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**AN OVERVIEW OF ANIMAL FOSTER HOMES IN BRAZIL**

(Caracterização de lares temporários para cães e gatos no Brasil)

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**ABSTRACT** - Animal foster homes (AFH) provide shelter for abandoned animals and are an essential part of street population management programs. An online survey was conducted in Brazil with questions about general aspects of AFH. A total of 150 AFH caregivers responded, most were female (n=140; 93.3%) with a mean age of 35.4 years. AFH in most cases conduct vaccination (n=103; 68.3%), treatment for internal parasites (n=142; 94.7%), external parasites (n=138; 92.0%) and neutering (n=113; 75.3%) to animals in their care. The principal problem for AFH is finding adopters (n=122; 81.3%) and indeed most AFH caregivers adopted some of the animals under their care (n=129; 86.0%). Although most AFH reported having no limit on housing time (n=61; 40.7%), there were significant differences between short-term (<3 months) and long term (>24 months) housing. Long-term AFH sheltered to more than 20 animals (P<0.05), frequently from the streets (P<0.05). Short-term AFH offered shelter to fewer than six animals (P<0.05), and generally housed old (P<0.05), chronically ill (P<0.05), amputees (P<0.05), deaf or blind animals (P<0.05) – often at the request of rescue groups (P<0.05). Sheltering fewer (<6) animals guaranteed greater adoptability in a shorter timeframe, thus avoiding kennel stress, overcrowding and potentially reducing the risk of disease outbreaks.

**Key words:** Abandoned animals; adoption; population management; shelter homes; street animals.

**RESUMO** - Os lares temporários (LTs) abrigam animais abandonados e são essenciais para os programas de manejo populacional de cães e gatos. Uma pesquisa on-line foi realizada no Brasil visando compreender aspectos gerais dos LTs. Houveram 150 respondentes, a maioria do sexo feminino (n=140; 93,3%), com idade média de 35,4

anos. Na maioria dos casos, os LTs realizavam vacinação (n=103; 68,3%), tratamento para parasitas internos (n=142; 94,7%) e externos (n=138; 92,0%), e esterilização (n=113; 75,3%) dos animais. O principal problema foi encontrar adotantes (n=122; 81,3%), e na maioria dos casos os cuidadores adotaram alguns dos animais (n=129; 86,0%). Houve diferença significativa entre as moradias de curto (<3 meses) e longo (>24 meses) prazo. LTs de longo prazo abrigavam mais de 20 animais encontrados na rua ( $p < 0,05$ ). LTs de curto prazo abrigavam menos de seis animais ( $P < 0,05$ ), geralmente idosos ( $P < 0,05$ ), doentes crônicos ( $P < 0,05$ ), amputados ( $P < 0,05$ ), animais surdos ou cegos ( $P < 0,05$ ) - frequentemente a pedido de grupos de resgate ( $P < 0,05$ ). Abrigar menos (<6) animais garantiu uma maior taxa de adoção em um menor período de tempo, evitando assim o estresse do canil, a superlotação e potencialmente reduzindo o risco de surtos de doenças.

**Palavras-chave** - Adoção; animais abandonados; lares temporários; manejo populacional de cães e gatos.

## INTRODUCTION

The plight of abandoned dogs and cats is a significant animal welfare issue worldwide (Albro *et al.*, 2007; Silva *et al.*, 2013). The increasing number of abandoned animals has triggered a rise in the number of people engaged in attempts to find solutions to this problem (Albro *et al.*, 2007; Rodrigues *et al.*, 2013). Therefore, the number of Non-Governmental Organizations (NGOs) for animal protection has increased, along with the number of independent AFH caregivers (Soares, 2006).

Animal protection centers mainly focus on the rescue of animals in suffering (Lewgoy *et al.*, 2015). Animals are trapped, medically treated, and are sheltered while a search for adopters and new homes is undertaken (Rodrigues *et al.*, 2013). The rescue and care of these animals is in most cases undertaken by voluntary initiatives, since public policies associated with these actions are limited (Lazarin, 2014). NGOs and independent AFH caregivers involved in such sheltering initiatives, experience a lack of resources, inadequate infrastructure, overcrowding, and disease outbreaks in rescue centers (Carpanezi *et al.*, 2016).

