

# Prevalence of mistreatment in dogs and cats attended in a private veterinary establishment

## *Prevalência de maus-tratos em cães e gatos atendidos em estabelecimento veterinário privado*

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### ABSTRACT

Animal abuse is considered a crime in Brazil. Veterinarians play an essential role in promoting animal welfare and tackling this crime. The objective was to know the cases of mistreatment of pets attended in veterinary clinics. Of the 10 veterinary clinics invited, only one followed the recommendations and was included. A segmented form was completed in four sections (general animal data, animal behavior, physical inspection of the animals, and the tutor's conduct towards the animals) for each animal consulted. For three months, 148 animals, 77.70% dogs (115/148) and 22.30% cats (33/148) were treated; the majority had between 0 and 2 years; 66.1% (76/115) of dogs had a defined breed, and 97.0% (32/33) of cats had no defined breed. There was a significant statistical difference between species and breed ( $\chi^2(1)=0.001$ ;  $P<0.05$ ) and between species and age ( $\chi^2(1)=0.037$ ;  $P<0.05$ ). The most frequent physical conditions were periodontal disease grade III or IV (16.5% dogs and 3.0% cats), dehydration (7.8% dogs and 18.2% cats), and low body condition score (6.9% dogs and 15.2% cats). There was a significant statistical difference between species and periodontal disease grade III or IV ( $\chi^2(1)=0.047$ ;  $P=0.046$ ). Regarding the conduct of the person responsible for the animal, the most frequent ones were the refusal of the tutor to perform complementary examinations (5.2% dogs and 18.2% cats) and delay in the search of the veterinarian (6.9% dogs and 3.0% cats). There was a statistical difference between species and refusal of the tutor to perform complementary examinations ( $\chi^2(1)=0.027$ ;  $P<0.05$ ). The suspicion of mistreatment in dogs was associated with periodontal disease and delay in seeking treatment; in cats, dehydration, and refusal to perform additional tests.

**Keywords:** Animal abuse. Animal welfare. Negligence. Veterinary clinic.

### RESUMO

Os maus-tratos aos animais são considerados crime no Brasil. Os médicos veterinários têm papel relevante na promoção do bem-estar dos animais e enfrentamento desse crime. Objetivou-se conhecer os casos de maus-tratos aos animais de estimação atendidos em clínicas veterinárias. Das dez clínicas veterinárias convidadas, somente uma seguiu as recomendações e foi incluída. Foi preenchida ficha segmentada em quatro seções (dados gerais dos animais, comportamento do animal, inspeção física dos animais e as condutas do tutor com os animais) para cada animal consultado. Durante 3 meses foram atendidos 148 animais, 77,70% cães (115/148) e 22,30% gatos (33/148); a maioria possuía entre 0 e 2 anos; 66,1% (76/115) dos cães tinham raça e 97,0% (32/33) dos gatos eram sem raça definida. Houve diferença estatística significativa entre espécie e raça ( $\chi^2_{(1)}=0,001$ ;  $P\leq 0,05$ ) e entre espécie e idade ( $\chi^2_{(1)}=0,037$ ;  $P\leq 0,05$ ). As condições físicas mais frequentes foram doença periodontal grau III ou IV (16,5% cães e 3,0% gatos), desidratação (7,8% cães e 18,2% gatos) e escore corporal baixo (6,9% cães e 15,2% gatos). Houve diferença estatística significativa entre espécie e doença periodontal grau III ou IV ( $\chi^2_{(1)}=0,047$ ;  $P=0,046$ ). Em relação às condutas do responsável pelo animal, as mais frequentes foram a recusa do tutor para realização de exames complementares (5,2% cães e 18,2% gatos) e atraso na procura do médico veterinário (6,9% cães e 3,0% gatos). Houve diferença estatística entre espécie e recusa do tutor para realização de exames complementares ( $\chi^2_{(1)}=0,027$ ;  $P\leq 0,05$ ). As suspeitas de maus-tratos em cães associaram-se à doença periodontal e ao atraso na busca de tratamento; em gatos, à desidratação e à recusa para realização de exames adicionais.

**Palavras-chave:** Abuso animal. Bem-estar animal. Negligência. Clínica veterinária.

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## Introduction

Mistreatment occurs when a human being is subjected to cruelty, forced labor, and deprivation of food and medical care (Delabary, 2012). When applied to pets, mistreatment can be classified as physical or mental abuse. Physical abuse may be intentional by restricting movement and mutilation or unintentional (such as negligence) by not providing veterinary care and adequate food. Mental abuse, on the other hand, can be intentional when it causes fear and anxiety, or unintentional, characterized by a lack of love and affection (Vermeulen & Odendaal, 1993).

