

**PERCEPTIONS AND ATTITUDES OF ELEMENTARY SCHOOL TEACHERS
REGARDING PET ABANDONMENT**

(Percepções e atitudes de professores do ensino fundamental sobre o abandono de animais de companhia)

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ABSTRACT

This article analyses the perceptions and attitudes of 261 elementary school teachers who answered a questionnaire about the possible presence of abandoned animals in the vicinity of the schools where they taught, as well as their knowledge and attitudes with regard to minimizing this situation. The objective of this article was: to characterize the knowledge of the teacher (of elementary school) on the issue of abandonment of pet animals in the vicinity of their workplace. The central focus of the study was the teacher because previous studies have shown that environmental education programs focus on lectures to children but that this strategy loses its effectiveness after four months. Therefore, there is a need to use more effective and long-lasting strategies to minimize the consequences of pet abandonment. Additionally, such studies must be conducted periodically, which can only be done with the participation of teachers/educators precisely because these individuals are in frequent contact with children. This is the first study carried out in Brazil focusing specifically on the perception and attitudes of elementary school teachers on the issue of pet abandonment. To this end, a questionnaire was developed focusing on the perception of this teacher about such a question. Our results indicate the need for specific training of teachers on this subject because their knowledge of animal welfare and wellbeing is limited. Most respondents know at least one place in their city where there is a large number of abandoned animals. Additionally, because most of these teachers have pets and have worked in their respective schools for more than seven years, they have already had the opportunity to address the subject of pet abandonment in their classes, but the situation persists. Finally, we emphasize that in order to solve the pet abandonment problem, it is crucial to focus specifically on training in this particular subject because only teachers can have this discussion as many times as necessary.

Keywords: cat; dog; pets; responsible guardianship.

RESUMO: Este artigo analisa as percepções e atitudes de 261 professores de ensino fundamental que responderam a um questionário a respeito da possível presença de animais abandonados nas vizinhanças das escolas onde lecionavam, bem como seu conhecimento e atitudes no sentido de minimizar tal situação. O objetivo do presente artigo foi: caracterizar o conhecimento do professor (de ensino fundamental) sobre a questão do abandono de animais de companhia na vizinhança de seu local de trabalho. O foco central desse estudo foi o professor em função de

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que estudos prévios demonstraram que a abordagem das crianças perde sua efetividade após cerca de quatro meses. Portanto há a necessidade de estabelecermos estratégias mais efetivas. Adicionalmente, há a necessidade de retomadas periódicas dessa questão, o que pode ser feito de maneira mais apropriada exatamente por esse educador, já que está em contato regular com as crianças. Este é o primeiro estudo realizado no Brasil com esta proposta, e nossos resultados demonstram a necessidade de um treinamento regular e específico para desenvolver tal atividade satisfatoriamente, para tanto foi desenvolvido um questionário com foco na percepção da questão. A maior parte dos professores conhecia ao menos mais um lugar, além de sua unidade educacional, como local de abandono de animais, bem como possuíam animais de companhia. Justamente por trabalharem, em média, há mais de sete anos em suas unidades já tiveram oportunidade de abordar o assunto em suas aulas, contudo, em sua maior parte, não o fizeram. Finalmente, enfatizamos que para a solução de tal questão, é crucial focarmos na educação e no treinamento de professores, uma vez que formam um pilar central nessa questão.

Palavras-chave: cão; gato; guarda responsável; pets.

INTRODUCTION

Semi-owned or abandoned domestic animals, particularly dogs and cats, are common in Brazilian cities. According to a survey conducted by the Brazilian Institute of Geography and Statistics (IBGE, 2013), the population of these two species has now reached 74 million domiciled individuals (52 million dogs and 22 million cats). Interestingly, the same survey revealed that there are more dogs than children in Brazilian homes.

