

## Validation of a qualitative behaviour score during the capture phase of stray dogs

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### Summary

There are no studies on the capture phase of stray dogs, although this can be very stressful and have a significant impact on dogs' welfare. In this preliminary study, we propose a simple qualitative evaluation system of the dog's behaviour during the capture phase. The assessments of the Animal Control Officers (ACO) were compared with qualitative and quantitative evaluations carried out by two Testers to verify their reliability and validity. The agreements and correlation analysis showed that the qualitative score of the Testers was reliable and valid. Conversely, the scores attributed by the ACO were not in agreement and not consistent with the behavioural observations of the Testers. These results suggest that the ACO did not have the necessary familiarity with behavioural assessments. It should also be considered that the Testers made their observations in a different context, and the dog can react differently to different stressors according to his personality and past experiences. In conclusion, the qualitative assessments during the capture phase require implementations and further investigations.

**Keywords:** shelter dogs; dog behavior evaluation; animal control officer

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## Introduction

As recognised by the World Organisation for Animal Health (OIE, 2015), the process of catching a dog before entering the shelter can be very stressful and have a significant impact on dogs' welfare. However, as far as we know, there is no study on the behaviour and welfare at the capture time of stray dogs. Several researchers have proposed welfare assessment systems in the shelter (Hiby, Rooney, & Bradshaw, 2006; Part et al., 2014; Protopopova, 2016; Rooney, Gaines, & Bradshaw, 2007) but no one involved the Animal Control Officers (ACO). Moreover, time constraints and limited staff availability, as well as the complexity of the evaluation form, could represent a real obstacle to the systematic use of welfare assessment tools in dog shelters (Barnard et al., 2016; Kiddie & Collins, 2014). We developed a behaviour assessment system involving different staff figures and consisting of simple and quick qualitative processes. This preliminary study aimed to analyse the validity of the behavioural evaluations carried out by the ACO during the capture of stray dogs to introduce it as a new management tool for improving the welfare of dogs entering the shelter.

## Materials and methods

After the capture time, the ACO had to fill in a form with the demographic data of the dog and assign to his behaviour a score from 0 (extremely calm and sociable) to 5 (extremely stressed; Overall, 2013) called Stress level. Each score was alongside a brief description and a schematic graphic representation of the dog's behaviour. Moreover, all ACO were trained before the start of the study to recognize sign of stress in the dog.

Within the first three days of shelter intake, the same dog was evaluated by a Tester who compiled the same form and performed behavioural observations of the dog while inside his quarantine pen. The Tester recorded the dog's behaviour by using the scan animal sampling method at 10-second intervals for 15 minutes and a specific ethogram. The percentage of each behavioural variable was calculated within each session. Besides, the diversity of behaviour patterns performed was calculated for each dog using the Shannon Diversity Index (H Index; Part et al., 2014). To evaluate construct validity, we analysed the correlation between Stress level (as score) and behavioural observations (as percentage of each behaviour) by using the Spearman coefficient ( $\rho$ ), while we used the Cohen's  $\kappa$  and Kendall's  $\tau$  tests to evaluate inter-observed reliability. Two independent testers evaluated five dogs simultaneously to determine the inter-rater reliability of the Stress level.

## Results and discussion

In this work, we analysed the validity of the qualitative behavioural evaluations during the capture of stray dogs by determining their inter-observer agreement and construct validity (Meagher, 2009). There was a reasonable inter-observer agreement between the two Testers who evaluated the same observational situation ( $\tau=0.490$ ;  $P<0.001$ ) suggesting that our score was reliable (Meagher, 2009). Moreover, the associations between the score given by the Tester and the behavioural observations were consistent ( $P<0.05$  for 6  $\rho$  coefficients), supporting the construct validity of the qualitative measurement. However, we did not find agreement between the score attributed by the Testers and ACO. Moreover, the score of the ACO was not associated in a meaningful way with any behaviour. We hypothesise that the ACO are not very familiar with the behavioural assessments and/or that the training received was insufficient. However, we must keep in mind that the assessments were made in different contexts: the capture phase and the pen. Moreover, behavioural reactions to an intense stressor depend on many factors, including the dog's personality and past experience, and the environmental context (Hiby et al., 2006; Protopopova, 2016; Rooney et al., 2007; Walker et al., 2016). It is therefore plausible that the same dog reacts differently to different stress stimuli, in relation to different factors. In conclusion, the qualitative assessment during the capture phase requires implementations and further investigations. However, our findings show that the behavioural assessment of shelter dogs can benefit from different points of view. In fact, the shelter staff can monitor the dog in diversified contexts, making more accurate the judgment on his adaptability.

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