The concern with the promotion of welfare to pets (Verga & Michelazzi, 2009) and the identification and protection against mistreatment has been studied worldwide (Monsalve et al., 2017), especially after the discovery that abused animals in their homes may indicate a family member, such as women, children or older adults, may also be victims of the same violence (Gullone, 2014). This relationship between domestic violence and animal abuse is known as Link Theory (Barrero et al., 2017), and veterinarians play an essential role in this context (Jegatheesan et al., 2020).

In pet internal medicine, the detection of mistreatment by veterinarians can be performed through the observation of the clinical history of the animal (presence of multiple traumas or lesions with different evolutionary stages, among other non-accidental traumas), the behavior of the tutor (reports of stories incompatible with the characteristics of the trauma or absence of the report); behavior of the animal (animals that show fear when they are close to the tutor) and profile of the client (tutors who often bring the animal to the clinic) (Arkow et al., 2011). In this context, this professional becomes a critical agent in the identification of aggression and negligence committed against dogs and cats as he is

directly responsible for the care of these animals, being obliged to report cases of aggression to animals in all areas in which it operates (Brasil, 2018). In addition, veterinarians can act to break the cycle of human and animal violence and save lives (D'Aprile et al., 2017; Monsalve et al., 2017). In Brazil, there are reports on the conduct of veterinarians who work in internal medicine regarding animal abuse (Monsalve et al., 2019). However, no studies have identified mistreatment of pets during clinic visits. The objective of this study was to know the prevalence of mistreatment in dogs and cats treated in veterinary clinics in the Metropolitan Region of Curitiba, Paraná, Brazil, and to classify the types of mistreatment found.

## Material and Methods

### Recruitment of clinics

Ten veterinary clinics in Pinhais, the metropolitan region of Curitiba, Paraná, Brazil, were invited to participate in the study by telephone from December 2017 to June 2018. Four clinics initially accepted the invitation and received an e-mail containing the Informed Consent Form (ICF), the abstract of the research project, the guidelines on the diagnosis of animal mistreatment, and a form for data collection. As an inclusion criterion in the study, all animals attended by veterinarians should have a completed form.

The forms were left in the clinics from March to June 2018. After this time, the records were collected, and only one clinic, located in the city of Pinhais, Paraná, Brazil, followed all guidelines. The other clinics were excluded from the study.

### Data collection

The data collection form provided to veterinarians was prepared based on the manual created by the American Association of Veterinary Medicine (AVMA) (Arkow et al., 2011). The form was divided into four sections: general animal data (section 1), condition and behavior of the animal (section 2), physical inspection of the animals (section 3), and the tutor's conduct towards the animal (section 4).

Section 1 included the species (canine or feline), breed, age, and animal gender. Section 2 was related to the behavioral aspect and was divided into two subtopics: general appearance and behavior of the animal. As for the general appearance, the animal could be alert (attentive), apathetic (indifferent), prostrate (depressed), or other (according to the veterinarian's perception). In terms of behavior, the animal could present a positive relationship with the tutor (demonstration of affection and safety),

shrink at some point in the presence of the guardian, remain shrunk in the presence of the guardian, or other behavior (according to veterinary's perception). Section 3 included the following variables: dehydration (7-12%), low body condition score (BCS; 1-3), tangled hair, long or heavily worn nails, ectoparasites, periodontal disease scores III or IV, bruising, scarring, abrasions or bruises, multiple fractures, fractures at different stages of "healing," bony calluses, burns, ingrown collar or collar mark, stab wounds or gunshot wounds, injuries to cushions. Section 4 included the tutor's conduct towards the animals as injuries likely to be inconsistent with the client's report, injuries inconsistent with the client's report, unexplained delay between the onset of clinical signs and the search for medical treatment, refusal of the tutor to perform further examinations, reluctance of the tutor to follow the recommended treatment and interruption in medical treatment. In the conduct considered appropriate, veterinarians did not mark any options. There could be more than one alternative in sections two, three, and four questions.