However, there are no official figures for non-domiciled animals, which is concerning. As previously mentioned, abandoned or semi-domiciled animals are little studied in Brazil, but this is not exclusive to this country, as the same is observed in several other countries (Alie et al 2007; Slater et al., 2008; Murray et al., 2009; Finkler and Terkel, 2012). The consequences of pet abandonment are widely known: animals that represent a potential threat of attack on people, particularly children; the possibilities of automobile accidents; reservoirs of zoonosis and diseases that can spread to other animals domestic or not; the possibility of contamination by feces and urine of aquifers or areas used for children's recreation or crop production; and predation of native fauna, among others - in addition to the evident suffering and poor living conditions of the abandoned animals (WHO, 1990; Slatter, 2005; Farnworth et al., 2010; Bradshaw et al., 2012; Toukhsati et al., 2012).

Among the strategies most frequently used to solve the pet abandonment issue, the establishment of shelters for housing abandoned animals is financially unfeasible due to the continuous increase in the number of abandoned pets. A more realistic strategy is awareness among the human population that there is a need to take responsibility for these animals in order to decrease the rates of abandonment and unwanted mating and to increase the number of castrations, for example. The idea is that, after a period of time dependent on effort, the overall population of abandoned pets will decrease in the medium and long term, usually, with consequent improvement of the wellbeing of the remaining individuals (Chapman et al., 2000; Spiegel, 2000).

Several attempts to study and propose solutions for pet abandonment have used interviews, questionnaires for students and/or guardians, lectures and many other types of interactions in-person or via the internet or telephone, etc., which are all important strategies for education and awareness of those involved, sensitizing them to relevant aspects of this issue (Toukhsati et al., 2007; Marinelli et al., 2007; Gunaseelan et al., 2013; Souza e Shimizu, 2013). However, when analyzed several months after the intervention (Coleman et al., 2008), results consistently show that the effects of these educational interventions are short-lived, particularly with regard to children, a significant point to note is that this group is the most susceptible to being attacked by such animals (Spiegel, 2000; Coleman et al., 2008).

Thus, from our point of view, and within the awareness approach proposed here with regard to the pet abandonment issue, elementary school teachers play a critical role because they can determine the need to resume discussions on the topic from time to time, better preparing students for this situation. However, it is necessary to know more about the opinions, values and other aspects of elementary school teachers in terms of whether they are sensitized to the topic of pet abandonment and especially whether they know the real dimension of the issue and its consequences, for example.

In this article, we report the main findings of the first study of this type in Brazil, conducted with a particular interviewee profile: elementary school teacher, and addressing the issue of dog and cat abandonment. Our goals have been achieved by identifying the factors that predict responsible pet guardianship behavior in elementary school teachers and thus to measure the prevalence of behaviors related to semi-domiciled animals in comparison with the domiciled animals owned by the interviewees. Our main hypothesis was that the common belief that abandoned animals are independent and capable of feeding themselves and surviving on their own would be prevalent, as also observed by Slater et al. (2008), thus contributing decisively to increased abandonment and maintenance of these animals in poor welfare conditions.

MATERIALS AND METHODS

After a pilot study that assessed whether our questions were appropriate and clear to the respondents, the questionnaire, based on the format recommended by the World Society for the Protection of Animals (1990) was submitted to and approved by (Project CAAE: 36317314.2.0000.5378) the Ethics Committee on Human Research of the Brazilian Ministry of Health (<http://aplicacao.saude.gov.br/plataformabrasil/login.jsf>).

We administered the questionnaire to the teachers who agreed to participate in the study. The total number of participants was 261, representing 65.2% (out of a total of approximately 400 teachers) of the municipal staff, the mean age of the respondents was 43.1 years (\pm SEM: 0.5), and the majority were women (87%), a common finding in previous studies conducted in other regions of the world that also addressed this issue (Toukhsati et al., 2007; Rohlf et al., 2010).

The teachers belonged to the primary education network of the city of Sertãozinho, São Paulo, Brazil (48° 58 ' 22" longitude and 21° 8' 16" latitude), the 240th largest city in Brazil, with a human population of 121,412 inhabitants (IBGE, 2013), a density of 301.42 inhabitants/km², 29 municipal schools and a human development index (HDI) of 0.833 (PNUD2000).

