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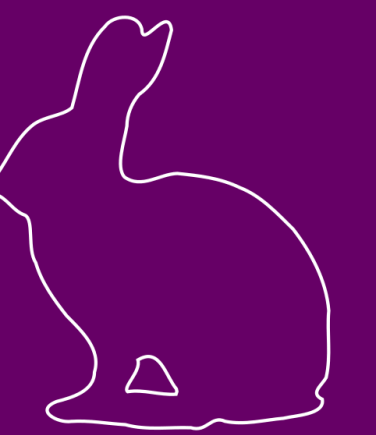
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Why and how should we assess pet rabbit personality?

Clare Frances Ellis, Wanda McCormick, Ambrose Tinarwo



Summary

There is a great deal of discussion around the use of the term personality in animal studies, with terms such as temperament and behavioural syndromes being used synonymously, in error. The term personality is used within this study to describe **individual differences that can be measured behaviourally and vary between individuals but remain stable across situations and over time for individuals**. A case is presented to highlight the need for further research regarding personality in pet rabbits (Figure 1) and then a selection of methods used for pet animal assessment are reviewed (Table 1). Finally, methodology are suggested for use with pet rabbits (Figure 2), specifically a bottom-up approach, and discussion on these methods is most welcome.

Table 1: Review of a selection of methods used to measure personality in pets, with some examples of tools.

Methods of animal personality assessment.	Advantages	Disadvantages	Example tools / studies and species used for.
Subjective trait descriptors Person familiar with the animal rates animals likeness to specified adjectives.	<ul style="list-style-type: none">Non-invasive.Quick in comparison to behavioural observations.Can cover a range of contexts.Potential for large sample size.	<ul style="list-style-type: none">Inconsistent language use and interpretation.Scores may be based on memories.Rater's interpretation of adjectives may differ.	<ul style="list-style-type: none">Cat owner ratings (Lee <i>et al.</i>, 2007). Owner ratings for likeness to 12 adjectives resulted in four components for 196 cats (following PCA[^] = 65.27% of variance).Dog Personality Questionnaire (Mirkó <i>et al.</i>, 2012). Owners completed the questionnaire for 284 dogs. Four components were identified including Stranger-directed sociability, Activity, Aggressiveness and Trainability (Following PCA[^] = 44.32% of variance).
Subjective behavioural rating scales Person familiar with animal rates animal's response to a variety of stimuli, based on knowledge of	<ul style="list-style-type: none">Non-invasive.Quick.Wider application to pet population, e.g. can collect data of animals in their homes.	<ul style="list-style-type: none">Scores based on memories.Influenced by rater relationship with animal.Some stimuli may not have been encountered.Standardisation challenges.	<ul style="list-style-type: none">Dog-ADHD rating scale (Vas <i>et al.</i>, 2007). A 13-item questionnaire completed by dog owners to assess attention skills, impulsivity and motor activity in 220 pet dogs.SAF Dog subjective rating (Wilsson and Sinn, 2012). One observer rated dogs following behaviour tests for 13 item subjective rating, on 1–5 scale, with 400 GSDs (part of the Swedish Armed Forces). Found moderate to strong correlations to behaviour rating of three traits, engagement, confidence and aggression.
Behaviour observations (coding or rating) in natural or experimental setting Animal's behaviour is quantified in response to a variety of stimuli.	<ul style="list-style-type: none">Behaviour explored may be highly relevant to species natural history.Specific aspects of behaviour can be explored, e.g. social aspects or aggression.Objective, less open to interpretation.	<ul style="list-style-type: none">Time consuming.Difficult to standardise across study groups.Users need to be trained.Behavioural responses may be interpreted incorrectly.Invasive and requires exposure of animal to stimuli that may cause fear / stress response.	<ul style="list-style-type: none">Dog Mentality Assessment (Svartberg and Forkman, 2002). Explored playful, social, exploratory, avoidant and aggressive traits in dogs. Tool originally developed for working dogs by the Swedish Working Dog Association.Feline Temperament Profile (Siegfried <i>et al.</i>, 2003). Assesses sociability, aggressiveness, and adaptability in 20 domestic cats pre and post adoption.Match-Up Behaviour Evaluation (Dowling-Guyer, <i>et al.</i>, 2011). Behaviour coding (presence or absence of set behaviours) in response to stimuli. Identified four components for 668 dogs (following PCA[^] = 45.3% of variance).ASPCA's Meet Your Match® Feline-ality™ (Weiss <i>et al.</i>, 2015 and Slater <i>et al.</i>, 2013). Assesses sociability and response to novel stimuli in cats in shelter setting.

Note: Each method requires validating and this is commonly done by utilising multiple methods initially. Not all of the above studies have been validated. Although behavioural observation methods may be preferable to animal behaviour and ethology scientists, these are not always practicable to the real world scenarios where these tools may be applied. Hence, these are sometimes used to validate other tools that are less resource intensive such as rating of behavioural response to specified contexts.

Why study personality in pet rabbits?

