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1 **Short communication**

2 **Veterinary services during the COVID pandemic: less stressful for cats**
3 **and their carers?**

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13 **Keywords:** behaviour; stress; primary care practice; consultations; COVID

14

15 **Abstract**

16 **Objectives**

17 The COVID-19 pandemic saw major changes to small animal veterinary practice, many of which
18 may have had an impact on stress in cats presented to the clinic. The aim of this study was to
19 examine the nature of feline outpatient visits before and during the pandemic, and examine
20 signs of stress noted in cats before, during and after these visits.

21 **Methods**

22 A questionnaire was used to gather data on cat owner experiences of visits to the veterinary
23 clinic. Data were gathered on the owner's most recent experience of a consultation, with
24 consultations occurring in February 2020 or earlier coded as a standard consultation, and
25 consultations occurring in March 2020 or later coded as COVID consultations.

26 **Results**

27 A total of 371 responses were received, with 210 coded as standard consultations and 161
28 coded as COVID consultations. Consultation type varied significantly between standard and
29 COVID consultations ($p < 0.001$) with emergency consultations more frequent and preventative
30 healthcare consultations less frequent during COVID. Area in which the owner and their cat
31 waited also varied significantly between standard and COVID consultations ($p < 0.001$), with
32 standard consultations more likely to involve time in a waiting room while COVID consultations
33 were often called straight in or waited outside of the practice. Most owners noticed behaviours

34 associated with stress in their cats, regardless of consultation type, though trying to hide or
35 escape were noted more frequently for cats seen prior to COVID.

36 Conclusions and relevance

37 The findings suggest that outpatient visits to the veterinary clinic are stressful for cats both
38 prior to and during COVID, but some measures taken during COVID e.g. less use of waiting
39 rooms, could be used alongside existing cat-friendly measures to help to reduce stress in feline
40 patients.

41

42 **Introduction**

43 The initial months of the COVID-19 pandemic saw various major changes in small animal
44 veterinary practice, including the increased use of Personal Protective Equipment¹; a switch to
45 increased use of telemedicine and remote prescribing; changes in the approach to routine
46 procedures such as vaccination and neutering; limiting client contact to urgent, emergent or
47 emergency situations; and changes in access to indoor areas of the clinic for clients²⁻⁴. This may
48 have led to changes in sources of stress for cats being presented to the clinic during the
49 pandemic.

50 The Happy Cats survey was set up to identify important sources of stress for cats before, during
51 and after outpatient visits to the veterinary clinic, and highlight measures which may be
52 effective in addressing these sources of stress. As the survey was developed just prior to the
53 start of the pandemic, the data collection period provided an opportunity to examine
54 differences in potential sources of stress for cats presented to the clinic before and during the
55 pandemic.

56 The aim of this study was to examine differences in the nature of feline outpatient visits before
57 and during the COVID-19 pandemic, and to examine signs of stress noted in these cats before,
58 during and after their visit. Given the potentially quieter, less populous clinics, and reduced use
59 of waiting rooms, it was hypothesised that cats presented during COVID would show fewer
60 signs of stress.

61 **Materials and methods**

62 The target population for the questionnaire was cat owners or carers with recent experience of
63 a veterinary consultation. Respondents could take part from anywhere in the world, had to be
64 at least 18 years old and could only complete one questionnaire per household. The
65 questionnaire (see supplementary material) was made up of 51 questions taking a variety of
66 forms including numerical score, multiple choice and free text boxes. Questions around cat
67 behaviours associated with stress were developed through discussion and consensus among
68 authors (SC, RD and DGM) based on their experiences and insights, and supported by the
69 literature⁵. The final questionnaire was hosted on the Vet Professionals website in full
70 compliance with General Data Protection Regulation (GDPR) (EU) 109 2016/679. The
71 questionnaire ran from 24th March to 1st July 2020. An invitation to complete the relevant
72 survey was emailed to cat owners on the Vet Professionals database, promoted on social media
73 (e.g. Facebook and Twitter), promoted by relevant organisations (e.g. International Cat Care,
74 Cats Protection) and snowball sampling was also conducted.

75 Data collected from the survey were collated and stored using FormSite (Vroman Systems)
76 before downloading to Microsoft Excel for data processing and descriptive analysis. Responses
77 were excluded if: participants had not proceeded past the consent page; participants had only
78 answered the demographics section/had not answered at least one question about their
79 experience of visiting the clinic. Demographic data and responses to questions about the
80 owner's most recent experience of attending the clinic with their cat are considered in this
81 manuscript. Other sections of the questionnaire have been submitted for publication
82 separately. Consultations which took place during February 2020 or earlier were coded as
83 standard consultations, while consultations which took place during March 2020 or later were

84 coded as COVID consultations. Percentages were generated for categorical variables, while for
85 non-parametric continuous variables such as patient age, median and interquartile range (IQR)
86 were generated. Chi-square analysis was conducted in SPSS Version 28 (IBM) to compare
87 categorical variables such as consultation type or waiting area between standard and COVID
88 consultations. For Chi-square analysis, consultation type categories were condensed down into:
89 Emergency (in or out-of-hours); Illness (short or long-term); Admit for surgery; Preventative
90 Healthcare; and Other.

