



Review

Assessment of quality of life and chronic pain in dogs

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ABSTRACT

Assessment of chronic pain and quality of life (QOL) are integral to clinical veterinary research and practice, and recent years have seen an increase in the published tools available for the assessment of both. However, the relationship between chronic pain and QOL in veterinary patients has received insufficient attention. This narrative review for the first time explores similarities, differences and interactions between chronic pain and quality of life and identifies common challenges to their assessment in dogs. In the opinion of these authors, assessments of both chronic pain and quality of life should be pro-active, global, regular, applied to answer specific questions for researchers and decision makers, and transparent about what has, and has not, been assessed. Collaboration in this field between animal welfare scientists, veterinary researchers and clinicians appears rare, and should be prioritised.

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Introduction

The assessment and management of chronic pain and quality of life (QOL) in dogs are key aspects of clinical veterinary practice. Development and refinement of tools for such assessments is an active area of research in both animal welfare science and veterinary medicine, and publications span a wide range of journals. In the first half of this article, we will bring this research together by first summarising recent advances in our understanding and assessment of QOL and chronic pain in dogs and highlighting the important relationship between them. We will then go on to provide recommendations, drawing both on our personal experience and the current literature, for how quality of life and chronic pain should be assessed.

Chronic pain, QOL and their relationship

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (IASP, 2017).¹ Pain may be classified in a range of ways according to its duration (acute, chronic or intermittent), anatomic origin (somatic, visceral or neuropathic) and severity (mild, moderate, severe, excruciating) (Fan, 2014). Chronic pain typically refers to pain with a duration of greater than

three months (WSAVA Global Pain Council, 2013)² which persists beyond healing or where healing does not occur. However, this distinction between acute and chronic does not represent a strict dichotomy as the time of onset may be unknown. In addition, acute pain states may be chronically present in situations of poor husbandry such as where a tooth root abscess or distichiasis are left untreated.

Chronic pain does not appear to serve any function (except perhaps minimising further injury where healing has not occurred) and may be very difficult to recognise behaviourally. Signs of chronic pain in dogs are often subtle and responses to chronic pain may be highly individual. Reported signs include: a more withdrawn demeanour; reduced sociability and play; altered posture; gait changes including stiffness, lameness or stumbling; hesitation, reluctance or refusal to perform activities such as jumping into a car; and reduced general activity levels, compared to what is normal for that dog (Sharkey, 2013; WSAVA Global Pain Council, 2013²; Bell et al., 2014; Fan, 2014; Frank, 2014; Epstein et al., 2015; Reid et al., 2018). The number of canine veterinary patients affected by chronic pain is not known, but the annual period prevalence of diagnosed canine osteoarthritis alone is estimated to be around 2.5% of dogs in the United Kingdom (Anderson et al., 2018).

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E-mail address: James.yeates@rspca.org.uk (J. Yeates).¹ See: IASP Taxonomy. <https://www.iasp-pain.org/Taxonomy> (accessed 8 September 2017).² See: WSAVA Global Pain Council Guidelines for recognition, assessment and treatment of pain. http://www.wsava.org/WSAVA/media/PDF_old/jsap_0.pdf (accessed 30 June 2018).

In contrast to pain, QOL is a construct which has no physiological basis or specific behavioural signs; instead it is a composite evaluation of multiple interacting factors, both intrinsic and extrinsic to a single individual. The World Health Organisation³ define quality of life as “the individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”. Each person determines what is important in their lives and what constitutes a “good QOL” for them; this may change over time (Farquhar, 1995). As such, QOL is highly personal, and this provides clear challenges for its assessment in non-human species (Belshaw, 2018). Veterinary patients may not construct a conscious concept of QOL, but their lives still have value, and we need to construct the concept that we are trying to assess.

Many definitions for QOL in animals have been proposed by animal welfare scientists, ethicists, veterinary surgeons and owners, though the term often goes undefined in publications where it is measured (Belshaw et al., 2015). No single definition has yet been widely adopted but most include recognition of the individual nature of quality of life (for example definitions see McMillan, 2000; Wojciechowska et al., 2005; McMillan, 2008; Belshaw, 2018). Converting such definitions into tangible assessment methods remains challenging, and it has been argued that some existing definitions might lead to “inappropriate anthropomorphic projections” (Green and Mellor, 2011). Quality of life may also be used as a synonym for welfare, and it has been argued (e.g. Broom, 2007) that they are one and the same.