Moreover, the increase in number of abandoned dogs and cats and the heightened public interest and concern in the welfare of these animals (Silva *et al.*, 2013), more effective and compassionate alternatives for their population control in urban areas have emerged (Molento *et al.*, 2007). Animal protection organizations that previously housed large numbers of dogs and cats have begun to promote housing of small

numbers of animals in numerous homes, transforming the rescue centers into AFH (Gomes, 2013). AFH are temporary shelters that aim to quickly find permanent homes for dogs and cats (Gomes, 2013). AFH provide special care to the animals and offer them for adoption in good body condition with minimal behavioral issues so that they do not adversely affect the well-being of the adopters (Osório, 2016). This innovative strategy reduces the overcrowding of dogs and cats in traditional shelters and reduces the risk of disease outbreaks (Albro *et al.*, 2007). It also offers an additional option for the dog and cat population management programs in urban areas (Soares *et al.*, 2006). Collective Veterinary Medicine (CVM) is a new multidisciplinary area of veterinary medicine that uses knowledge from collective health, shelter medicine, and legal veterinary medicine to promote the health of individuals, families, and communities, based on the One Health strategy. In this sense, dog and cat street population management is a big issue of CVM, demanding several approaches for the prevention of abandonment of dogs and cats and the improvement of animal welfare during the period of preparation for adoption in shelters (Polo *et al.*, 2013; Santos *et al.*, 2013; Garcia *et al.*, 2019).

Although the regulation of animal shelters is not considered in the Brazilian animal welfare laws, there are a number of international manuals that provide guidelines, such as the Foster Care Manual developed by the Michigan Humane Society (MHS, 2008), the book of shelter medicine for veterinarians and staff (Miller and Zawistowski, 2012), the National Guidelines for Temporary Housing of New York (NPYR, 2015), and the Manual of Care for Temporary Dogs, USA (BFA, 2016). These guides, besides providing recommendations and protocols focused on caring for animals, also define the requirements that AFH must provide, such as adequate food, constant access to water, adequate illumination, and socialization with other animals and people (MHS, 2008; NPYR, 2015; BFA, 2016). To the best of the author's knowledge, there is no published information about the characterization of animal shelters or AFH in Brazil.

Since AFH play a fundamental role in dog and cat street population management programs, this study aims to characterize AFH in Brazil for the first time, by understanding the dynamics within AFH, the animal care, the search for adopters, as well as the challenges faced by the caregivers in the maintenance of these AFH

## **MATERIAL AND METHODS**

An online survey consisting of 28 questions, of which 20 were multiple choice and eight were open-ended, was made available from March 5 to May 31, 2018, through the Google platform. The questionnaire was distributed through researchers' social media, and the websites of the National Forum for Animal Protection and Defense, Regional

Councils of Veterinary Medicine, Federal University of Paraná, and the World Animal Protection. Before answering questions, participants approved a consent agreement, which was a mandatory constituent to participate in the study.

The questions considered general aspects of AFH caregivers, AFH operations and animal adoptions. Since AFH are shelters that provide a pathway for the ultimate relocation of animals to permanent homes, the housing time of the animals was analyzed in detail. Thus, a multiple correspondence analysis (MCA), a multivariate data analysis, was employed to construct relationships among categorical variables and with AFH housing time. Chi-squared tests were performed to verify the association between all variables. The analysis of the eight open-ended questions was done by analyzing the most commonly used words in the answers and identifying broad categories of responses. Next, answers were grouped in the recognized categories and analyzed as multiple-choice questions. All statistical analyses were performed using R language (R Core Team, 2017)

## RESULTS

Table 1 shows the answers to the questionnaire. Over the study period, answers from 150 AFH caregivers were obtained. The mean age of the AFH caregivers was 35.4 years (SD=11.7), the majority were between 18-39 years old (n=98; 65,3%) and most were female (n=140; 93.3%).

Responses were obtained from 69 municipalities in eleven states and the Federal District, as shown in Figure 1. AFH caregivers were principally from Southern Brazil (n=71; 47.3%), followed by the Midwest and Southeastern Brazil (n=35; 23.3%). The cities with the highest number of AFH caregivers were Curitiba/PR (n= 28; 18.7%), São Paulo/SP (n=10; 6.7%) and Foz do Iguaçu/PR (n=8; 5.3%). Most AFH caregivers were educated having completed college studies (n=34; 22.7%) and some had postgraduate qualifications (n=55; 36.7%).