91 Approval was obtained from the Human Ethical Review Committee (HERC) at the Royal (Dick)
92 School of Veterinary Studies, The University of Edinburgh for the collection of data through an
93 online questionnaire of cat owners, and subsequent analysis of this data (approved 21st March
94 2020, reference: HERC_483_20).

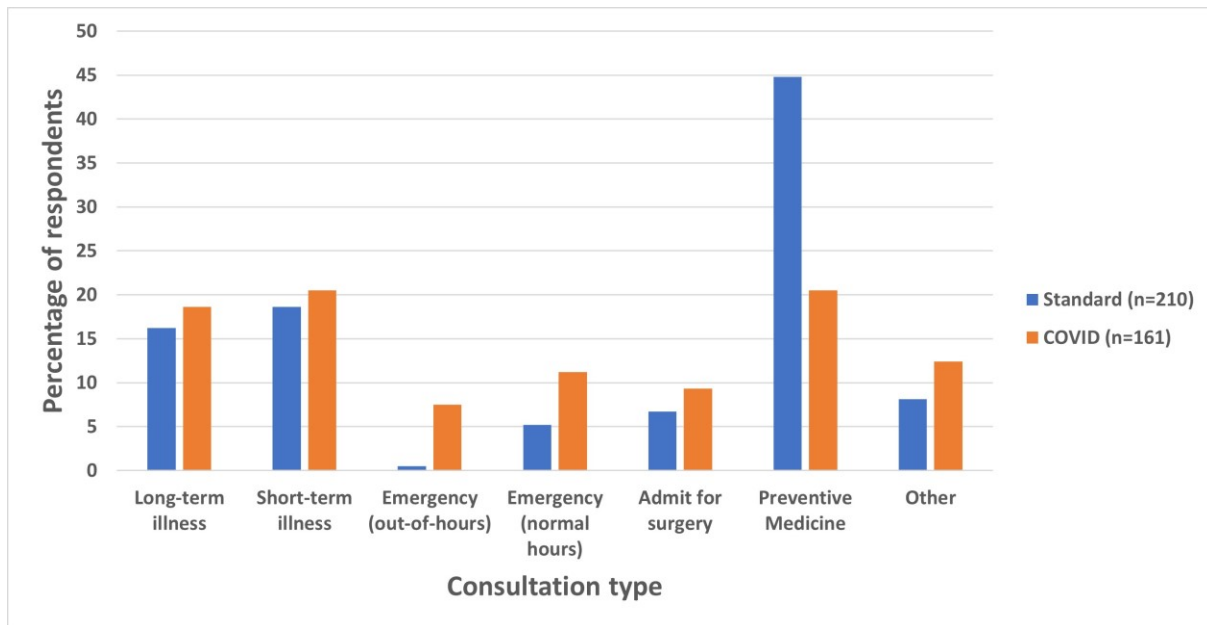
95 **Results**

96 Demographics

97 There were a total of 371 responses to the questionnaire. Most respondents (n=273; 73.6%)
98 were from the UK, 44 (11.9%) were from the US, 11 (3.0%) were from Ireland and 19 other
99 countries were represented (all less than n=10 each). A total of 210 responses were about
100 'standard' consultations while 161 responses were about 'COVID' consultations. The cats
101 presented for consultation were comparable in age between standard and COVID
102 consultations, with both having a median age of 7 years (IQR 3-12 years).

