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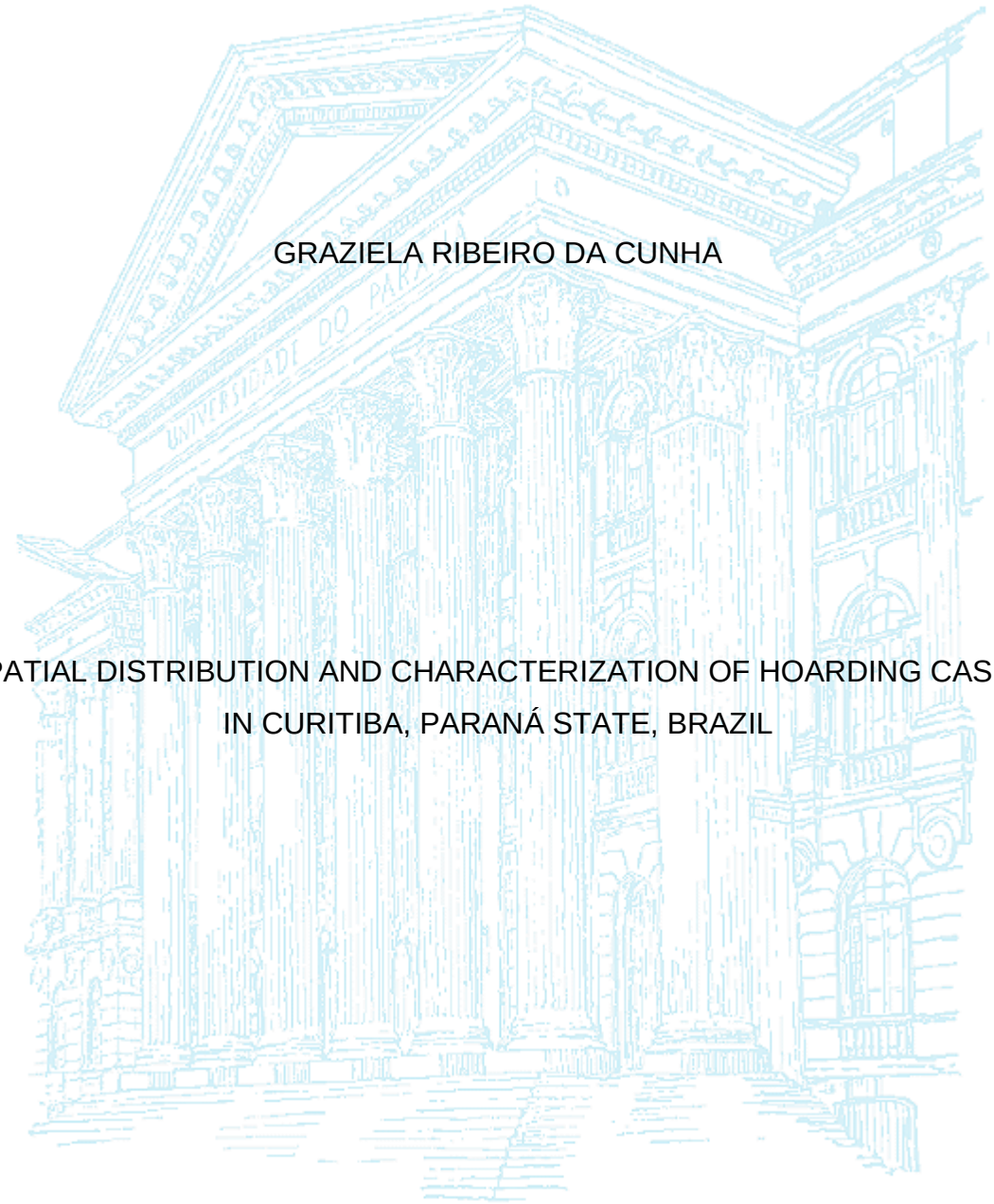

GRAZIELA RIBEIRO DA CUNHA

SPATIAL DISTRIBUTION AND CHARACTERIZATION OF HOARDING CASES IN CURITIBA, PARANÁ STATE, BRAZIL

CURITIBA

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Dissertação apresentada ao Programa de Pós-Graduação em Ciências Veterinárias, Área de Concentração em Saúde Única, Setor de Ciências Agrárias, Universidade Federal do Paraná, como requisito parcial à obtenção do título de Mestre em Ciências Veterinárias.

Orientador: Prof. Dr. Alexander Welker Biondo

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UFPR

PARECER

A Comissão Examinadora da Defesa da Dissertação intitulada **"SPATIAL DISTRIBUTION AND CHARACTERIZATION OF HOARDING CASES IN CURITIBA, PARANÁ STATE, BRAZIL"** apresentada pela Mestranda **GRAZIELA RIBEIRO DA CUNHA** declara ante os méritos demonstrados pela Candidata, e de acordo com o Art. 79 da Resolução nº 65/09–CEPE/UFPR, que considerou a candidata APROVADA para receber o Título de Mestre em Ciências Veterinárias, na Área de Concentração em Ciências Veterinárias.

Curitiba, 26 de fevereiro de 2016

Professor Dr. Alexander Welker Biondo
Presidente/Orientador

Professora Dra. Vivien Midori Morikawa
Membro

Dra. Camila Marinelli Martins
Membro

À todas as pessoas e animais em situação de risco
e vulnerabilidade que tive contato durante a
realização desse trabalho.
Às pessoas. Aos animais. Ao planeta.
Dedico.