The most frequently reported place for location of AFH was the caregiver home (n=131; 87.3%). Other locations included: other people's homes such as parents' homes or rented sites. Most AFH caregivers had offered foster homes between 2 and 5 times (n=59; 39.3%) to animals rescued directly from the streets (n=106; 70.7%) and did not respond to rescue requests (n=84; 56.0%). Most AFH had up to five animals (n=109; 72.7%) and had no preference in sheltering any specific age (n=137; 91.3%) or species (n=92; 61.3%), but some had preferences only for dogs (n=42; 28.0%) and others only for cats (n=16; 10.7%). Most AFH caregivers mentioned that new animals are initially kept

separate from the others (n=98; 64.9%) after which most animals then have free access to the residence (n = 57; 38.0%) or backyard (n = 55; 36.7%).

**Table 1** - Responses of the 150 AFH caregivers to the questionnaire about general aspects of the caregivers, operations and animal adoptions. (Continue).

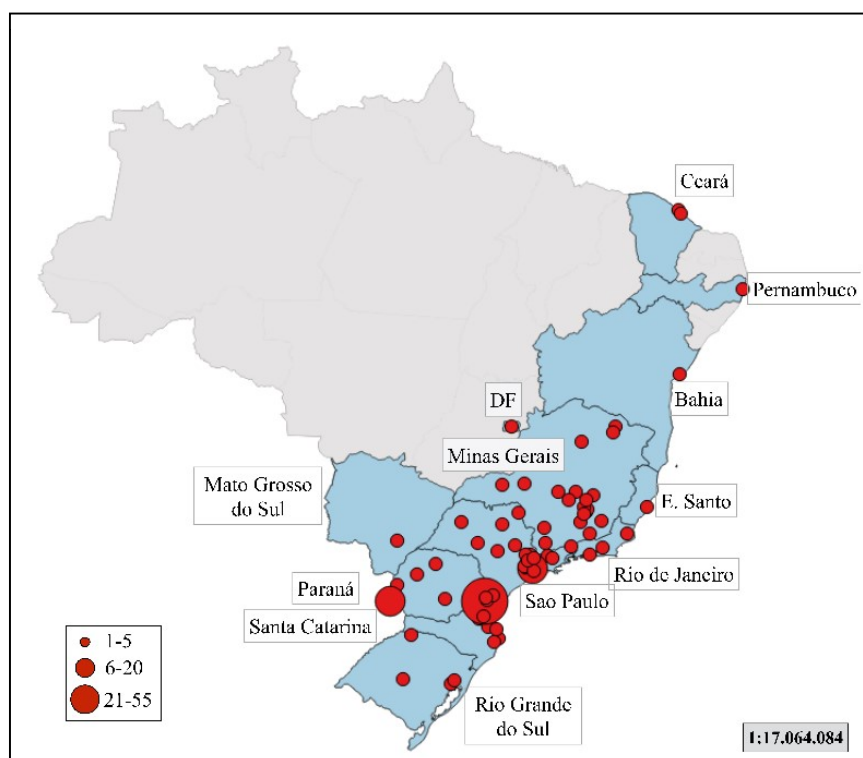
Questions	Figure acronym	N (%)
<b>Characteristics of AFH caregivers</b>		
Gender		
Female	F	140 (93.3)
Male	M	10 (6.7)
Age		
18-29	18-29	21 (14.0)
30-39	30-39	77 (51.3)
40-59	40-59	34 (22.7)
> 60	> 60	18 (12.0)
Education		
Incomplete elementary school	Esc (Incomplete)	1 (0.7)
Complete elementary school	Esc (elementar)	3 (2.0)
Incomplete high school	Esc (incomplete_high)	3 (2.0)
Complete high school	Esc (high)	16 (10.7)
Incomplete higher education	Esc	38 (25.3)
Complete higher education	(incomplete_higher)	34 (22.7)
Majors	Esc (higher_education) Esc (Majors)	55 (36.7)
How many times have offered AFH		
Once	Times (1)	43 (28.7)
2 to 5	Times (2-5)	59 (39.3)
6 to 10	Times (6-10)	9 (6.0)
More than 10	Times (>10)	39 (26.0)
Main difficulty in providing AFH		
Costs	Costs	81 (54.0)
Animals behavior	Behavior	46 (30.7)
Resistance of family members	Family	40 (26.7)
Finding adopters	Adopters	122 (81.3)
Time to care for animals	Time	36 (24.0)
<b>Characteristics of AFH</b>		
Location of AFH		
Own residence	Own_residence	131 (87.3)
Family residence	Family_residence	2 (1.3)
Other residence	Other_residence	18 (11.9)
Number of animals at AFH		
1 to 5 animals	Number_animals (1-5)	109 (72.7)
6 to 10 animals	Number_animals (6-10)	18 (12.0)
11 to 20 animals	11)	11 (7.3)
More than 20 animals	Number_animals (11-20)	12 (8.0)