103 Purpose of the visit

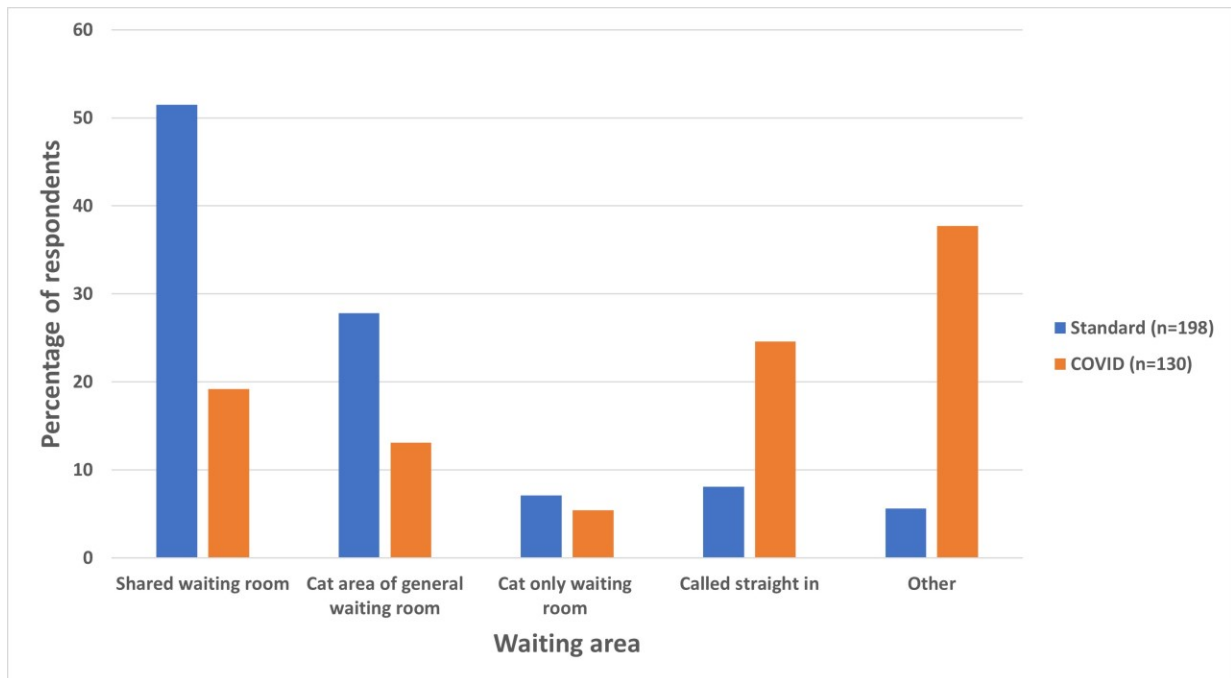
104 COVID consultations were more frequently for an emergency (either out-of-hours or during
105 normal hours) and less frequently for preventative medicine than standard consultations
106 (Figure 1). Consultation type varied significantly between COVID and standard consultations (X^2
107 = 32.115, (4 degrees freedom, n=371) $p < 0.001$).



108

109 Waiting room

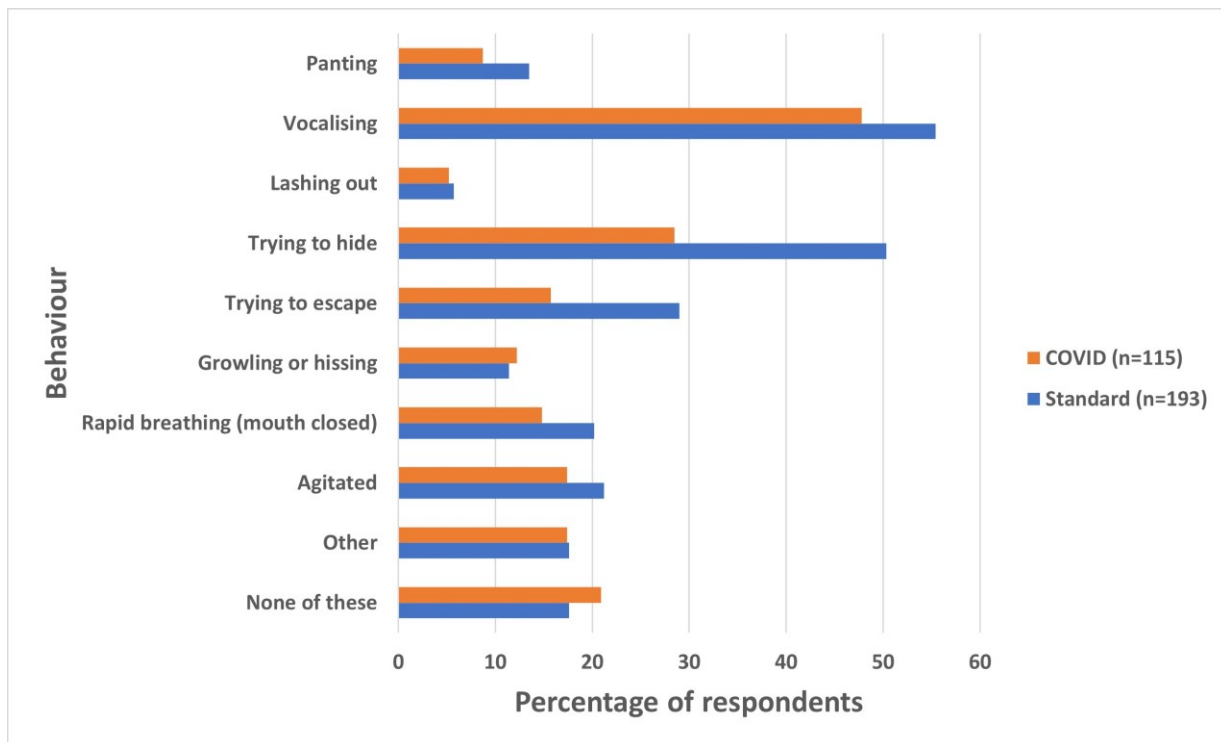
110 Standard consultations more frequently involved the patient waiting in a shared waiting room
111 or a cat-only area of the general waiting room, while COVID consultations more frequently
112 involved the patient being called straight in or an 'other' option being selected (Figure 2) ($X^2 =$
113 88.166 (4 degrees freedom, n=328) $p < 0.001$). Most of those selecting 'other' waited outside the
114 practice e.g. in their car or in the car park.



