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Evaluation of Quality of Life in Dogs with Idiopathic Epilepsy

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Background: The impact of epilepsy and its treatment on the quality of life (QoL) is considered an important part of treatment supervision in human epilepsy.

Objectives: To develop a list of key questions evaluating QoL in dogs with idiopathic epilepsy (IE) and their carers.

Animals: One hundred fifty-nine dogs with IE.

Methods: Cross-sectional study. An online project questionnaire was developed containing 90 QoL-associated questions that were initially allocated to 14 themes representing specific areas associated with the treatment and care of an epileptic dog. Principal component analysis was applied with the aim of refining the questionnaire to the least number of questions representing useful themes without loss of descriptive value. Carers were recruited by paper mail, primary practices, and canine epilepsy websites. Data were acquired from January to November 2011.

Results: Principal component analysis removed 54 questions, leaving 7 themes with 36 questions with a minimum Cronbach's alpha value of 0.7 indicating a good internal consistency: "Seizure severity and frequency", "Adverse effects of antiepileptic drug (AED)", "Restrictions on the carer's life", "Frustrations over caring for a dog with IE", "Carer distaste of AED adverse effects", "Carer anxiety around the seizure event", "Perceptions on rectal diazepam use".

Conclusions and Clinical Importance: Principal component analysis successfully reduced the number of questions without loss in descriptive value. The remaining questions correlate well with each other in capturing valuable details about aspects of QoL and represent valuable key questions (EpiQoL) in the assessment of QoL for the carers of dogs with IE.

Key words: Comorbidity; Seizures; Welfare.

The World Health Organization (WHO) has defined health-related quality of life (QoL) as encompassing physical, social, and neurobehavioral domains of health as perceived by the patient[1] and the QoL aspect is considered an important aspect of the success of treatment and supervision in humans.[2,3] The physical and behavioral impacts of idiopathic epilepsy (IE) and its treatment on dogs are well established,[4,5] yet its impact on the perceived QoL is unclear. Studies of epilepsy in dogs have indicated that the QoL of their pet was an important aspect of treatment success for carers and moreover, that epilepsy in dogs affects the carer's and the dog's QoL.[4] Similar to studies of human epilepsy, a recent study of IE in dogs included a QoL questionnaire in the assessment of treatment success of an antiepileptic drug (AED) and identified AED-dependent QoL scores.[5]

The aim of this prospective study was to develop a disease-specific QoL list of key questions (EpiQoL) for the carers of dogs with IE based on the multidimensional aspects of QoL as defined by the WHO into physical, social, and neurobehavioral domain adapted for IE in dogs. A project questionnaire was designed to enquire into a broad range of aspects affected by IE with a variety of questions, and the study analyzed the response with the aim of reducing the question number through principal component analysis (PCA) to achieve a reliable and easy-to-use list of key questions to recommend for future use.

Abbreviations:

AED	antiepileptic drug
EpiQoL	epilepsy disease-specific quality of life list of key questions
IE	idiopathic epilepsy
PCA	principal component analysis
QoL	quality of life
WHO	World Health Organization

Material and Methods

Project Questionnaire Design

A trial questionnaire was designed with questions that were considered relevant for carers of dogs with IE. Questions were created based on the experience of veterinary specialists, published questionnaires for dogs[4] and from adults and adolescents with epilepsy (http://www.epilepsy.com/pdfs/qolie_ad_48.pdf; http://professionals.epilepsy.com/pdfs/qolie_31.pdf). The trial questionnaire was evaluated by 2 panels, initially by 9 informed veterinary surgeons, and subsequently by 8 informed carers of epileptic dogs. Feedback about the appropriateness of the questions was used to modify the project questionnaire.

Project Questionnaire Description

The first section consisted of 90 close-ended QoL-associated questions that targeted specific QoL areas potentially affected by IE in dogs. All questions used an interval rating (Likert-type scale, 1–5 [n = 88], 1–7 [n = 2]). The second section included 29

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Table 1. Final QoL-associated questionnaire showing 7 themes with Cronbach's alpha values above 0.7 indicating a good internal consistency and reliability.

QoL-Associated Questionnaire Themes and Questions	Cronbach's Alpha per Theme (scale dimension per question)
1. Seizure severity and frequency	***CA: 0.85***
1. In the last 3 months, the frequency of the fits in my dog was acceptable	1–5 (strongly agree–strongly disagree)
2. In the last 3 months, the severity of the fits in my dog was acceptable	
3. In the last 3 months, overall, the fits in my dog are managed successfully	
4. Overall, how severe were your dog's fits in the past 3 months?	1–7 (very mild–very severe)
2. Adverse effects of AED	***CA: 0.77***
1. In the past 3 months, the adverse effects of the medication to control the fits in my dog were acceptable	1–5 (strongly agree–strongly disagree)
In the past 3 months, how severe was the following adverse effect:	1–5[a] (very mild–very severe)
2. Eating more/would like to eat more	
3. Gaining weight	
4. Drinking more	
5. Urinating more	
6. Sleeping more than before	
7. Wobbly/not coordinated when walking	
8. Restlessness/pacing	
9. Itchiness or skin rash	
10. Vomiting	
11. Diarrhea	
12. Coughing	
6. Restrictions on the carer's life (related to caring for a dog with IE)	***CA: 0.71***
1. In the past 3 months, how often did you feel that your dog's epilepsy caused conflict with your work, education, or day-to-day activities?	1–5 (never–very often)
2. In the past 3 months, how often did you feel that your dog's epilepsy limited your social life?	
3. In the past 3 months, how often did you feel that your dog's epilepsy limited your independence?	
8. Frustrations over caring for a dog with IE	***CA: 0.93***
1. My limitations in work, education or day-to-day activities because of my dog's fits	1–5 (not at all bothersome–extremely bothersome)
2. My social limitations because of my dog's fits	
3. Overall, the limitations on my life caring for my epileptic dog	
9. Owner distaste of AED adverse effects	***CA: 0.79***
1. How bothersome are the physical effects of the medication on my dog?	1–5[b] (not at all bothersome–extremely bothersome)
2. How bothersome are the mental effects of the medication on my dog?	
In the past 3 months, how much did you dislike the following adverse effects:	1–5[a] (not at all–a lot)
3. Eating more/would like to eat more	
4. Gaining weight	
5. Drinking more	
6. Urinating more	
7. Sleeping more than before	
8. Wobbly/not coordinated when walking	
9. Restlessness/pacing	
10. Coughing	
10. Carer anxiety around the seizure event (and its effects on the dog)	***CA: 0.89***
1. In the last 3 months, I worried about the frequency of the fits in my dog	1–5 (strongly disagree–strongly agree)
2. In the last 3 months, I worried about the severity of the fits in my dog	
12. Perceptions of rectal diazepam use	***CA: 0.78***
1. Have you ever been uncertain when to give rectal diazepam?	1–5[b] (never–always)
2. Have you ever been worried how much or how often you are supposed to give rectal diazepam	

CA, Cronbach's alpha; IE, idiopathic epilepsy.
[a]Additional tick box: adverse effect not present.
[b]Additional tick box: not applicable.

epileptic dog, themes 6 and 8 characterizing the social domain of a carer, and themes 8–10, and 12 characterizing the neurobehavioral domain of the carer responsible for an epileptic dog.

Discussion

This study has developed a disease-specific carer-based list of key questions for collecting data on a

Footnote

[a] Minitab Ltd, Coventry, UK

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table S1. Questionnaire items investigating the perception of the participant on aspects affected by epilepsy in dogs.