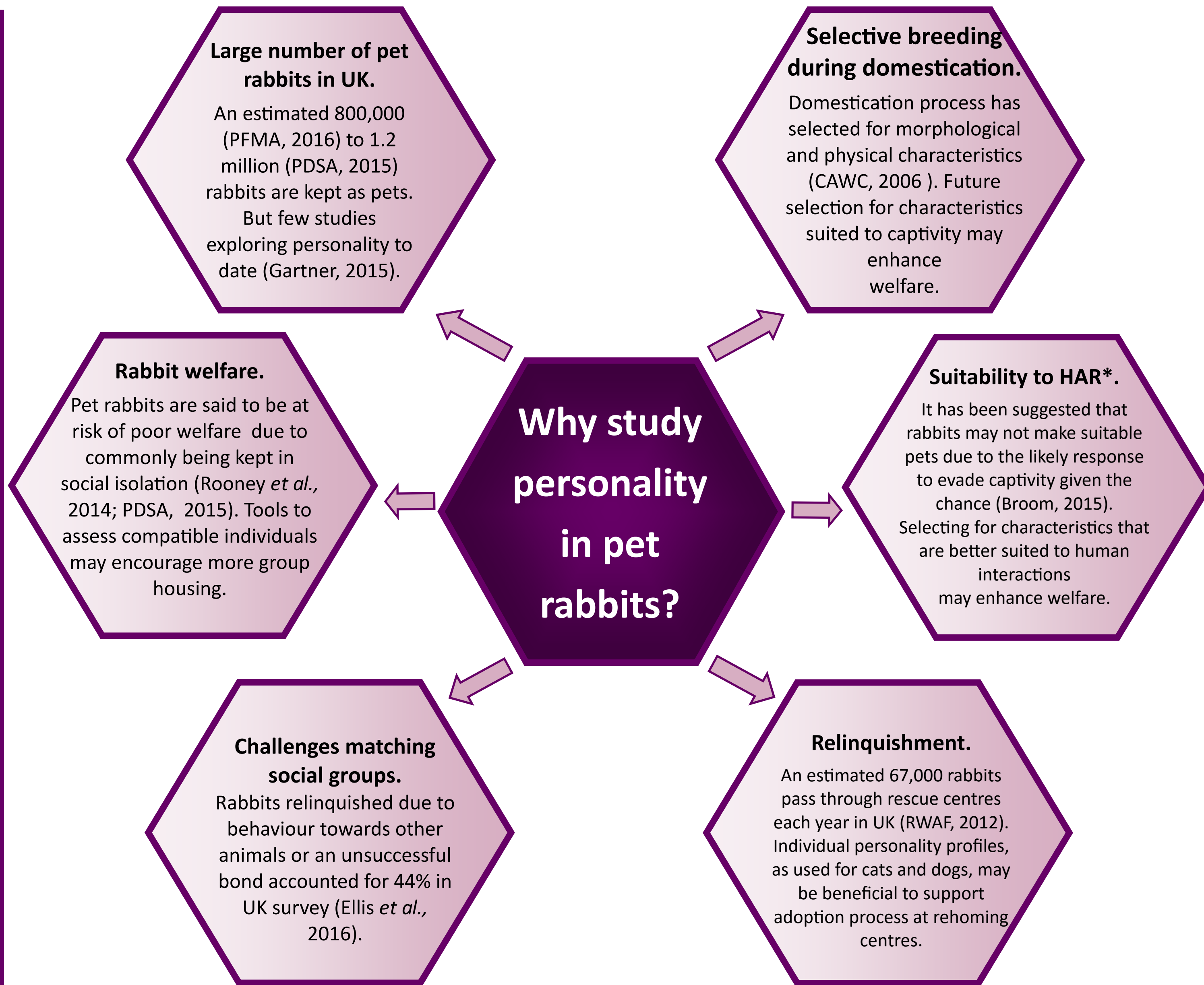


Figure 1: Suggested reasons for a need to explore individual differences in pet rabbits.

Review of pet personality assessment tools?

How could we assess personality in pet rabbits?

Behavioural repertoire

- Record all behaviours performed and conduct reductive analysis to look for any underlying components.
- Account for species specific characteristics.
- Natural setting observations, e.g. home cage.

Novel arena and exploration of novel resources

- Enables evaluation of responses to changes in the environment.
- Behavioural observations can quantify behaviours observed and these can be compared to the home cage setting.
- Account for species specific characteristics, based on species natural history i.e. foraging, exploiting new feeding areas and responses to predators.

How can we assess personality in pet rabbits?

- Considering the reasons for exploring rabbit personality (Figure 1), an objective approach is considered to be most appropriate. Specifically utilising bottom-up trait methodology in the first instance, attempting to identify personality traits that may exist in pet rabbits.
- This will enable the exploration of potential personality traits in rabbits in a way that may encourage a deeper consideration for the species and individual animals uniqueness, hence, more objective, bottom-up assessments are advocated (Uher, 2008).

Social interactions

- Account for potentially socially orientated characteristics.
- Natural setting observations and experimental observations, e.g. response to familiar and unfamiliar intra-specifics.
- May be beneficial to look for trends of personality types in bonded pairs, i.e. patterns for successful bonding.



Human-animal interactions

- Identify potential characteristics as a response to humans.
- Experimental observations, e.g. response to familiar and unfamiliar humans in common husbandry activities, such as handling.



Figure 2: Proposed methods for pet rabbit personality studies.

Discussion

- Many tools developed thus far for pet animal species have sought to explore the presence of specific personality traits. They have generally been developed as tools to predict the animal's future behaviour in terms of our human interactions with them.
- There is a need to explore personality in pets, specifically rabbits, more broadly so that the personalities that exist as a result natural selection pressures, and the domestication process as a by-product of selection for morphological / physiological traits, can be accounted for.
- Such studies may be beneficial in terms of exploring animal personality as a tool to enhance welfare of captive animals.

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*Human-Animal Relationship. An on-going interaction between a person and an animal.
^ Principal Component Analysis—reductive statistics