	Number_animals (>20)	
Animal arrival from		
Streets	Streets (Y)	106 (70.7)
Rescue requests	Rescue (Y)	66 (44.0)
Species preferences at AFH		
Cats	Species_pref (Cats)	16 (10.7)
Dogs	Species_pref (Dogs)	42 (28.0)
No species preference	Species_pref (N)	92 (61.3)
Age preferences at AFH		
Puppies	Animal_age (Puppy)	7 (4.7)
Adults	Animal_age (Adults)	6 (4.0)
No preference	Animal_age (N)	137 (91.3)
AFH to dogs with special needs		
Old animals	Old_animals	61 (40.7)
Blind or deaf animals	Blind_deaf	35 (23.3)
Amputee animals	Amputated	47 (31.3)
Animals with chronic diseases	Chronic_diseases	54 (36.0)
Do not offer	Do_not_offer	64 (42.7)
New animals are placed		
In isolation	New_arrivals (Isolated)	98 (64.9)
Mixed with existing animals	New_arrivals	43 (28.1)
Other	(Same_area) New_arrivals (Other)	9 (6.1)
Animals remain most of the time		
Free in backyard	Free_backyard	55 (36.7)
Restrained with chains	Chained	0 (0.0)
In cages	Cages	0 (0.0)
In kennels	kennels	13 (8.7)
Inside the residence	Inside_residence	25 (16.7)
Free in the residence	Free_residence	57 (38.0)
Minimum housing time		
Less than one week	MinT (<1w)	65 (43.3)
1 to 4 weeks	MinT (1-4w)	22 (14.7)
4 to 8 weeks	MinT (4-8w)	5 (3.3)
8 to 12 weeks	MinT (8-12w)	6 (4.0)
More than 24 weeks	MinT (>24)	52 (34.7)
Maximum housing time		
Less than one month	MaxT (<1m)	33 (22.0)
1 to 3 months	MaxT (1-3)	16 (10.7)
3 to 6 months	MaxT (3-6)	10 (6.7)
6 to 12 months	MaxT (6-12)	11 (7.3)
12 to 24 months	MaxT (12-24)	8 (5.3)
More than 24 months	MaxT (>24)	11 (7.3)
No maximum time		61 (40.7)

Caregiver provides to animals		
Bath	Bath	133 (88.7)
Grooming	Grooming	77 (51.3)
Vaccination	Vaccines	103 (68.3)
Microchip	Microchip	16 (10.7)
Neutering	Neutering	113 (75.3)
Treatment for internal parasites	Internal_parasites	142 (94.7)
Treatment for external parasites	External_parasites	138 (92.0)
Routine walk with the animals		
Once a day	Walk (Once_a day)	22 (14.7)
More than once a day	Walk (>1d)	11 (7.3)
Once a week	Walk (Once_a_week)	15 (10.0)
More than once a week	Walk (>1w)	17 (11.3)
Do not walk with the animals	Walk (N)	66 (44.0)
Did not answer the question	Walk (NA)	19 (12.7)
<b>Adoptions</b>		
Caregivers previously adopted their own animals		
Yes	Already_adopt (Y)	129 (86.0)
No	Already_adopt (N)	22 (14.0)
Difference in time until adoption		
Male dogs are adopted first	Dif (Male_dogs)	21 (14.0)
Female dogs are adopted first	Dif (Fem_dogs)	23 (17.3)
Male cats are adopted first	Dif (Male_cats)	25 (16.0)
Female cats are adopted first	Dif (Fem_cats)	9 (6.0)
No difference	Dif (N)	70 (46.7)
Age adopted faster		
Puppies	Faster (Puppy)	137 (90.7)
Adults	Faster (Adult)	1 (0.7)
No preference	Faster (N)	13 (8.7)
Size of animals adopted faster		
Small animals	Size (Small)	127 (84.7)
Big animals	Size (Big)	0 (0.0)
No preference	Size (N)	23 (15.3)
Caregivers asks questions of adopters		
Yes	Questions (Y)	144 (96.0)
No	Questions (N)	7 (4.0)
Questions asked to adopters		
Space for animal	Space	88 (58.7)
Money to keep the animal	Money	70 (46.7)
Experience caring for animals	Family_support	20 (13.3)
Presence of other animals	Space	35 (23.3)
Time to care for the animal	Other_animals	28 (18.7)