### Statistical analysis

The analysis was performed using the software Graphpad Prism®. The relative frequency of the data was obtained in all the parameters evaluated, and to compare the results between dogs and cats in all sessions, the chi-square test ( $\chi^2$ ) was used for the sex parameter, and the other parameters, Fisher's exact test, was applied. The correlation analysis was performed in sections 3 and 4 using Pearson's correlation ( $\rho$ ). According to Cohen (1988), correlation values between 0.10 and 0.29 are considered low or weak; scores between 0.30 and 0.49 are considered mean values; and values between 0.50 and 1 are interpreted as high or strong. A significance level of  $P < 0.05$  was considered.

## Results

### Section 1: General animal data

A total of 148 animals were treated, 115 dogs and 33 cats. Regarding breed, 66.1% (76/115) of the dogs were breed-defined, while 97.0% (32/33) of the cats had no defined breed. About age, 61.7% (71/115) of the dogs and 61.7% (27/33) of the cats were two years old or less. Related to gender, 80.86% of dogs (93/115) and 84.84% (28/33) of cats were identified, with 53.68% (49/115) of dogs being females and 53.57% (15/33) of cats being males. There was a statistical difference between species and breed ( $P < 0.001$ ) and between species and age ( $P = 0.037$ ).

### Section 2: Condition and behavior of the animal

Regarding the condition of each animal, 84.3% (97/115) of the dogs and 78.8% (26/33) of the cats were alerted; 3.5% (4/115) of the dogs and 3.0% (1/33) of the cats were apathetic; 7.0% (8/115) of the dogs and 15.2% (5/33) of the cats were prostrated. Some animals had other statuses: 3.5% (4/115) of the dogs and 9% (3/33) of the cats were classified as scared in general, and 0.9% (1/115) of the dogs were considered frightened by the veterinarian. Also, 0.9% (1/115) of the dogs were afraid, 0.9% (1/115) were unconscious, 0.9% (1/115) were apathetic without interacting with the tutor, and 0.9% (1/115) had pain or rescued a few days ago (dogs:  $n = 2$ ; 1.7%). There was no statistical difference ( $P < 0.05$ ) regarding the status of the animals.

Related to the behavior of the animals during the visit, it was observed that the majority presented a positive connection with the tutor (dogs = 99%, 114/115; cats = 100% (33/33)). Only one dog presented an absence of interaction with the client and an affectionate relationship with the tutor. However, this occurred due to being recently rescued by the caregiver. There was no significant statistical difference ( $P < 0.05$ ) regarding the behavior of dogs and cats in the tutor's presence.

### Section 3: Physical inspection of the animals

Physical findings during the inspection and palpation of dogs and cats are indicated in Table 1. In dogs, periodontal disease scores III or IV was the most common disease (16.5%, 19/115), while in cats, dehydration was more frequent (18.2%, 6/33). Multiple fractures, fractures in different stages of healing, presence of bone calluses, ingrown collar, collar or stab or gunshot wounds in both species were not identified. There was a significant statistical difference ( $P < 0.05$ ) between species and periodontal disease scores III

Table 1 – Inspection and palpation of dogs and cats analyzed regarding the prevalence of pet mistreatment treated at a veterinary clinic in Pinhais, Paraná, Brazil

Inspection and palpation	Specie	
	Dog	Cat
Dehydration	9	6
Low BCS <sup>1</sup>	8	5
Tangled hair	5	1
Long nails	4	0
Ectoparasites	8	1
Periodontal disease	19	1
Scars	4	1
Burns	1	0
Cushions	1	0
Bruises	1	1

<sup>1</sup>BCS = body condition score.

or IV ( $P=0.046$ ), revealing that dogs have a predisposition to have this disease when compared to cats. In dogs, the significant correlations found for inspection and palpation are shown in Table 2. In cats, there was no correlation between the variables analyzed.

#### Section 4: Tutor's conduct towards the animal

Regarding the conduct of dogs and cat tutors, most did not mark any of the options presented (84.4%, 125/148), indicating the evaluation of good conduct with their animals.

Were found injuries probably inconsistent with the report of the client (dogs: 0.86%, 1/115; cats: 3.03%, 1/33), unexplained delay between the beginning of clinical signs and the search for medical treatment (dogs: 7.0%, 8/115; cats: 3.03%, 1/33), tutor refusal to perform complementary examinations (dogs: 5.21%, 6/115; cats: 18.2%, 6/33), tutor's reluctance to follow the recommended treatment (dogs: 2.60%, 3/115; cats: 6.06%, 2/33) and interruption in medical treatment dogs (0.86%, 1/115). There was no injury in dogs

and cats, which was inconsistent with the client's report. There was a statistical difference between species and refusal of the tutor to perform complementary examinations ( $\chi^2(1)=0.027$ ;  $P<0.05$ ). In dogs and cats, the significant correlations found regarding the tutor's behavior can be identified in Table 3.

