

ARE COMPANION ANIMAL LUNATICS?

THE EFFECT OF THE FULL MOON ON SEIZURE CASELOAD PRESENTING TO UK EMERGENCY VETERINARY CLINICS

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Introduction

Popular culture including Hollywood has led many owners to believe that seizure activity is related to the lunar cycle. Even qualified veterinary staff will comment on an increased caseload of certain presentations with the words "It must be a full moon tonight". Seizures occur with unpredictable frequency and can cause anxiety to pet owners. Furthermore, treatment of severe seizures can require intensive and labour intensive care; if seizures do occur more frequently at certain stages of the lunar cycle this may help inform staffing levels and owner education.

Previous retrospective studies on cases presenting to human Accident and Emergency departments in hospitals show an increased caseload of seizures and psychiatric disorders presenting during a full moon. Single site studies in the veterinary literature have showed mixed results. This is the first time the UK population has been studied over a large geographic area and over such a prolonged time period to assess the effect of the lunar cycle on emergency veterinary clinic caseload with regard to seizures.

Materials and methods

The patient population in this study is drawn from 50 out-of-hours clinics located throughout the United Kingdom in a variety of urban/suburban locations. Each clinic sees patients from a secondary network of daytime first opinion veterinary practices located within an approximately 30-minute radius from the base clinic. All patients are evaluated by a veterinary surgeon. The clinics all use a proprietary practice management system (Helix®) which is a web-based application built with industry standard .NET programming tools on a Microsoft Structured Query Language (SQL) database. Data queries were obtained through an Open Database Connectivity connection to a dedicated reporting server

The patient database was queried to retrieve information regarding all patients attending an out-of-hours clinic in an 18 month period (21st May 2012 – 22nd January 2014); this found 81241 records for dogs and 38020 cats. Records included patient data (age, breed, and sex and neutering status), date of initial presentation, VeNom Presenting Complaint and VeNom Primary Diagnosis. VeNom coding for Presenting Complaint was inherent in the dataset, as determined by the attending veterinary surgeon. A query for cases with the Presenting Complaint "Seizures" produced 3867 cases which were included in the case series.

Lunar data from NASA was used to identify full moon and new moon dates^[1], with average lunar size calculated for all dates in between. The date of initial presentation for each case was compared to the astronomical data to assign each case a lunar fullness percentage. No distinction was made between the waxing and waning phases though events such as lunar or solar eclipses were recorded.

Data was analysed using a proprietary statistics program ("GraphPad InStat 3"). Fisher's Exact test was used for calculating significance of binary form (frequency of seizures on full moon days compared to non-full moon days). Chi Squared Test was utilised to analysis data in deciles of lunar visibility. Waxing and waning phases were not distinguished. Binary analysis was also attempted for unusual celestial events such as eclipses but yielded few cases.

References

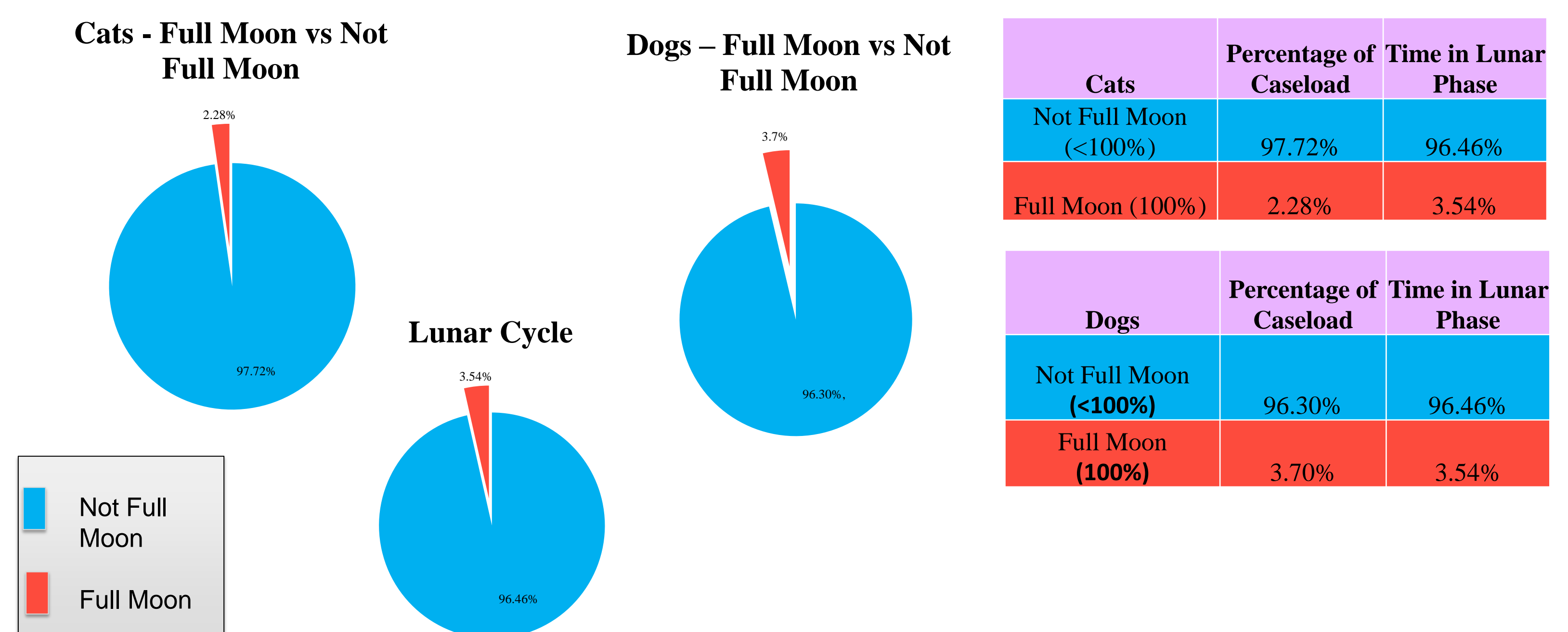
- Moon Phase Predictions by Fred Espenak, NASA/GSFC <http://eclipse.gsfc.nasa.gov/phase/phase2/001gmt.html>
- Polychronopoulos P, Argyriou AA, et al. Lunar phases and seizure occurrence: just an ancient legend? *Neurology*. 2006 May 9;66(9):1442-3.
- Benbadis SR¹, Chang S, et al. The influence of the full moon on seizure frequency: myth or reality? *Epilepsy Behav*. 2004 Aug;5(4):596-7.
- Browand-Stainback L¹, Levesque D, McBee M. Canine and feline epileptic seizures and the lunar cycle: 2,507 seizures (2000-2008). *J Am Anim Hosp Assoc*. 2011 Sep-Oct;47(5):324-8.