Although the costs of providing AFH were often reported as a challenge (n=81; 54.0%), the main issue was identification of suitable adopters (n=122; 81.3%). However, other concerns such as animal behavior issues (n=46; 30.7%), family resistance to activity (n=40; 26.7%) and the time dedicated to animals (n=36; 34.0%) were also listed. Although

uncommon, AFH sheltered old animals (n=61;40.7%), animals with chronic diseases (n=54;36.0%), animals with amputated limbs (n=47; 31.3%) or deaf/blind animals (n=35; 23.3%). The majority of the AFH caregivers offered treatment against internal (n=142; 94.7%) and external (n=138; 92.0%) parasites, bathing (n=133; 88.7%), spaying/neutering (n=113; 75.3%) and vaccination (n=103; 68.3%). Most AFH caregivers did not regularly walk the animals (n=66; 44.0%) or walked once a day (n=22;14.7%).



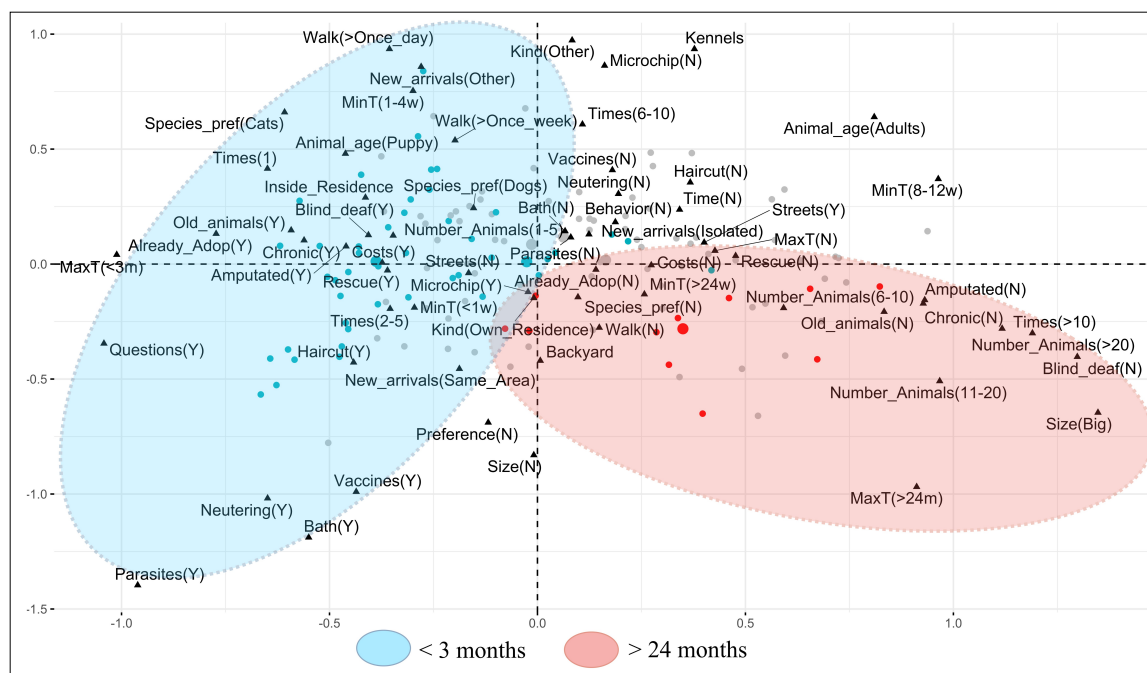
**Figure 1** - Spatial distribution of AFH participant caregivers in the present study. In blue, the states from which responses were obtained. It is possible to observe that the majority of AFH caregivers that participated in the study are mainly in the southern region of Brazil.