#### Discussion

The number of dogs attended at the clinic was numerically higher than the number of cats, which may have influenced the correlation between species and breed and between species and age. In the city of Pinhais (the clinic's location), the number of dogs is more than six times higher than that of cats (Baquero et al., 2018), which would justify some differences between the species.

Most dogs were breed-defined, as also observed by Munro & Thrusfield (2001a), and that may be due to a higher number of domesticated breed dogs when compared to animals without a defined breed (Silva, 2007). Regarding age, most dogs and cats were less than two years old. Marlet & Maiorka (2010) concluded that young animals were the most affected by mistreatment because they are less controllable than older animals, with the feline species more susceptible to these aggressions.

As for the condition of the animals during the visit, only one animal did not show an affectionate relationship with the tutor because it had been recently rescued and was still in the rehabilitation phase. Most dogs and cats were alert and connected well with the client (above 99%). This may reflect a good human-animal relationship, given that the excessive fear of human beings suggests that animals suffer some aversive actions, such as nonaccidental traumas (McGuinness et al., 2005).

In the physical inspection of the animals, the amount and types of lesions observed revealed discrepancies in the

Table 2 – Correlations between the variables observed during the inspection and palpation of dogs treated at a veterinary clinic in Pinhais, Paraná State, Brazil

Correlated variables	Type of correlation
Dehydration × Low BCS	Strong ( $r = 0.556$ )***
Dehydration × Ectoparasites	Moderate ( $r = 0.302$ )**
Low BCS × Cushions	Moderate ( $r = 0.342$ )***
Tangled hair × Burns	Moderate ( $r = 0.439$ )***
Long Nails × Ectoparasites	Moderate ( $r = 0.321$ )***
Long Nails × Periodontal Disease	Moderate ( $r = 0.439$ )***
Ectoparasites × Cushions	Moderate ( $r = 0.342$ )***
Bruises × Scars	Moderate ( $r = 0.493$ )***
Tangled hair × Long Nails	Weak ( $r = 0.192$ )*
Tangled hair × Periodontal Disease	Weak ( $r = 0.249$ )**

$P<0.05$ \*,  $P<0.01$ \*\*\*,  $P<0.001$ \*\*\*.

Table 3 – Correlation obtained between the variables related to the conduct of the tutor to the animals treated at a veterinary clinic in Pinhais, Paraná State, Brazil

Correlated variables	Type of correlation
<i>Dogs</i>	
Unexplained delay × Proper conduct	Strong ( $r = -0.706$ )***
Refuses to take examinations × Proper conduct	Strong ( $r = -0.605$ )***
Reluctance to follow treatment × Interruption of treatment	Strong ( $r = 0.572$ )***
Injuries × Unexplained delay	Moderate ( $r = 0.342$ )***
Reluctance to follow treatment × Proper conduct	Moderate ( $r = -0.422$ )***
Injuries × Proper conduct	Weak ( $r = -0.241$ )**
Unexplained delay × Refuses to take examinations	Weak ( $r = 0.243$ )**
Interruption of treatment × Inappropriate conduct	Weak ( $r = -0.241$ )**
<i>Cats</i>	
Refuses to take examinations × Proper conduct	Strong ( $r = -0.833$ )***
Reluctance to follow treatment × Proper conduct	Moderate ( $r = -0.449$ )**

$P<0.05$ \*,  $P<0.01$ \*\*\*,  $P<0.001$ \*\*\*.



care of the animals treated. Of the 115 dogs analyzed, the most common disease detected was periodontal disease scores III or IV (16.5%), significantly higher in this species compared to cases in cats. Telhado et al. (2006) state that periodontal disease is a common problem in older dogs since it may be related to determinant factors, such as negligence. This statement agrees with the results found in this research since 18 of the 19 animals with this disease were dogs older than two years.

The low BCS in dogs (7.0%), as well as the presence of ectoparasites (7.0%), were cited in the literature as suggestive of negligence (Arkow et al., 2011). As for cats, of the 33 cats attended, dehydration was considered the most frequent problem (18.2%), followed by the low BCS (15.1%), both being considered indicators of mistreatment in animals.