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“There are no secrets to success. It is the result of preparation, hard work and learning from failure.”

Colin Powell

RESUMO

O comportamento de acumular objetos e/ou animais tem comprometido a saúde, segurança e bem-estar dos indivíduos diretamente envolvidos, bem como da comunidade ao redor. Devido à extrema desordem pode causar desabamentos, incêndios, condições insalubres, proliferação de vetores e outros problemas de saúde, que representam uma grave preocupação em saúde pública. O acumulo de animais pode representar maus-tratos a animais com graves consequências para os animais envolvidos. Esse fenômeno tem sido pouco descrito na literatura científica, principalmente na América Latina, com consequente falta de informação sistemática sobre os casos de acumuladores que ajudariam no reconhecimento desse distúrbio e orientação da comunidade. Sendo assim, este estudo teve como objetivo determinar a frequência e distribuição espacial dos casos de acumulação e estabelecer o perfil dos acumuladores, com base em denúncias oficiais de Curitiba. A presente dissertação foi dividida em três capítulos. Inicialmente apresenta-se introdução do assunto, enfatizando a importância e a finalidade da pesquisa. O primeiro capítulo apresenta a questão do distúrbio mental da acumulação, principalmente dos acumuladores de animais e suas classificações, apresentando o tema e a importância do estudo em uma grande cidade do sul do Brasil. Este capítulo foi publicado como carta ao editor na Revista Clínica Veterinária. O segundo capítulo mostrou que os casos de acúmulo de objetos e/ou animais foram relativamente frequentes em Curitiba, com um aglomerado espacial de casos no norte da cidade, seguindo padrões de distribuição populacional e inversamente proporcional à renda bairro. Este capítulo foi aprovado para publicação na Revista Cadernos de Saúde Pública. O terceiro capítulo revelou o perfil dos acumuladores em Curitiba como mulheres, idosas, com baixa renda e escolaridade, vivendo sozinhas ou com uma outra pessoa, com problemas de saúde e assistência de parentes. Os principais riscos associados foram a proliferação de vetores e odor desagradável, indicando as condições insalubres do ambiente. Acumuladores de animais possuíam principalmente cães e gatos envolvidos em condições classificadas como regular ou bom e foram significativamente mais mulheres com relato de odor desagradável. Acumuladores de objetos foram significativamente mais pessoas com baixa renda, com mais riscos de incêndio e desabamento relatados. Os dados aqui apresentados contribuíram para o conhecimento científico atual e devem ser levados em consideração para apoiar as políticas de saúde pública específicas para os casos de acumuladores em Curitiba, que podem ser extrapolados para outras grandes cidades do Brasil.

PALAVRAS-CHAVE: Acumuladores, frequência, distribuição geográfica, perfil.

ABSTRACT

Object and/or animal hoarding behavior has been compromised the health, safety and well-being of individuals directly involved as well as the surrounding community. Due to extreme clutter may cause landslips, fires, unsanitary conditions, vector proliferation and other health problems, representing a serious public health concern. Animal hoarding may represent animal cruelty with serious consequences for animals involved. This phenomenon has been poorly described in scientific literature mainly in Latin America, with a consequently lack of systematic information on hoarding cases that would help on disorder recognition and community guidance. Accordingly, this study aimed to establish the hoarding frequency, spatial distribution and determine hoarders' profile, based on Curitiba official complaints. The present dissertation was divided into three chapters. Initially was provide an introduction of the subject, emphasizing the relevance and the purpose of the research. The first chapter presents the hoarding disorder issue, mainly animal hoarding and classifications, presenting the topic and the study importance in a major city of South Brazil. This chapter has been published as letter to the editor in Revista Clínica Veterinária. The second chapter showed that object and/or animal hoarding cases has been relatively frequent in Curitiba, with a spatial cluster of cases in northern city, following distribution population patterns and inversely related to neighborhood income. This chapter has been approved to publication by the Journal of Public Health. The third chapter revealed the hoarder's profile in Curitiba as elderly woman, with low income and education level, living alone or with another person, with health problems report and relatives' assistance. The main risks associated were vector proliferation and unpleasant odor, indicating environment unsanitary conditions. Animal hoarders had mostly dogs and cats involved in regular or good conditions and were significantly more women with report of unpleasant odor. Object hoarder were significantly more people with low income, more reported of fire and landslip risks. The data presented herein contributed to the current scientific knowledge and should be taking into account to support specific public health policies for hoarding cases in Curitiba, which may be extrapolated to other major cities in Brazil.

KEYWORDS: Hoarders, frequency, geographic distribution, profile.

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LIST OF ABBREVIATIONS AND SYMBOLS

UFPR	Universidade Federal do Paraná
IBGE	Instituto Brasileiro de Geografia e Estatística
USA	United States of America
WHO	World Health Organization
DSM-V	Fifth Edition of Diagnostic and Statistical Manual of Mental Disorders
SPSS	Statistical Package for the Social Sciences
MW	Minimum Wage
SD	Standard Deviation
±	More or less
%	Percent
=	Equal
/	Divided
<	Less than
>	Greater than
≥	Greater than or equal
≤	Less than or equal
®	Registered Trademark

SUMMARY

INTRODUCTION

The hoarding disorder has been defined as a persistent difficulty of object or animal disposal, regardless the current value, driven by a need to save them and distress when apart from them (AMERICAN PSYCHIATRIC ASSOCIATION, 2013). A previous study in community samples has shown that animals may be involved as much as in one third of hoarding cases (FROST, 2000). In overall, cases of animal hoarding have been characterized by the inability to provide the minimum standards of sanitation, space, food and veterinary care to animals associated with the inability to recognize the negative failure effects on animal welfare, family members and the environment. In addition, obsession to maintain an increasing number of animals, facing progressive deterioration of living conditions for people and animals and denial or minimization of problems (PATRONEK, 2006).