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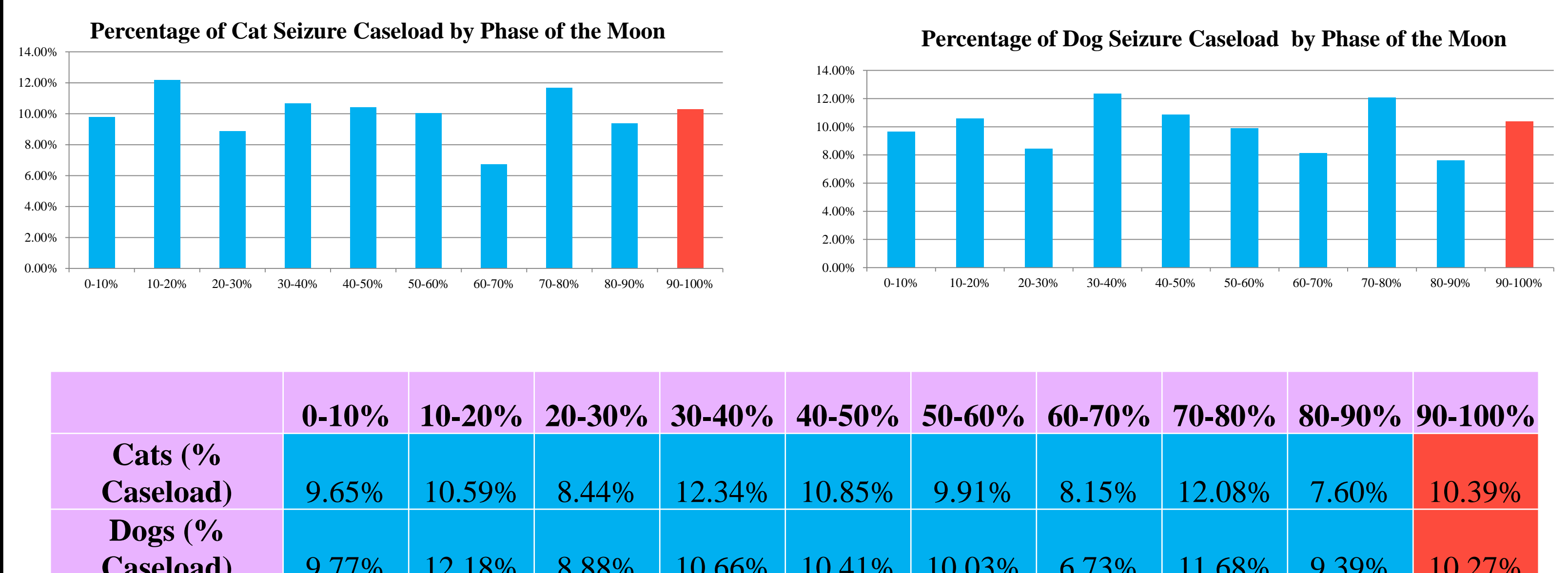
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Results

3079 records of dogs and 788 records of cats had the presenting complaint 'Seizures', of which 114 dogs and 18 cats presented during a full moon. No statistically significant variation in caseload was found between full moon nights and other nights for dogs (P=0.8383) or cats (p=0.1775).



No significant difference between frequency of cases and lunar visibility was found when examining the data in deciles.



Discussion

All of the cases included in the study have been seen by a veterinary surgeon who determined that the animal has the presenting complaint 'seizures' rather than syncope or other presentations which may mimic a seizure. However, VeNom coding for Presenting Complaint is not a compulsory part of the clinical record; 4% of records in the database are not coded with a Presenting Complaint and there may be clinically relevant cases which are not found by the data query. 3867 cases still represents a large majority patient population so this error was not felt to affect data validity. Conversely, only approximately 10% of the records contained a VeNom diagnosis, so this data was not analysed further.

It is likely that the data represents patients with new, unusual or severe seizure activity (for example patient not previously known to seizure, cluster seizures) as many clients will manage a single isolated seizure in a patient that has previously seized in the home environment. Due to the way the data is coded in the database, the entries do not distinguish between single or multiple seizures, or the same animal presenting multiple times with the presenting complaint "seizures".

Although astronomical events including lunar and solar eclipses were examined, it was felt that the small number of cases made it difficult to draw significant conclusions.

Conclusion

This study does not find any significant impact of either the full moon day or the fullness of the moon over the lunar cycle on presentation to veterinary emergency clinics with seizures. This addresses a commonly held belief among staff and clients, and may support staff addressing owner concerns about risk factors for seizure occurrence.

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