The majority of the AFH caregivers (n=129, 86.0%) stated that they had adopted some of the rescued animals themselves. AFH caregivers indicated that it was easier to find adoption homes for puppies (n=137; 90.7%) and small breed animals (n=127; 84.7%). No time difference was reported until adoption (n=70; 46.7%) between dogs and cats of either sex. AFH caregivers reported that they generally interviewed of the potential adopters (n = 144, 96%). The main questions were regarding the space in the new house (n=88; 58.7%), the income of future caregivers (n=70; 46.7%), the presence of other animals (n=35; 23.3%), the time to care for the animal (n=28; 18.7%) and previous experience of caring for animals (n=20; 12.3%).



Most AFH reported not having a limit on sheltering time (n=61; 40.7%). Although a minimum sheltering time of less than a week (n=65; 43.3%) was common, some AFH caregivers reported minimum housing times greater than 24 weeks (n=52; 34.7%) and maximum housing times greater than 24 months (n=72; 48%). Figure 2 represents a structural organization of the variables and categories in a two-dimensional space, which allows the identification of patterns in the data and associations between short-term (< 3 months; n=49) and long-term (>24 months; n=72) housing, using the maximum housing time reported by the AFH caregivers. Figure 2 shows a clear difference between the short-term and long term AFH, whilst medium-term housing has characteristics of both short-term and long-term housing groups. A maximum housing time was mainly associated with the number of animals maintained in the AFH and with the absence of old animals (P<0.05), chronically ill (P<0.05), amputees (P<0.05), deaf or blind (P<0.05). Short-term AFH offered shelter to fewer than six animals (P<0.05) while long-term AFH housed more than 20 animals in some cases. In relation to the care offered to animals, in long-term AFH a greater proportion of AFH caregivers never walked their animals, while the highest spay/neuter rates were observed in short-term AFH. In the short-term AFH, more animals were sheltered following requests from the public (P<0.05), whereas in the long-term AFH, they were more often rescued from the streets. AFH caregivers in short-term AFH were more worried about the costs associated with maintenance of the AFH (P<0.05) and those in long-term AFH were more concerned about resistance of family members to their activities and the financial capabilities of potential adopters (P<0.05).

**Figure 2** - Multiple correspondence plot of the variables associated with the characterization of foster homes in Brazil. There are clear differences between the housing times of the animals. Positively correlated variables are grouped together, and negatively correlated variables are positioned on opposite quadrants. As the distance between variables and the origin measures the quality of the variables on the factor map, only variables relevant to the PCA were plotted.



## DISCUSSION

In this study, most of AFH caregivers were female mainly between 18-39 years old. A greater number of female AFH caregivers was also observed in the studies of Santos (2015) and Osorio (2016). This finding can be attributed to several factors including: biological (maternal impulse) and sociocultural (raised to be caring and attentive since birth) factors (Herzorg *et al.*, 1991). Similarly, it has been reported that animal rights activists are mostly young (18-34 years old) women (Jerolmack *et al.*, 2003), possibly due to the influence of growing feminist and civil rights movements over the past 30 years where the fight for rights and protection has extended to non-human animals. The predominance of AFH caregivers from the South and South-eastern regions can be explained by the greater dissemination of the questionnaire in these states as a result of pre-established contacts with the Animal Defense Forum of Curitiba and some NGOs, especially in Curitiba and adjacent cities.

Most of the AFH caregivers used their own home as AFH, in concordance with findings in previous studies (Santos, 2015). Long-term AFH caregivers were primarily concerned about resistance of family members to their activities. The caregiver's involvement with AFH impacts their personal life and often leads to abandonment of family commitments, which may cause dissatisfaction among relatives who live with the AFH caregivers (Grisci *et al.*, 2017). In addition, caring for dogs and cats requires changes in routine, including, such as, cessation of socialization with people who do not like animals (Mendonça *et al.*, 2014). AFH caregivers should be ready to deal with barking, grunting, mewing, marking of territory, and other unwanted behaviors that may result from sheltered animals (NPYR, 2015).