Respondents remain anonymous if they so wished, and they received a copy of the informed consent form. After answering the questionnaires, the respondents also received a compact disc (CD) with didactic material about concepts in animal welfare and wellbeing developed by our research group, which they use in their

classes when and if they desired. The material contained several educational activities addressing this theme.

The questionnaire was developed to address topics such as caring for pets (dogs and cats) that do or do not receive specific care (community pets or abandoned pets). The questions were related to responsible guardianship attitudes toward these animals. Having in its first part questions related to the characterization of who answered and in its second part questions related to the knowledge of the question addressed in our study. For their analysis we statistically characterized their answers and in a final analysis we correlated some answers obtained with aspects of answers of the teachers themselves and their animals or if they applied these concepts in their classes, etc. (for details see in: Proposed associations between questionnaire questions).

DATA ANALYSIS

The significance level adopted for all analyses was 0.05, and the Chi-squared test was used to test whether the frequency distribution of the answers to each question deviated significantly from normality and to analyze the associations between variables. The error bars in the figures represent Wilson confidence intervals (which are more accurate than the Gaussian approximation when proportions are close to 0% or 100%).

RESULTS

The majority of teachers had worked in their respective schools for more than 7 years (7.7 ± 0.4), which implies they had broad experience with the place and had experienced the situation of possible abandonment in the vicinity of the schools. The majority had pets (dogs or cats) in their homes, and most of their pets were castrated (Table 1).

Regarding the abandonment of animals in the vicinity of the schools studied, the main topic of our study, the percentages observed are concerning because 34.6% of the teachers reported the presence of abandoned animals and another 42.0% did not know whether or not there were abandoned animals in their school's vicinity, although the majority reported working at their school for more than 7 years. Moreover, only 7.0% of the schools carried out some type of work on this issue. Lastly, further aggravating this issue, 99.2% of the teachers reported that there were other places in the city (in addition to their school) where it was possible to find abandoned animals.

A total of 78.6% of the teachers believed that it is important to address the issue of animal welfare (AW) in their classes, but only 40.9% put this idea into practice.

Table 1 - Socio demographic characteristics of the respondents and basic perceptions about animal welfare (AW).

Variable	Mean \pm SEM/%
Age (years)	43.1 \pm 0.5
Gender	
Female	87.0%
Male	13.0%
Time working at the school (years)	7.7 \pm 0.4
Has pets	
No	31.0%
Yes, dog	57.1%
Yes, cat	11.9%
Castrated	
Yes	52.8%
No	44.7%
Dog + Cat	1.9%
Does not know	0,6%
Thinks it is important to address AW in the classroom	
Yes	78.6%
No	4.7%
Does not know	16.7%

SEM: standard error of the mean. %: percentage of occurrence. The total number of participants was 261.

Table 2 - Pathologies and harmful effects cited by teachers that, according to their opinions, can occur in abandoned animals.

Pathology/effect	N	%*
Not cited	160	61,3
Rabies	62	23,8
Scabies	44	16,9
Toxoplasmosis	33	12,6
Tick-borne disease	13	5,0
Pigeon-borne disease	11	4,2
Worms	8	3,1
Asthma	1	0,4
Fly infestation	1	0,4

n: frequency. %: percentage of occurrence. The total number of participants was 261. *values exceed 100% because some respondents cited more than one pathology/harmful process.

Table 3 shows that most of the teachers knew another place in the city where it is possible to find abandoned animals (99.2%; Chi-squared test: $p < 0.001$ ($p = 7.7375 \times 10^{-27}$). Table 3 also reveals a lack of work involving students on the issue of abandonment (Chi-squared test: $p < 0.001$ ($p = 3.1116 \times 10^{-43}$).

When the teachers were asked if they knew something about AW, the difference between those who did and those who did not was not significant, indicating that approximately half of the teachers had at least some basic knowledge of this concept in their own opinion, which does not necessarily ensure technical relevance. However, when asked if they had seen didactic material about AW, the difference became significant, indicating that most teachers had not been exposed to specific material on AW. Additionally, a significant majority of the teachers had a pet. Lastly, when asked if castration could help prevent disease transmission, the

teachers answered "Yes" significantly more often than "No" (Chi-squared test: $p < 0.001$ $p = 2.4083 \times 10^{-16}$).

