Do you see the same cat that I see? Relationships between Qualitative Behaviour Assessment and indicators traditionally used to assess temperament in domestic cats

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Abstract

This study into the behaviour of domestic cats (Felis catus) aimed to assess the relationship between behavioural expressions obtained via the Qualitative Behaviour Assessment (QBA) and quantitative outcomes of temperament tests. Four behavioural tests were used: Unfamiliar person (UP); Novel object (NO); Conspecific reaction (CR); and Food offering (FO) tests. Tests were filmed and assessed using an ethogram that included 25 discrete behavioural categories, generating quantitative information (coding method) on the existing temperament dimensions. Videos were also assessed by another observer using the QBA method, based on a list of 20 adjectives rated in visual analogue scales (rating method). Data were analysed using Principal Component Analysis. Spearman’s rank correlation coefficients were used to relate the principal components (PC) of QBA to the temperament dimensions obtained with the coding method. The QBA allowed us to identify three PC, explaining 76.63% of the total variance. PC1 ranged from ‘calm/relaxed/friendly’ to ‘tense/fearful/alert’, reflecting the valence of cats’ behavioural and emotional expressions towards the stimuli tested. PC2 ranged from ‘indifferent’ to ‘agitated/active’, indicating the level of emotional arousal, and PC3 ranged from ‘aggressive’ to ‘suspicious’ and could be interpreted as an axis of ‘aggressiveness — caution’ in response to the stimuli. The first PC obtained for each test by using the coding method was significantly correlated with the PC1 of QBA, suggesting that the variations in cats’ behavioural and emotional expressions identified by QBA were correlated with the main quantitative outcomes of temperament tests traditionally applied for domestic cats. QBA could be a promising tool for identifying and differentiating cat temperament profiles. Further research is required to assess the potential use of QBA as a feasible and practical method for use in shelters.

Keywords: animal welfare, conspecific reaction test, food offering test, novel object test, personality, unfamiliar person test

Introduction

Temperament may be defined as inter-individual behavioural differences consistent over time and different contexts (also known as animal personality) (Réale et al 2007; Briffa & Weiss 2010; Stamps & Groothuis 2010; Hudson et al 2015). Animals’ behavioural responses in different contexts show several dimensions which, together, enable perception of their individuality (Mendl & Harcourt 2000). Temperament is expressed when animals find themselves in novel situations (Réale et al 2007). Thus, quantification of reactions to novel stimuli enables recognition of distinctive temperament profiles (Feaver et al 1986; Siegfard et al 2003). Considerable variation in terms and methodologies used to identify dimensions of temperament in companion animals makes comparative analysis of existing papers extremely challenging (Gartner & Weiss 2013). Highfill and collaborators (2010) classified two methodologies for the assessment of animal temperament: i) ‘rating methods’, characterised by the use of observers’ perceptions to describe animals’ emotional states using descriptive adjectives quantified via visual analogue or Likert scales; and ii) ‘coding methods’, whereby animal behaviour in either natural or experimental settings (such as standardised tests) is recorded using discrete behavioural categories in an ethogram (Highfill et al 2010).

The use of qualitative approaches to assess behaviour have become more prevalent following Wemelsfelder and collaborators (2001), who pioneered the concept of integrative assessment of the ‘whole animal’ as opposed to merely considering isolated behavioural elements. According to those authors, qualitative observation of animals enables subtle behavioural fluctuations beyond the powers of quan-