For the purpose of this review, quality of life (QOL) broadly represents the aspects of an animal’s life that make that life better or worse for that specific animal. This is distinct from health-related QOL (HR-QOL) which considers only the implications on quality of life of specific, identified health problems (see Reid et al., 2018 for a recent review) and may encourage a narrow focus on health as the only potential cause of observed behavioural changes. In a similar way to distinguishing between types of pain, acute and chronic differentiation may also be useful when considering a dog’s QOL. Acute poor welfare states, (including pain, fear and frustration) may help an animal avoid, cope with, or improve its condition and may have little impact on their overall QOL. In contrast, chronically poor welfare states may significantly impact QOL. Furthermore, like chronic pain, poor QOL may persist beyond the chance of improvements or where such improvements do not occur, does not appear to serve any beneficial function, and lacks sensitive or specific behavioural markers.

Chronic pain and QOL are inextricably linked. Increases in exercise, improvements in lifestyle and social enrichment may positively impact perceptions of chronic pain in both people and rodent models (Bushnell et al., 2015). Such interventions have yet to be explored in veterinary medicine but could provide an important non-pharmacological route to help the animals in our care. Links between contributors to QOL including psychosocial distress (Edwards et al., 2016), the environment (Bushnell et al., 2015) and the development and maintenance of chronic pain in human patients have recently been reviewed; this relationship has yet to be extensively explored in the veterinary literature. Chronic pain may be a significant contributor to an animal’s QOL, alongside other feelings such as fear, frustration, pleasure and anticipation. It may affect mood, and these moods might further affect experiences of anxiety and/or reduce capacity for pleasure (Yeates and Main, 2008). In humans, chronic pain may effectively

constitute QOL because the pain cannot be outweighed by other feelings or satisfied motivations (Ohman et al., 2003). Less directly, chronic pain may affect an animal’s motivations and behaviour, including their interactions with food (e.g. loss of appetite), their environment (e.g. reduced exercise), humans and other animals (e.g. pain-related aggression, withdrawal), or their own health (e.g. self-harm or reduced hygiene behaviour). These changes in behaviour may also affect the care that they are given, and how other animals interact with them, further detrimentally impacting their QOL.

Recognising chronic pain in dogs

Chronic pain is typically recognised through a change in a dog’s behaviour in response to a specific stimulus, which may include changes in posture, temperament, vocalisation and/or movement (Morton and Griffiths, 1985). These behavioural signs of chronic pain displayed can be subtle, non-specific, intermittent and may vary depending on the origin, duration and severity of the pain. For example, dogs with chronic osteoarthritic pain may show lameness, stiffness, reluctance to walk and a reduction in playfulness (e.g. Walton et al., 2013; Brown, 2014; Belshaw, 2017⁴) whilst dogs with neuropathic pain due to Chiari malformation may show increased scratching and cutaneous hypersensitivity (Rusbridge et al., 2006), and excessive licking of inanimate objects may be displayed by some dogs with abdominal pain (Becuwe-Bonnet et al., 2012).

Adding to the complexity, dogs may perform a particular behavioural response to a stimulus for myriad reasons; behavioural signs of anxiety and chronic pain may be particularly difficult to distinguish (Frank, 2014). Responses may vary due to environmental factors (e.g. the visual, auditory, thermal, physical and olfactory environment) – just within a veterinary clinic, there are at least 85 different factors that might affect each animal’s welfare (Dawson et al., 2016). Responses might also vary due to individual factors. Impacts of personality (Harvey et al., 2015), preferences (Carballo et al., 2015), previous experiences (Wemelsfelder, 2007) and predispositions (Starling et al., 2013) have been described in relation to behaviour. These may have significant impacts on clinical assessment (Hansen, 2003). For example, animals experiencing hyperalgesia may find a minor injury more painful than those that do not have this condition (Rialland et al., 2014), or may find hospitalisation more distressing. For these reasons, chronic pain assessment may require a good knowledge of how each individual dog under assessment usually behaves under specific conditions.

Recognising good and bad quality of life in dogs

Whilst chronic pain may be either present or absent, QOL is much less tangible. It is not an anatomical, physiological or pharmacological state; rather, it is a matter of how internal and external conditions are perceived by that individual animal, or how it “feels”. We might consider that QOL is something that can be evaluated in any dog at any point in time, but since it is an artificial construct, it does not exist unless that evaluation is made. As such, QOL cannot be mis-diagnosed by a clinician in the same way that one might erroneously associate licking of inanimate objects in an individual with pica or play rather than chronic pain, or vice versa because there is no way to determine for sure whether we are right. We must acknowledge that in assessing QOL we are only ever

³ See: WHOQOL-BREF: Introduction, Administration, Scoring and Generic Version of the Assessment. http://www.who.int/mental_health/media/en/76.pdf (accessed 16 February 2018).

⁴ See: Belshaw, Z. Decision making and welfare assessment in canine osteoarthritis PhD thesis University of Nottingham, UK. <http://eprints.nottingham.ac.uk/42077/> (accessed 16 February 2018).

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