Table 3 - Main questions contained in the questionnaire.

Question	Answer	Frequency of citation	Percentage of occurrence (%)
There is another abandonment site in the city	Yes	118	99.2
	No	1	0.8
	Total	119	100
This school conducts environmental education with regard abandoned animals	Yes	18	7
	No	239	93
	Total	257	100
Have you heard about AW	Yes	119	45.8
	No	141	54.2
	Total	260	100
Have you seen any didactic material for AW	Yes	29	11.2
	No	230	88.8
	Total	259	100
Have a pet at home	Yes	168	64.9
	No	91	35.1
	Total	259	100
Castration can help avoid disease transmission	Yes	98	89.1
	No	12	10.9
	Total	110	100

In relation to the question "There is an abandoned animal at the school or in its vicinity," a significant difference is observed for the comparisons ("No" x "Yes" and "No" x "I do not know") with a Chi-squared value of $p = 0.001091$ (Figure 1).

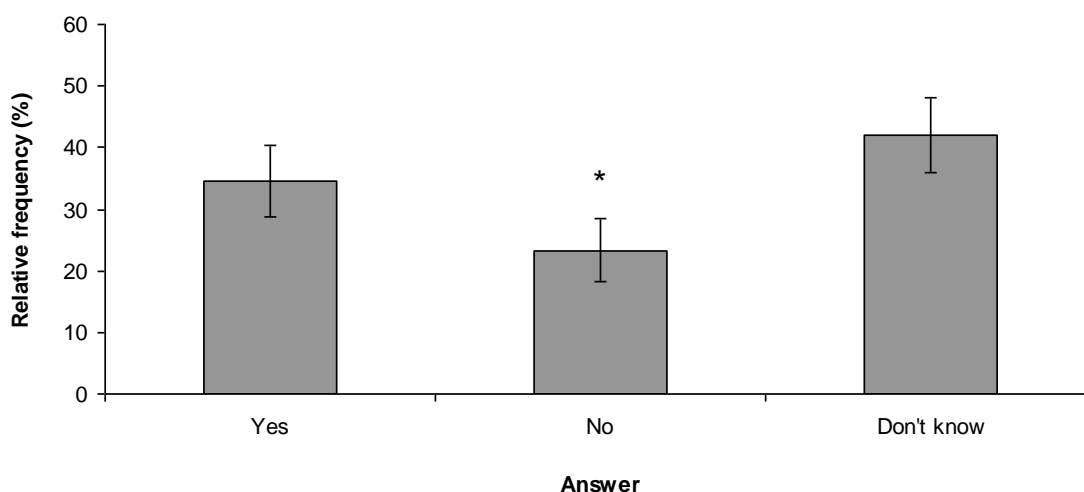


Figure 1 - Is there an abandoned animal at or near school?

Figure 2 shows that the comparison between the suggested answers demonstrates that the situation truly deserves attention because there is a significant difference between "Do not know" x "Yes" and between "Do not know" x "No" (Chi-squared test $p < 0.001$ ($p = 4.7230 \times 10^{-18}$) when the teachers were asked if they had already addressed AW in the classroom.