Hoarding has represented a serious public health problem since the disorder may compromise the health, safety and well-being of individuals directly involved as well as the surrounding community, and may cause landslips, fires and other health problems (FROST, 2000). When animal involvement has been present, consequences may include starvation, disease spreading, animal and human abandonment or death, and family dissolution (PATRONEK 2009).

An estimative of animal hoarding cases in the United States has shown that at least 3,000 people per year have directly and considerably devastate families and relationships, threaten the health of minors and dependent adults, incurring significant costs to communities, and affecting hundreds of thousands animals per year (BERRY, 2005; FROST, 2000; HARC, 2002; PATRONEK, 2006). At the environmental scenario, such behavior may become particularly relevant as generate favorable conditions for zoonosis spreading and vectors proliferation (CAIXETA, 2011).

This phenomenon has been poorly described with a consequently lack of systematic information on hoarding cases that would help on disorder recognition and community guidance (PATRONEK, 1999). Although epidemiological information may be essential for mapping of health services needed to treat these

cases, mostly remaining unknown on basic hoarding epidemiology (FROST, 2011; NORDSLETTEN, 2013).

In Brazil, hoarding cases have increasingly attracted media attention, particularly when the situation have reached extreme levels with serious consequences. Nevertheless, no scientific research has been published in developing countries with comprehensive studies on epidemiological information and spatial distribution of cases which may support the development of public policies and structuring the public service for the correct routing of these cases. In addition, Curitiba has no survey of public service official records on hoarding cases, being faced to date as a point issue, consequently there is no specific care protocols for this population within the framework of the Unique Health System.

The analysis of data distributed by geographical area has been increasingly valued in public health management, for pointing out new information as basis for planning and evaluation of actions on analysis of the spatial distribution of diseases, on the health services location and risk environmental, for instance (BARCELLOS E BASTOS, 1996). Such interpretations made on spatial data may allow not only quantitative evaluation but also health information associated to environmental and socioeconomic data. Moreover, data may be linked to Earth's surface position, in order to monitor the constant changes of geographical space and identify areas and populations subject to health disorders. Mapping of hoarding cases may facilitate the identification of geographic areas and affected populations, which may need more attention, whether preventive, curative and health promotion, serving as a basis for development of specific approaches. Finally, determination of hoarding profile and characteristics associated with cases may subsidize the development of specific care protocols.

Comprehensive studies and coordinated interventions may provide conditions for reduction of hoarder trauma, city costs, prevention of animal suffering and increase on medical resources for human and animal health (PATRONEK, 1999). In addition, veterinarians should be prepared to understand the hoarding process and recognize the signs in animals, which may be part of a hoarding situation, so veterinarians can play a key role in identify and report animal hoarding cases to competent authorities (REINISCH, 2009).

Accordingly, attempting to specifically contribute on hoarding information and awareness, the present study has been established by the Shelter Medicine Service of Veterinary Hospital of Federal University of Paraná (UFPR), in partnership with Curitiba Secretaries of Health, Environment and Social Assistance. This study has been a part of a larger project entitled “Profile and attention protocol to animals and/or objects hoarders in Curitiba, Paraná", sponsored by the Araucária Foundation of Paraná (SUPPLEMENT 1) and has been approved by the Research Ethics Committee of the Health Sciences Sector of Federal University of Paraná (SUPPLEMENT 2).

First, in the chapter one, the hoarding issue was presented, mainly animal hoarding, introducing the topic and the study importance in a major city of South Brazil. This research has been published as letter to the editor in Revista Clínica Veterinária (ISSN 1413-571X) (SUPLEMENT 3). Then in the chapter 2, the frequency and spatial distribution of hoarding cases in Curitiba, correlating with demographics data, has been described. The respective manuscript has been approved for publication in Reports in Public Health (Cadernos de Saúde Pública, ISSN 0102-311X). Lastly, in the chapter 3, the hoarders’ profile in Curitiba and important environmental and health characteristics associated with the cases has been described.

In overall, the present study intended to stimulate discussion of the hoarding behavior in the academics, politics and municipal public service spheres, contributing to knowledge advancement on hoarding cases and encouraging improvement of official record input, maintenance and updating.

GENERAL OBJECTIVE

Establish the profile of object and/or animal hoarders that led to complaint register in the city of Curitiba, Paraná State, Brazil.

SPECIFIC OBJECTIVES

- Performing active surveillance of complaints related to object and/or animal hoarders by official records of the Curitiba City.

- Mapping of spatial distribution of object and/or animal hoarding cases in Curitiba, related to with the neighborhood income level and population density;
- Establishing the profile of age, gender, education level and income level of people who exhibit the hoarding behavior in Curitiba, as well as the characteristics of object or animal accumulated.

HYPOTHESIS

Object and/or animal hoarding cases is more frequent in Curitiba than expected; The spatial distribution of cases has no correlation with income and population density of neighborhoods; Hoarder profile should be mostly of elderly women with low education and with predominance of object accumulation.

