

1 **Feline behavior problems in Brazil: a review of 155 referral cases**

2

3

4

5

6

7

8

9

10 **Ramos, D.¹; Reche-Junior, A.²; Hirai, Y.²; Mills, D S³.**

11

12

13

14

15

16

17

18

19 1 – Psicovet Canine and Feline Behaviour and Welfare Center, São Paulo,
20 Brazil

21

22 2 - Faculty of Veterinary Medicine, University of São Paulo, Brazil

23

24 3 – School of Life Sciences, University of Lincoln, UK

25

26

27 Corresponding author: Daniela Ramos

28 (daniela.ramos@psicovet.com.br)

29

30 **ABSTRACT**

31

32 **BACKGROUND:** Geographical variations in feline behavior problems
33 exist. The occurrence of feline behavior problems in different regions are
34 therefore important to prepare professionals for the emerging needs of cat
35 owners.

36 **METHODS:** One-hundred and fifty-five feline behavior cases that were
37 referred to a veterinary behaviorist in São Paulo (Brazil) during the period
38 2008-2014 are described.

39 **RESULTS:** Inter-cat aggression was the main behavioral complaint reported
40 (31%), followed by housesoiling (26.4%). Unlike other international studies
41 inter-cat aggression was more frequently seen than inappropriate
42 elimination. Oral repetitive behaviors, including problems such as
43 psychogenic alopecia and pica, were also a prevalent problem (i.e. 16.8% of
44 the cases). Human directed aggression accounted for 13.5% of the cases,
45 taking fourth place in the list of the most common feline behavioral
46 problems. Female and male cats were equally likely to be presented (51%
47 and 49% of cases, respectively).

48 **CONCLUSIONS:** This study highlights potentially geographic or temporal
49 variation in the behavioral problems that need to be recognized by veterinary
50 behaviorists, in order to meet the emerging needs of owners.

51

52 Key-words: behavioral problems, cat, Brazil

53

54 Unlike dogs, reports concerning the prevalence of feline behavior
55 problems are much less common, perhaps because they typically make up a
56 smaller proportion of the caseload of veterinary behavior professionals. For
57 example, in their review of canine cases seen over a 10-year period,
58 Bamberger and Houpt (1) report on 1644 cases, while their similar review of
59 cat cases contains only 736 cases (2). Brazil has the second largest
60 population of pet cats worldwide (there are approximately 22.1 million cats
61 and 52,2 million dogs with 17.7% of Brazilian households having at least
62 one cat - IBGE (3)), but feline behavioral medicine is a very recent form of
63 veterinary practice and little is known about cat behavioral problems in this
64 country.

65 From the standpoint of the cats, even though they may seem to be quite
66 well adapted to everyday life in modern Brazil with increasingly more
67 Brazilians acquiring cats every year, they appear to face behavior and
68 welfare challenges, including the frequent manifestation of signs of
69 emotional distress (4,5). Souza-Dantas *et al* (6) found that 91% of the general
70 veterinary practitioners operating in these Brazilian university veterinary
71 hospitals had encountered cat owners with behavioral complaints (6).
72 Inappropriate urination in the form of either urine spraying or latrine
73 behaviour (34.8%) and excessive scratching (28.3%) were the most common
74 complaints. A similar result was found by Fatjó *et al* (7) in their survey of
75 general clinics in Spain. However, as seen in Spain (7,8) the prevalence of
76 cases seen may differ between general practitioners and veterinary behavior
77 professionals in Brazil. Cases seen by behavior experts probably reflect those
78 that practitioners find most challenging and/or have greatest impact on the
79 owner's family and immediate associates, thereby causing them to seek
80 specialized help.

81 The present study aimed to identify the reasons behind the referral of
82 cats to a veterinary behaviorist in Brazil as well as the characteristics of these

83 cats. As such it represents a point sample in an increasingly important
84 geographic region of the world in relation to cat management.