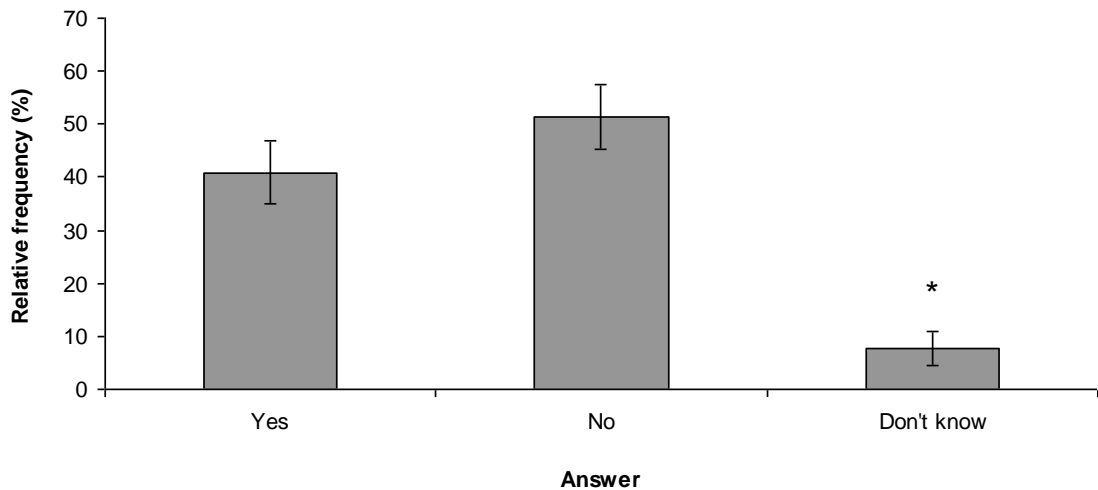


Figure 2 -Was this topic covered in the classroom?

When the question was whether the teacher's pet was castrated, no difference was observed between "Yes" and "No" (Chi-squared test: $p < 0.001$ $p = 8.9122 \times 10^{-32}$).

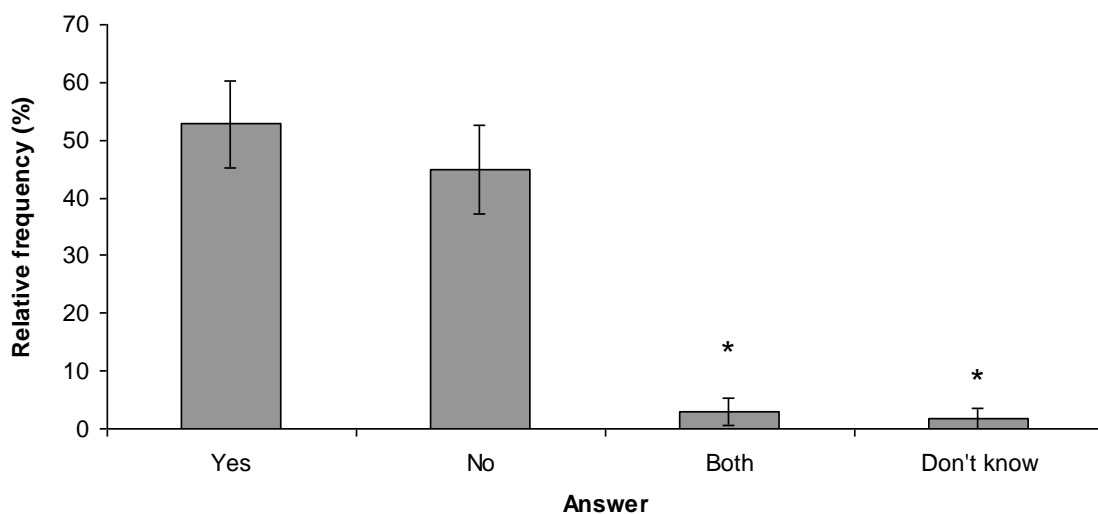


Figure 3 -Is your pet neutered?

PROPOSED ASSOCIATIONS BETWEEN QUESTIONNAIRE QUESTIONS:

Lastly, we proposed two associations related to fundamental aspects of our study. Regarding the first proposed association, we analyzed the relationship between whether the teacher had already addressed AW in the classroom and whether there was an abandoned animal in the vicinity of the school. The importance of this association is obvious: AW should be taught in the classroom if more abandoned animals are found in the vicinity of the school. Table 4 shows that although approximately half of the teachers had not addressed this issue in the classroom, almost half reported abandoned animals in the vicinity of the school. Another noteworthy point is that a significant portion (35.2%) of the teachers did not know whether or not there were abandoned animals in the vicinity of the school, despite the years spent teaching at the school and the fact that there had probably been time and opportunity for observation and action.