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1 THE ANIMAL ACCUMULATION HAS BECOME RECOGNIZED AS A MENTAL DISORDER

The hoarding issue has been featured again nationwide with the seminar "Hoarding Disorder: deconstructing preconceptions and building public policies" which has gathered more than 700 attendees in October 2014 in São Paulo to discuss the achievements and experiences on such topic. Moreover, hoarding was one of the central themes in the "Fifth International Shelter Medicine Conference" held at the Federal University of Minas Gerais, Belo Horizonte in November 2014. These technical meetings increasingly frequent has been demonstrating a growing social demand for effective strategies to approach and unravel the problem. Also, such issue may serve as an alert for veterinarians to be prepared in order to intervene when necessary, assuming the key role particularly in where animal involvement cases.

The fifth and latest international edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-V) – published in May 2013 and which translation has been launched in Brazil – included a chapter of "Obsessive-Compulsive and Related Disorders" considering the hoarding disorder as a specific disorder with own characteristics and distinct from the others. The inclusion of hoarding disorder in the DSM-V has been a reflection of the growing disorder evidence and a major advance for the correct referral of hoarding cases, which were previously considered as a symptom or behavior of patients with other neurological conditions, especially obsessive-compulsive disorder. A more specific diagnosis may allow people's awareness, case identification improvement, research stimulation and the consequent development of more effective strategy approaches and treatments for this disorder.

Animal hoarding specifically represents a multifactorial problem, which may have different characteristics in each case. Thus, the intervention form, treatment plan and care management has relied on the patient individual assessment and their environment, taking into account the biological, psychological, social and environmental factors, as well as the inevitable limitations of resources and services offered by the government (FIGURE 1 e 2).

FIGURE 1: A HOARDING CASE, IN WHICH THE CITY HEALTH SECRETARY, DUE TO ELDERLY PROTECTION, WAS ORDERED BY THE PUBLIC ATTORNEY TO INTERDICT AN 82-YEARS HOARDER. THE DISASTROUS ACTION RESULTED IN THE HOSPITALIZATION OF THE ELDERLY IN ABSTINENCE, WHO DIED OF A HEART ATTACK TWO WEEKS LATER. A) INSIDE THE HOARDERS' HOUSE. THE CAT COULD BE IDENTIFIED ONLY WITH THE CAMERA FLASH LIGHT, AND DIED THE FOLLOWING WEEK. B) OUTSIDE HOARDERS' HOUSE. THE DOG ON THE PICTURE HAD A LITTER OF PUPPIES WHICH WERE CRIMINALLY MURDER ON THE FOLLOWING NIGHT OF THE HOARDER INTERNMENT.

FIGURE 2: ANIMALS IN A 57-YEAR HOARDER, GUARULHOS CITY, SÃO PAULO STATE (TOTAL MORE THAN 100 DOGS).

Animal hoarders has been classified in three types, according to associated conditions, to facilitate the understanding of hoarding universe and the planning of intervention strategy. Classification has been based on characteristic such as interaction and social skills, animal risk, compulsion level, active or passive animal acquisition, empathy degree, attachment to other human beings and animals, denial or minimization of problems, situation control, subsequence response to competent authorities and finally the presence of associated medical or psychological problems. Thus, we have:

1.1 OVERWHELMED CAREGIVER

Patients display some awareness degree of problems with lack of animal care. Usually relate the problem caused by a change of circumstances or social, economic and/or medical resources (such as loss of spouse who helped to take care of animals, disease or disability, loss of job or income). An initial effort may be made to provide proper care for animals under their responsibility, but eventually hoarders become overwhelmed and unable to effectively solve problems. A strong attachment to the animals may be observed, as they were family members. Hoarders may tend to be reserved or isolated persons, acquiring animals passively and minimizing problems. A self-esteem linked to the role of animal caregiver may be present.

1.2 RESCUER

The most common hoarder type in the United States. A strong sense of mission to save animals has been present and leads to inevitable compulsion, actively acquiring animals and believing as the only one able to provide adequate care for them. The initial pattern of adoption after the rescue may be replaced only by the rescue. Fear (animal and own) death and hoarders oppose euthanasia. The begging has presence of adequate resources for animal care, but the number of animals gradually exceeds the ability to provide minimal care. A difficulty in refusing requests to rescue more animals has been present. Avoidance to authorities and/or oppose their access. Hoarders not necessarily isolated on own community or social setting.

1.3 EXPLOITER

The more difficult or problematic type. Hoarders acquire animals merely to meet own needs. They demonstrate sociopathic characteristics and/or personality disorders, evidencing the lack of empathy for people and animals, indifferent to the damage caused to them. Hoarders tend to the extreme situation denial, rejecting authority and refusing the legitimate concern of any external person

concerning the animal care. They believe that own knowledge is higher than the others and adopt the expert role with extreme need for control. A superficial charm and charisma may be present, being very articulate, specializing in the production of excuses and explanations, and able to present an appearance which transmits credibility and competence. Manipulators and smarts, with no guilt, remorse or social consciousness.

The recognition of these three different types of animal hoarders has assisted in making decisions for confronting and solving cases since some intervention strategies have been most likely to be effective with one hoarder type than others (FIGURE 3).