85 155 cases of feline behavior, referred to a veterinarian behaviorist
86 (DR, under the supervision of DSM and ARJ) in the city of São Paulo
87 (Brazil) during a 6-year period (2008 to 2014) are described. Behavioral
88 consultations were usually held in the residence of the cat owners and data
89 relating to the cat's sex, age, breed, reproductive status (i.e. intact or
90 neutered) and main behavioral complaint leading to referral as reported by
91 the owners were recorded. Secondary behavioral complaints from the case
92 were not considered in the calculation of the prevalence of behavioral
93 problems. In the case of inter-cat aggression, the data from all cats involved
94 were considered. Owners provided their permission for use of the data.

95 Of the 155 feline behavioral cases, 145 provided complete data on
96 gender, breed, age and sexual status relating to a total of 217 cats (49.3%
97 males and 50.7% females). The ten remaining cases (all inter-cat aggression)
98 were not analyzed beyond the behavioral complaint given their missing files.

99 The age of cats presenting varied from 3 months to 19 years, with an
100 average of 4.8 years (median 4 years). 14.8% were purebred pedigree cats
101 (i.e. 12 were Persian, 6 Siamese, 4 Ragdoll, 5 Maine Coon, 2 Bengal, 2
102 Birman and 1 Savannah) while 85.2% were mixed-bred cats. 95% of the cats
103 were neutered.

104 Feline aggression was the most commonly reported behavioral
105 complaint, representing 44.5% of the cases (69/155). These included inter-
106 cat aggression (48/155, 31%) and aggression towards people (21/155,
107 13.5%) in a roughly 2:1 ratio. The second most common problem (41/155,
108 26.5%) was housesoiling (latrining: 29/155, 18.7%, spraying: 10/155, 6.5%,
109 maddening: 2/155, 1.3%), followed by (13/155, 8.4%) repetitive non-
110 medical self-licking (psychogenic alopecia) and (13/155, 8.4%) ingestion of
111 non-food items (pica). (see Table 1).

112 Other behavioral problems represented 12.2% of the cases (19/155): 2
 113 cases of inappropriate sexual behavior, 4 cases of destruction of furniture by
 114 biting and/or scratching, 4 cases of fear/phobia, 1 case of chronic
 115 psychogenic vomiting, 3 cases of excessive vocalization, 3 cases of
 116 problematic cat interaction with resident dogs, 1 case in which the owner
 117 sought guidance for preparing the cat to move and adapt to a new house and
 118 1 case of uncontrolled behavior/over-activity. (see Table 1)
 119

Behavioral Complaint	% of cases
FELINE AGGRESSION (N=69 cases)	44.5%
Inter-cat aggression	31%
Human directed aggression	13.5%
HOUSESOILING (n=41 cases)	26.5%
Latrining	18.7%
Spraying	6.5%
Middening	1.3%

REPETITIVE BEHAVIOR (n=26 cases)	16.8%
Self-licking	8.4%
PICA	8.4%
OTHER (n=19 cases)	12.2%

120 Table 1: Description of feline behavioral complaints from 155 referral cases.

121

122 This is the first report of the most common feline behavioral cases seen
 123 by a veterinary behaviorist in Brazil and, as such, it may reflect the aspects
 124 of feline behavior that has the greatest impact on humans because it drives
 125 them to search for specialized help.

126 Consistent with the previous professional feline caseloads described
 127 in international surveys (2,8,9,10), inter-cat aggression and inappropriate
 128 elimination were the two most frequently encountered problems; but only in
 129 the caseload of Amat *et al* (8), did inter-cat aggression exceed inappropriate
 130 elimination. By contrast, Fatjó *et al* (7) identified problems, such as
 131 scratching and excessive vocalization to be more common than inter-cat
 132 aggression, as did Souza-Dantas *et al* (6) in Brazil. However, these latter two
 133 surveys were based on the cases seen in general clinics rather than by
 134 behavioral professionals. It is worth noting that inappropriate elimination is
 135 the most commonly seen problem in Fatjo *et al* (7) and Souza-Dantas *et al*
 136 (6) and a common issue for referral practice too, suggesting that this is very
 137 much a problem which all vets should be able to manage.

138 There was an unusual, high prevalence of oral repetitive behaviors
139 reported in the current caseload, represented by cases of pica (i.e. ingestion
140 of non-food items) and excessive licking accompanied by alopecia,
141 representing 16.8% of the cases. This contrasts with the findings of studies
142 conducted in countries like USA, Canada, UK and Spain (2,8,9,10), but it is
143 in line with the result found by the case study in Australia (10).