The strong correlation between dehydration and low BCS indicates a poor diet and low water supply to dogs, which can lead to a pathological state (Crook, 2000) if the animal is not showing these signs due to a disease already installed. The caregivers' negligence regarding food care and health is demonstrated by Hammerschmid & Molento (2013) as a crucial point to improve and guarantee a better quality of life. According to Hammerschmid & Molento (2013), a portion of the complaints of mistreatment against animals (15.7%) registered by the Animal Protection Societies of Campo Largo and Curitiba and the Animal Protection Network of Curitiba involved restriction in the supply of food and water. This agrees with what was observed in the study by Whitfort et al. (2021), in which 4,162 negligence cases involved restricting food and water to animals.

The presence of ectoparasites had a moderately significant correlation with low BCS. According to Freeman et al. (2011), a reduction in the BCS can decrease the muscle mass index, affecting the animals' strength and immunity. In addition, there was a moderately significant association between ectoparasites and long or heavily worn nails, which indicate impairment of animal health and consequent negligence (Hammerschmid, 2017).

Another highlight was the moderate correlation between the presence of scars, abrasions, or bruises and hematomas in dogs. The veterinarian's ability to perceive these pathologies is vital since he is a public health professional (D'Aprile et al., 2017). Munro & Thrusfield (2001a), in a study that aimed to identify suspicious characteristics of nonaccidental abuse, showed that although nonaccidental trauma was known by 91.3% of the veterinarians questioned, less than a half had seen or recognized a case as such. This shows the need for disciplines such as Veterinary Legal Medicine to be

mandatory in Veterinary Medicine courses, and teaching to detect accidental versus non-accidental traumas in animals must be implemented.

Regarding the conduct of the tutor towards the animals, the delay in seeking medical treatment and the refusal to perform complementary examinations are characteristic behaviors of the negligent tutor (Arkow, 2015). This delay was observed predominantly in dog tutors of this study (7%) and the refusal to perform the complementary tests in cat tutors (18.2%). Of the six cases in which the refusal of cat tutors to perform complementary examinations was found, three were in young cats with no defined breed and three in adult/elderly cats with no defined breed. This demonstrates the influence of breed on the care to be taken by the tutors, also observed in the study of Munro & Thrusfield (2001a).

In dogs, there was a strong positive association between the tutor's reluctance to follow the recommended treatment and the interruption of medical treatment. In cats, there was a weak positive correlation between the tutor's refusal to perform complementary examinations and the tutor's reluctance to follow the recommended treatment. The behavior of these guardians indicates a reluctance to promote appropriate care for their animals and may indicate mistreatment (Arkow, 2015). However, research involving the reasons for these behaviors is necessary to understand this context and elaborate strategies better, aiming at a more harmonious human-animal relationship and promoting the necessary care for these animals.

There was only one case that included injuries probably inconsistent with the client's report, which, according to Munro & Thrusfield (2001b), indicates suspicion of dog abuse. Veterinarians often fail to report any case of abuse due to certain factors, such as lack of training to identify abuse, lack of clarity in definitions of abuse, cruelty, and neglect, lack of resources to assist victims, fear of the aggressor and the legal consequences of the complaint, fear of losing employment and customers and lack of information on legal rights and responsibilities for victims of abuse (Monsalve et al., 2017). In order to identify the mistreatment of animals, the veterinarian must be trained correctly. In this way, it is vital that this professional can recognize cases of mistreatment and notify cases to the competent authorities (Faraco & Seminotti, 2006). The identification of non-accidental traumas and negligence is essential for the training of a more skilled professional concerned with protecting the animals they serve, as well as being a link in the identification of a situation of violence that may be occurring with vulnerable people around these mistreated animals (D'Aprile et al., 2017).

## Conclusion

This pioneering study brings a new look at the identification of maltreatment in dogs and cats in the veterinary clinic. Performing a good physical examination to identify specific pathologies that indicate the possibility of maltreatment is essential. In addition, the tutor's attitudes towards the animal and the animal's reaction to the tutor must always be observed in the search for physical and psychological abuse of the animals. The results of this article are essential to encourage further studies that address the veterinarian's role in the human-animal violence cycle as a professional responsible for public health.

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## Conflict of Interest

The authors declare no conflict of interest.

## Ethics Statement

The project was approved according to protocol 099/2017 of the Ethics Committee on the Use of Animals of the Federal University of Paraná.

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