INTERVENTION ACCORDING TO HOARDER TYPE GENERAL STRATEGY			
Type of hoarder	**Persuasion with verbal agreement**	**Threat of legal action**	**Prosecution**
Overwhelmed caregiver	Most likely. Receptive to reduce the animals number.	May be sufficient to reduce the likelihood of recidivism.	Often unnecessary and may be counterproductive.
Rescuer	Unlikely. At least in the early stages.	Driving motivation is to continue with rescue efforts. So threats must offer potential for a scaled down operation.	May be required when threats fail.
Exploiter	Refractory. Deal with complaint.	Unlikely to be intimidated.	Probably essential.

FIGURE 3: INTERVENTION STRATEGIES ACCORDING TO THE ANIMAL HOARDER TYPE, ADAPTED FROM “ANIMAL HOARDING: STRUCTURING INTERDISCIPLINARY RESPONSES TO HELP PEOPLE, ANIMALS, AND COMMUNITIES AT RISK. PATRONEK, LOAR, NATHANSON, EDS. 2006”.

Regardless of approach applied in each case, we emphasize the importance of multidisciplinary intervention, involving human, animal and environmental aspects (one health), with special attention to relapse prevention, which has been approximately 100% in United States. The community active participation importance, which may help in the identification, communication to public service and monitoring of cases, should be always emphasized.

In Curitiba, a Workgroup on Hoarding has been created and includes the Animal Protection Network from the Environment Secretary, Mental Health Service and the Center of Environmental Health from the Health Secretary, the Social Assistance Foundation and the Federal University of Paraná Department

of Veterinary Medicine, in close contact with the Public Prosecutor and the City Council Chamber.

The resultant project entitled "Profile and attention protocol to animals and/or objects hoarders in Curitiba, Paraná" was recently approved and obtained R$140,000.00 (U$35,000.00) in funding by the Research Program for Unique Health System: Shared Management in Health (Edition 2012) through the financing agency for research in Paraná, the Araucaria Foundation of Paraná.

Potential city hoarders have been identified through the active search of complaints registered in the Central # 156 of the Municipal Health, Environment Department and of Social Assistance Foundation in the current project phase. A total of 189 complaints of animals and/or objects hoarders have been processed to date and analyzed, with preliminary results showing a spatial distribution without social, economic or geographic trend (FIGURE 4).

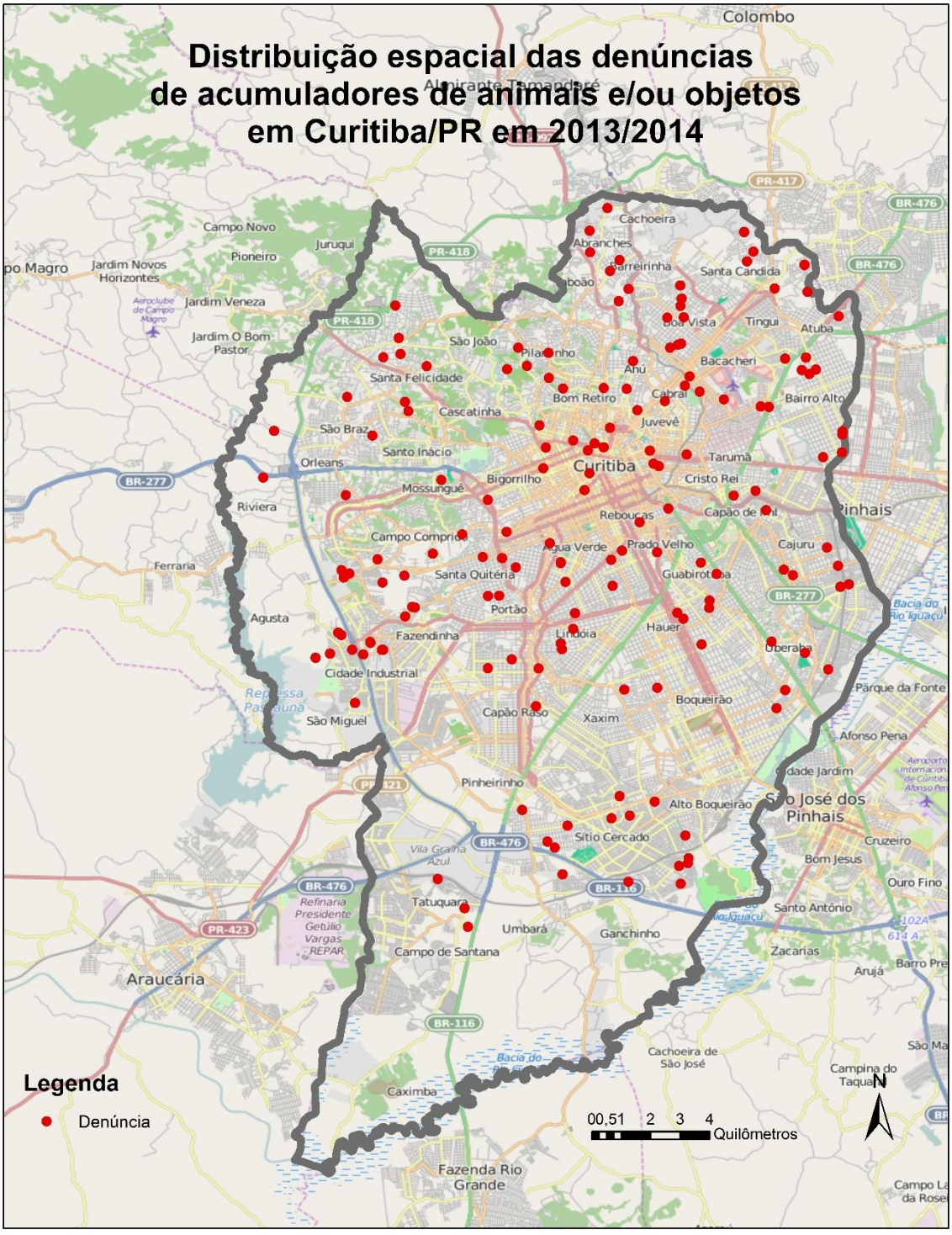

FIGURE 4: PRELIMINARY RESULTS OF SPATIAL DISTRIBUTION FROM 189 COMPLAINTS OF ANIMALS AND/OR OBJECTS HOARDERS IN CURITIBA/PR.