115

116 Behaviour

117 Most owners recognised at least one behaviour associated with stress in their cat before,
 118 during or after the visit (covering the time period from getting the cat into their carrier right
 119 through to their behaviour for the rest of the day at home after the consultation). Some
 120 behaviours, such as trying to escape or hide, were noted more frequently for standard than for
 121 COVID consultations (Figure 3).



122

123 **Discussion**

124 The results highlight differences in the nature of consultations before the pandemic and in the
 125 early months of the pandemic. The occurrence of less preventative medicine and more
 126 emergency appointments during COVID times might generally be expected to be associated
 127 with higher stress levels for cats and owners presenting to the veterinary clinic, due to the cats
 128 being unwell. However, the findings highlight changes in procedure during COVID, such as less
 129 use of the waiting room, with more being called straight in or waiting outside, which may have
 130 had a positive impact on cat stress. Additional findings from this survey will be reported
 131 separately (Caney SMA, Robinson NJ, Gunn-Moore DA & Dean, RS, unpublished data) and found
 132 that owners rated various aspects of the waiting room experience, such as length of wait and
 133 presence of other people and animals, as stressful for their cats. This raises the question of
 134 whether some measures introduced during COVID, for example cat owners waiting outside on

135 in the car until the consultation itself, could be beneficial in reducing cat stress, particularly in
136 practices where the provision of other cat friendly measures, e.g. a cat-only waiting room or
137 area⁶, is not feasible. Increased use of telemedicine alongside face-to-face appointments may
138 be another change worth retaining post-pandemic, with recent findings suggesting that both
139 veterinary professionals and owners viewed reduced stress for their cat to be the biggest
140 advantage of telemedicine⁷.

141 Despite the differences in the nature of and procedures surrounding consultations, the majority
142 of owners noted at least one behaviour associated with stress during their visit to the
143 veterinary clinic. Many of the owners presenting their cat during COVID may not have been
144 present in the consultation itself due to changes in procedure during the pandemic, which may
145 explain why behaviours easier to observe with the cat out of it's carrier, e.g. 'trying to hide' and
146 'trying to escape', were noted less frequently by these owners. The finding that most of these
147 owners noted other signs of stress in their cat during the lead up to and after the consultation
148 highlights that it is not simply the consultation itself which is a source of stress. The importance
149 of reducing stress in cats requiring veterinary attention has been highlighted by another recent
150 study⁸, and should focus on all stages of the visit including: whether the visit should be face-to-
151 face or virtual; how owners can help make travel less stressful for their cat; the waiting room
152 experience; and the consultation itself.

153 One limitation of this study is that it was planned before the pandemic, and so questions were
154 not tailored to asking owners about their experience in light of changes in procedure due to
155 COVID, and no data was gathered on the COVID restrictions in place for that consultation, with
156 these varying considerably between practices. Questions in the survey which asked about the

157 consultation itself, for example perceived stress rating, method of removal from carrier, and
158 scruffing, could not be included as the owner was mostly not present in the consultation room
159 during COVID. In addition, the use of March 2020 onwards as a cut-off may not have been an
160 accurate reflection of when changes in procedure took place, with some COVID-related
161 precautions introduced sooner than others.

162 **Conclusions**

163 Visits to the veterinary clinic occurring both before and during the pandemic are a source of
164 stress, but some measures taken during COVID e.g. less use of waiting rooms, could be useful
165 for reducing cat stress in the future alongside other measures.

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169 **Conflict of Interest**

170 The authors declared no potential conflicts of interest with respect to the research, authorship,
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177 **Ethical Approval**

178 This work did not involve the use of animals and therefore ethical approval was not specifically
179 required for publication in JFMS. Although not required, where ethical approval was still
180 obtained, it is stated in the manuscript.

181 **Informed consent**

182 This work did not involve the use of animals (including cadavers) and therefore informed
183 consent was not required. No animals or people are identifiable within this publication, and
184 therefore additional informed consent for publication was not required.

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