Table 4 - Correlation between the main questions contained in the questionnaire: [Have previously addressed the topic in the classroom] X [There is an abandoned animal at the school or in its vicinity].

Theme/School	Yes		No		Does not know		Total	
	n	%	n	%	n	%	n	%
Yes	45	50.6	39	43.8	5	5.6	89	100
No	22	36.7	38	63.3	0	0.0	60	100
Does not know	38	35.2	55	50.9	15	13.9	108	100

*value-p= 0,002757; ** df: 4.

The data in Table 5 confirm the most relevant and concerning aspect of our study, which is the weak degree of initiative with regard to addressing the problem of abandoned animals because most schools did not carry out any environmental education work on this issue, despite the presence (or lack of records) of abandoned animals in the vicinity of schools.

Table 5 - Correlation between the main questionnaire questions: This school carries out some environmental education work on abandoned animals X There is an abandoned animal at school or in its vicinity.

Theme/School	Yes		No		Total	
	n	%	n	%	n	%
Yes	15	16,8	74	83,2	89	100,0
No	2	3,3	58	96,7	60	100,0
Does not know	1	1,0	107	107,0	108	100,0

***value-p = 3,32312⁻¹⁰-05; df: 2.

DISCUSSION

Our results reveal a troubling element, which is that teachers are not technically prepared for such a task, at least at present. This is confirmed by two other studies (New *et al.*, 2000; Scarlett *et al.*, 2002) that show that guardian with less education or income are more likely to abandon their animals. Therefore, educating children can contribute decisively to reducing pet abandonment. However, the effectiveness of lectures in minimizing the effects of abandonment, as noted by Coleman *et al.* (2008), only last for a few months (2 to 4).

The problems related to the high number of wandering animals in our cities can be aggravated by ignoring the situation in the vicinity of schools, as well as other places. Profiling the situation from the point of view of elementary school teachers proved to be important, for the basic reason that according to our proposal these teachers play a critical role in solving the conflict between humans and dogs and cats. Because according to our proposal, it is teachers who can regularly address this issue with children. Thus, teachers' opinions should be investigated and they should be widely involved in the matter, which for various reasons may go unnoticed.

According, Slater *et al.* (2008) call attention to activities that can improve the relationship between guardians/caregivers and pets and can substantially decrease pet abandonment. However, members of the community are needed to carry out this

support service, repeatedly discussing this issue, which again suggests the fundamental role of teachers.

Understanding the reasons for abandonment is critical for the planning of management programs as well as for the development of educational programs (Finkler and Terkel, 2012). Although in recent years a growing number of studies have been published (Finkler and Terkel, 2012) on the attitudes and perceptions of pet guardians, the findings vary among countries, and no study has specifically focused on individuals who play a critical role, such as elementary education teachers.

It is necessary to raise the awareness of pet guardians, through the education of children, that pets are dependent on humans for food, hygiene, health, physical protection, and especially inter-species social connection. It is important to remember that due to domestication, dogs and cats in particular establish strong social links with our species (Hirschenhauser et al., 2017); therefore, an additional form of harm can be highlighted for these animals, which is physical separation.

The number of abandoned animals observed in the vicinity of the studied schools is only a small example of the larger number of abandoned animals in the city, as seen in our results. Most teachers report that they know of another place, in addition to the school involved, that is a specific place of abandonment, thus highlighting the seriousness of the situation.

CONCLUSION

There are a number of methods that can be used to encourage pet guardians/caregivers to keep their pets confined and have them castrated and to meet their basic needs, thereby reducing the overall population of abandoned animals, with a consequent reduction in all the harms already cited. We must understand teachers' opinions and perceptions (or lack thereof) and train these individuals adequately with technical concepts so that they can have an ongoing discussion with the children they teach, taking the time necessary over a variable period of time in order to minimize the consequences of pet abandonment, until a suitable final solution is found for all the species involved.

INFORMATIVE NOTES

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