Furthermore, assuming that the Curitiba current population is about 1,848,943 inhabitants (IBGE, 2013), for the first time a real proportion of hoarders has been shown for Brazil, approximately one hoarder for every 10,000 inhabitants (1:10,000).

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2 FREQUENCY AND SPATIAL DISTRIBUTION OF ANIMAL AND/OR OBJECT HOARDER BEHAVIOR IN CURITIBA, PARANÁ, BRAZIL

2.1 RESUMO

Este estudo teve como objetivo determinar a frequência e a distribuição espacial do transtorno de acumulação compulsiva em Curitiba, a oitava cidade mais populosa do Brasil. Todas as denúncias relativas a acumuladores recebidas pelas Secretarias Municipais de Saúde, Meio Ambiente e Assistência Social de setembro de 2013 a abril de 2015 foram coletadas (n = 226) e casos suspeitos foram investigados individualmente. Um total de 113/226 (50,0%) denúncias foram confirmados como casos de acumulação, representando uma proporção total de 6,45 casos por 100.000 habitantes em Curitiba, do quais 48/113 (42,5%) eram acumuladores de objetos, 41/113 (36,3%) de animais e 24/113 (21,2%) de animais e objetos. Correlações do total de casos identificados com densidade populacional dos bairros foram consideradas significativamente positivas ($p<0,01$) em todos os estratos populacionais analisados (total, sexo, idade) e significativamente negativa ($r=-0,2$; $p=0,03$) com a renda média mensal dos bairros. Um aglomerado espacial dos casos foi encontrado no norte da cidade (OR 8,57; $p<0,01$). Casos de acumulação foram relativamente frequentes em Curitiba, associados a padrões de distribuição populacional e inversamente relacionados com renda dos bairros.

Palavras-chave: acumulação compulsiva, frequência, distribuição geográfica, saúde pública

2.2 ABSTRACT

This study aimed to establish the hoarding frequency and spatial distribution in Curitiba, the eighth most populated city of Brazil. All hoarding complaints received by the City Secretaries of Health, Environment and Social Assistance from September 2013 to April 2015 were collected (n=226) and suspicious cases were individually investigated. A total of 113/226 (50.0%) complaints were confirmed as hoarding cases, representing an overall ratio of 6.45 cases per 100,000 inhabitants in Curitiba, from which 48/113 (42.5%) were object hoarders, 41/113 (36.3%) animal hoarders and 24/113 (21.2%) both animal and object hoarders. Correlations of total identified cases with neighborhood population density were considered significantly positive ($p<0.01$) in all population stratums analyzed (total, gender, age) and significantly negative ($r=-0.2$; $p=0.03$) with neighborhood mean monthly income. A spatial cluster of cases was found in the northern city (OR 8.57; $p<0.01$). Hoarding cases were relatively frequent in Curitiba, associated to distribution population patterns and inversely related to neighborhood income.

Keywords: Hoarding, frequency, geographic distribution, public health

2.3 INTRODUCTION

Mental disorders have represented almost 12% of the global disease burden and accounted for substantial economic public health costs in a wide range of population groups, particularly in social vulnerability (WORLD HEALTH ORGANIZATION, 2003). The hoarding disorder may be defined as a particular mental disorder characterized by a persistent difficulty of discarding or disposing possessions, regardless their value, with serious obstruction of living spaces and harmful consequences for the person, related family and community (AMERICAN PSYCHIATRIC ASSOCIATION, 2013). In addition, hoarding behavior (accumulation) has been reported as consequence of other mental disorders such as neurodevelopmental disorders, schizophrenia spectrum and other psychotic disorders, major depressive episode, obsessive-compulsive disorder and neurocognitive disorders (AMERICAN PSYCHIATRIC ASSOCIATION, 2013).

Hoarding behavior has reportedly impacted on public health due to extreme clutter leading to unsanitary living conditions, disease harboring and spreading (particularly zoonoses), risk of falls, fire hazard, obstruction of fire exits, endangering local public health, safety and welfare (FROST; STEKETEE; WILLIAMS, 2000; HOARDING OF ANIMALS RESEARCH CONSORTIUM, 2002; PATRONEK, 1999).

The hoarding behavior and its negative effect have been considered a growing environmental concern on public health, related also to poor physical health, increased risk of injury, exacerbation of chronic diseases, occupational impairment, social concerns as risk of homelessness, social isolation, and economic burdens (FLEURY; GAUDETTE; MORAN, 2012; TOLIN et al., 2008). When associated with frustrations from family members, the hoarding behavior and its consequences may cause strain on relationships (FLEURY; GAUDETTE; MORAN, 2012). Conditions of hoarding behavior may worsen when animal accumulation is involved (FROST; STEKETEE; WILLIAMS, 2000), singly or in association with object hoarding, exacerbating complaints of animal noise and feces odor from neighbors (CALVO et al., 2014; FROST; STEKETEE; WILLIAMS, 2000; JOFFE et al., 2014; PATRONEK, 1999).