Most AFH housed up to six animals, which demonstrates that the objective is to keep a small number of animals to ensure a good facility and dignified care (MHS, 2008). Moreover, overcrowding of animals reduces their well-being, as it induces stress, decreasing immunity and favors the onset of infections, especially in debilitated animals (Turner *et al.*, 2012). We found that a maximum housing time was mainly associated with the number of animals maintained and that in long-term AFH a greater proportion of AFH caregivers had reduced individual care for their animals. Overcrowding animals is associated with long-term housing, potentially generating physical and mental health problems in animals (Turner *et al.*, 2012). Since AFH are shelters that act as a gateway, aiming at the relocation of the animals into permanent homes, the maximum housing time of these animals should ideally be for a few weeks (MHS, 2008; NPYR, 2015; BFA, 2016). The shelter of many animals can represent several difficulties, consequences of the scarcity of resources and support, as well as being a warning about a possible situation of animal hoarding. For this reason, regularizations are required stipulating housing densities, sanitation requirements, veterinary care, and regular inspection of licensed facilities. Such criteria could help the media, the public, as well as the courts to distinguish between legitimate sheltering efforts and hoarding (Gary *et al.*, 2001).

Most AFH reported no preference for species or age of the housed animals. Even protectors who generally focus on certain species, in some cases, may come to rescue other species (Lewgoy *et al.*, 2015). Most AFH caregivers mentioned that new animals were housed separated from the others. This is an important practice because when the animals are temporarily rescued, they may be frightened or insecure, so it is important to prepare a special area to facilitate their adaptation into the new home (BFA *et al.*, 2016). In fact, after the arrival of new animals, these should be kept separate from the others for seven to ten days (MHS, 2008). The majority of AFH caregivers stated that they ascertained the animal caring experience and the capabilities to address special needs of

the animals from the potential adopters through informal interview sessions. A questionnaire allows information about the potential adopter to be obtained and is an important element to ensure suitability of the AFH caregiver for adoption of the animals (Soares, 2006; Gomes, 2013). Most of the AFH offered treatment against internal and external parasites, as well as bathing, spaying/neutering and vaccination. According to Santos (2015), treatments against fleas, ticks and intestinal parasites, and neutering, are fundamental processes in the transformation of an abandoned animal into a potentially adoptable one.

Almost all AFH caregivers consider that there is a preference for adoption of puppies. Adopters also considered it was more difficult to secure adoption homes for large animals as they require more space and exercise (Mendonça *et al.*, 2014). The size of the animal can also contribute to failure of the adoption process since, if the adopted puppy is larger than expected, the animal may be abandoned again (Paploski *et al.*, 2012). The preference for the adoption of male dogs may be due to their potential to become house guards (Ramirez, 2019) and because of the ease of care compared to females with regard to unwanted litters (Soto *et al.*, 2015). In contrast, males may not be desired as they may be more aggressive and more likely to escape (Mondelli *et al.*, 2010; Rodrigues *et al.*, 2013; Polo *et al.*, 2015). The majority of the AFH caregivers stated that they had personally adopted some of the rescued animals and this was not related to AFH housing time. AFH caregivers find it hard to detach from the animals in their care, and many describe feelings of loss and fear when adoption occurs because there are always uncertainties about the animal's future and, even after thoroughly ensuring the suitability of potential adopters, the process may fail (Lewgoy *et al.*, 2015). In contrast, other AFH caregivers describe that passing the animal on to permanent adopters is immensely rewarding (MHS, 2008). It is important to consider that a person who assumes the responsibility of offering an AFH should have time and space available to the animals (Muraro *et al.*, 2014).

## CONCLUSION

AFH play a fundamental role in street population management programs, and therefore creation of public policies for their maintenance is essential, particularly in Latin American countries. In Brazil, AFH are mainly run by women in their own homes and they rescue animals found abandoned in the streets. In general, they provide vaccination, treatment for parasites and castration to the animals. The biggest issue for AFH caregivers is finding adopters for the animals, however, AFH caregivers are cautious at

the time of adoption and often questioned the potential adopters to establish their suitability. In this study we found that sheltering a small number of animals (less than six animals) provides a better chance of adoption in a shorter time period, thus avoiding kennel stress, overcrowding and potentially disease outbreaks. This study explored the characteristics of Brazilian AFH, and the challenges encountered by the caregivers in the AFH, emphasizes the need for support of these shelters from public health institutions, and the demand of public policies regulating AFH as components for street population management programs. This study has the potential to serve as a basis for the development of Brazilian guidelines for AFH.

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