144 Human directed aggression was fourth on the list of the common feline
145 complaints in the present study. Although not on the top of the list, which is
146 in agreement with other surveys (2,8,9,10), the significance of the problem
147 should not be underestimated. Ramos & Mills (4) found that human directed
148 aggression is a much more common problem than the case prevalence
149 indicates (i.e. approximately 50% prevalence) suggesting Brazilian cat
150 owners may act with resignation in relation to their cats attacking them.

151 Fears and phobias, inappropriate sexual behavior, destructive
152 behavior, excessive vocalization, conflicts with dogs and psychogenic
153 vomiting (diagnose based on a complete medical work-up) were less
154 commonly seen. Along with a single case considered to be “preventive”
155 (guidance on how to change residence with a cat), they amounted to 12%
156 (19/155) of cases. It is possible that all of these represent less troubling
157 problems for pet owners, or simply problems for which advice is sought
158 elsewhere by owners.

159 In conclusion, this study reinforces the difference in the type of cases
160 seen by behavior professionals versus general practitioner and between
161 countries. It cannot be excluded, however, possible ownership changes over
162 time that could explain at least in part differences comparing the less recent
163 caseloads with the one presented here. It is clear that there is a need for
164 training in feline behavior related issues for general veterinary practitioners,
165 but this training should focus on the need in the given country and not be

166 biased by the different prevalence of cases seen by professionals who may
167 be providing this training.

168

169 **ACKNOWLEDGEMENTS**

170 We would like to thank FAPESP and CAPES for providing research scholarships for the
171 first author during the period this study was undertaken. Besides, we would like to thank
172 all owners and their cats.

173

174 **REFERENCES**

175 1-Bamberger M, Houpt KA. Signalment factors, comorbidity, and trends in behavior diagnoses
176 in dogs: 1644 cases (1991-2001). *J Am Vet Med Assoc.* 2006; 229 (10): 1591-1601.

177 2 - Bamberger M, Houpt KA. Signalment factors, comorbidity, and trends in behavior diagnoses
178 in cats: 736 cases (1991-2001). *J Am Vet Med Assoc.* 2006; 229 (10): 1602-1606.

179 3-Instituto Brasileiro de Geografia e Estatística (IBGE). População de Animais de Estimação no
180 Brasil 2013. 2013; <http://agricultura.gov.br/> (accessed 10 February 2019)

181 4-Ramos D, Mills DS. Human directed aggression in Brazilian domestic cats: owner reported
182 prevalence, contexts and risk factors.
183 *J Feline Med Surg* 2009; 11 (10): 835-841.

184 5-Ramos D, Reche-Junior A, Fragoso PL, et al. Are cats (*Felis catus*) from multi-
185 cat households more stressed? Evidence from assessment of fecal glucocorticoid metabolite
186 analysis. *Physiol Behav* 2013; 122: 72-75.

187 6-Souza-Dantas LM, Soares GM, D’Almeida JM, et al. Epidemiology of domestic cat behavioral
188 and welfare issues: a survey of Brazilian referral animal hospitals in 2009. *Int J Appl Res Vet M*
189 2009; 7 (3): 130-137.

190 7-Fatjó J, Ruiz-del-la-Torre JL, Manteca X. The epidemiology of behavioural problems in dogs
191 and cats: a survey of veterinary practitioners. *Animal Welf* 2006; 15: 179-185.

192 8-Amat M, Torre JLR, Fatjó J, et al. Potential risk factors associated with feline behaviour
193 problems. *Appl Anim Behav Sci* 2009; 121: 134-139.

194 9-Association of Pet Behaviour Counsellors, Annual review of cases. 2014 www.apbc.org.uk/
195 (accessed 15 September 2018).

196 10-Denenberg S, Landsberg GM, Horwitz D, et al. A comparison of cases referred to behaviorists
197 in three different countries. In: Current issues and research in veterinary behavioral medicine.
198 Papers presented at 5th International Veterinary Behavioral Meeting; West LaFayette, 2005; 56–
199 62.

200