Animal hoarding has not been defined only by multiple pet ownership (WORTH; BECK, 1981) or as just an animal welfare issue (HONEY, 2014), but also as a failure to provide minimal standards of animal care (PATRONEK, 1999). Animal hoarders may deny consequences of such failures, with obsessive efforts to keep or increase animal population, even under deteriorating conditions due to lack perception (PATRONEK, 1999). In addition, failure to provide care may compromise animal welfare and lead to animal suffering, abuse, and cruelty (PATRONEK, 2008) which may trigger criminal prosecution sooner than public health concerns and intervention.

Animal hoarding has been reported since the early 80s, with 31 cases of multiple animal ownership in New York City (WORTH; BECK, 1981) and in the late 90s with 54 cases across USA (PATRONEK, 1999). Moreover, cases have also been described outside USA, with six cases in Canada (REINISCH, 2009), 24 in Spain (CALVO et al., 2014), 22 (OCKENDEN; DE GROEF; MARSTON, 2014) and 29 (JOFFE et al., 2014) in two independent studies in Australia. Based on intervention approach, animal hoarders have been classified in three general groups: overwhelmed caregiver, rescuer and exploiter (PATRONEK; LOAR; NATHANSON, 2006).

A review of published studies on hoarding cases, mainly focused on determine the hoarding prevalence or number of cases, from 1981 to 2014 has been provided (TABLE 1).

TABLE 1: SUMMARY OF PUBLISHED STUDIES ON HOARDING CASES FROM 1981 TO 2014.

Hoarder		**Local**	**Period**	**Study method**	**Case ratio / Prevalence** (cases per habitants)	**Reference**
O	**A**					
-	31	New York, USA	1973-1979	Direct interview to 34 suspicious cases	0.4/1,000,000 overall	WORTH; BECK, 1981
-	54	8 States, USA	1992-1996	Phone interview to 25 Organizations	0.8/100,000/year	PATRONEK, 1999
36	17	Massachusetts, USA	1992-1997	Questionnaires to 88 health officers	26.3 complaints/100,000	FROST, 2000
27	-	Baltimore, USA	1997-1999	Direct interview, psychiatric exam after random sampling	Prevalence 5.3%	SAMUELS, 2008
-	2	Rio de Janeiro, Brazil	1998-2013	Records analyze of 420 patients with OCD	0.47%	CAMPOS-LIMA, 2015
-	22	Victoria, Australia	2000-2014	Phone / e-mail interview to 31 Councils	-	OCKENDEN, 2014
-	71	28 States, USA 1 province, Canada	2002	Interview to 71 animal control, police and health officers	-	HARC, 2002
	24	Madrid, Spain	2002-2011	Online interview to 24 Organizations	-	CALVO, 2014
-	6	Manitoba, Canada	2005-2007	Interview to Veterinarian after case review	-	REINISCH, 2009
52	0	London, UK	2005-2007	Clinician-administered interview and self-report	-	PERTUSA, 2008
-	29	N.S. Wales, Australia	2005-2011	Retrospective analysis of database records	1-2/1,600,000/year	JOFFE, 2014
105	-	Germany	2007	Self-report	Prevalence 4.6%	MUELLER, 2009
19	-	London, UK	2008-2011	Direct interview, psychiatric exam to 99 suspicious cases	Prevalence 1.5%	NORDSLETTEN, 2013
177	-	Singapore	2009-2010	Face-to-face interviews with residents	Prevalence 2.0%	SUBRAMANIAM, 2014
295	53	Madrid, Spain	2009-2012	Records analyses of intervention requests	-	RODRÍGUEZ, 2014
25	-	New York, USA	2010	Clinician-administered Interview and self-report	Prevalence 22% and 23%	RODRIGUEZ, 2012
78	-	Italy	2010-2011	Self-report	Prevalence 3.7 and 6.0%	BULLI, 2013
191	129	Florida, USA	2013	Questionnaires to code enforcement officials and social service workers	33/100,000/year	MCGUIRE, 2013
72	65	Curitiba, Brazil	2013-2015	Analyze of data on complaints and investigation on hoarders household	6.45/100,000	(CUNHA et al. 2016)

O = Object;
A = Animal;

The majority of previous studies have been focused on the descriptive and demographic hoarders' characteristics, mainly in developed countries and lacking epidemiological data.

However, to the authors' knowledge, no hoarding study on epidemiological or distribution characteristics has been performed in developing countries to date, particularly in Brazil. Accordingly, the aim of this study was to establish the hoarding behavior frequency, spatial distribution and correlation with demographic characteristics in Curitiba, Paraná State, Brazil.

2.4 METHODS

The present study has been conducted in Curitiba (25°25'47 "S, 49°16'19" W), state capital of Paraná and the eighth most populated city in Brazil. Curitiba has a population of 1,751,907 inhabitants distributed in 75 neighborhoods, mean 23,359 (289 to 172,669) inhabitants per neighborhood and income mean R$2,405.29 (R$854.89 to R$6,184.93) (US Dollar equivalent in April 30th, 2015: mean $798.56, ranging from $283.82 to $2,053.42) per neighborhood, according to data from the last population census conducted by Brazilian Institute of Geography and Statistic (IBGE, 2010). This study was developed with a cross sectional ecological design.

