifications were at minimum, a Certificate III in Dog Behaviour & Training), a dog breeder, a veterinary behaviourist, an animal shelter manager, a shelter dog assessment officer, an animal welfare government representative and several research academics, attended a focus group. The aim of the focus group was to ascertain which behaviours were crucial for inclusion in a standardised behavioural assessment protocol for assessing adoption suitability in shelter dogs.

2.1.2. Procedure and administration

The behavioural assessment for rehoming K9's (B.A.R.K.) protocol was developed based on the results of a previous study (Mornement et al., 2010) which reviewed protocols used in Australia to assess adoption suitability in shelter dogs, together with the outcomes of the focus group of canine experts. The two part (Part A and Part B) protocol assesses dogs on five behavioural traits (anxiety, compliance, fear, friendliness and activity level) commonly assessed by shelters in Australia and identified by experts as important traits to include in an assessment protocol, across 12 subtests, which aim to assess a dog's reaction to real life situations, in a standardised manner. Part A was designed to be a relatively quick assessment (about 10 min), as many Australian shelters cite time constraints as an important consideration when assessing dogs, to obtain preliminary information about a dog's safety with people, including reaction to handling, reaction to separation and resource (food) guarding, for which a fake hand attached to a broom stick was used. Resource guarding was assessed using both canned food and a treat (pigs ear) to establish whether some dogs guarded one but not the other. If, at any stage, a dog displayed aggression towards the assessor the recommendation was to immediately discontinue the assessment. Part B, which took approximately 10 to 15 min, was designed to obtain further information about the behaviour of a dog that