The Curitiba city hall has specific departments, officially responsible to receive complaints regarding problems with animals, health, environment and social vulnerability by a central phone. Consequently, has qualified inspectors responsible exclusively for investigate these complaints, which may be nurses, veterinarians, and/or biologists. Inspectors lead in consideration the direct observation of the environment and animals conditions during the investigation and may enter in the house if necessary to better analyze the denounced situation. At the same time, was formed a hoarding workgroup with these public health professionals in partnership with psychologists, physicians of Curitiba city hall and researchers of Federal University of Paraná. This workgroup has been acted in consulting, discussion and training about hoarding, helping inspectors in identification and conduct of the cases.

The basis used by inspectors to considerer a complaint as a hoarding case was local observation of object and/or animal accumulation inside and/or outside the house at the investigation moment and preview historic of hoarding cases in Curitiba prefecture records. The criteria used specifically for object hoarding cases identification was local observation of a large amount of items accumulated without an apparent purpose with obstruction of living spaces (AMERICAN PSYCHIATRIC ASSOCIATION, 2013) and report of difficulty to dispose objects. The criteria used specifically for animal hoarding cases identification was local observation of animal accumulation, lack of health standards, space, nutrition or veterinary care (PATRONEK; LOAR; NATHANSON, 2006) and refuse to donate their animals. In summary, the case identification applied herein took into consideration the physical consequences of the hoarding behavior, which affected the family members and community, leading to complaints registry. All identified hoarding cases in this study were referred by the hoarding workgroup to psychiatrists and psychologists from the Curitiba City Hall to proceed the adequate diagnosis and treatment needed, which were not included as part of this study.

To proceed the development of this study, all register data of complaints and results of investigations related to object and/or animal hoarding behavior received by the City Secretaries of Health, Environment and Social Assistance from September 2013 to April 2015 were registered and analyzed. Despite the complexity of hoarding issue, the present study has focused at the epidemiological and general approaches. Therefore, hoarding cases were assessed by service forms rather than questionnaires and/or interviews with the hoarders and relatives, since no such study has been performed to date in Brazil.

The identified hoarding cases were analyzed determining two ratios: (1) number of hoarding cases each 100,000 inhabitants and (2) number of inhabitants, number of woman, number of men, number of elderly people (older than 60 years of age), number of men elderly and number of woman elderly for each hoarding case. Frequencies of hoarding cases per neighborhood were correlated with number of woman, number of men, number of elderly people and mean monthly income per neighborhood. All demographic data used were provided according to data from the last population census conducted by Brazilian Institute of Geography and Statistic (IBGE, 2010). Correlations were

evaluated using the Spearman test (significant p-value <0.05) since the Kolmogorov-Smirnov Test has shown that data did not follow a normal distribution frequency. Analyses were performed by a commercially available software (SPSS for windows, version 16.0, SPSS Incorporated, Chicago, IL, USA).

Corresponding geographic coordinates were obtained from each identified animal and/or object hoarding case and maps of hoarding cases distribution and demographic characteristics were developed using a geographic information system (ArcGIS 10, ArcMap software, ESRI, Redlands, CA, USA). Following, clusters analysis of hoarding number between neighborhoods were carried out with Purely Spatial analysis scanning for clusters with high rates using the Discrete Poisson model (KULLDORFF, 1997) in SaTScan (KULLDORFF; INC., 2009) software.

The present study has been approved by the Ethics Research Committee of the Health Sciences Sector of Federal University of Paraná (protocol number 1,105,785/15) and by the Curitiba Secretaries of Health, Environment and Social Assistance. Hoarding workgroup visits were officially included as part of the Curitiba hoarding policy program.

2.5 RESULTS

A total of 226 hoarding complaints were obtained and investigated during the study period, from which 113/226 (50.0%) were confirmed and 61/226 (27.0%) discharged as hoarding cases, 32/226 (14.2%) not present at the visit and 20/226 (8.8%) with address not found. The confirmed hoarding cases represented a ratio of 6.45 hoarders per 100,000 inhabitants in Curitiba. The other calculated ratios showed that there were in Curitiba 1 hoarding case for each 15,503 inhabitants; 7,390 men; 8,113 women; 1,753 elderly people (older than 60 years of age); 716 elderly men and 1,037 elderly women (TABLE 2).

TABLE 2: RATIOS OF ONE HOARDING CASE PER NUMBER OF INHABITANTS, NUMBER OF WOMAN, NUMBER OF MEN, NUMBER OF ELDERLY PEOPLE, NUMBER OF MEN ELDERLY AND NUMBER OF WOMAN ELDERLY POPULATION ACCORDING TO THE NEIGHBORHOOD INCOME IN CURITIBA, PARANÁ STATE, BRAZIL FROM SEPTEMBER 2013 TO APRIL 2015.

Ratios	**Up to R$1,500 (US$498)**	**R$1,501 to 3,000 (US$498.33 to 996.01)**	**R$3,001 to 4,000 (US$996.34 to 1,328.02)**	**> R$4,000 (US$ 1,328.02)**	**Total**
Hoarder : Habitant	1 : 19,386	1 : 12,539	1 : 17,964	1 : 17,548	1 : 15,504
Hoarder : Man	1 : 9,423	1 : 5,972	1 : 8,260	1 : 7,944	1 : 7,390
Hoarder : Woman	1 : 9,969	1 : 6,564	1 : 9,705	1 : 9,604	1 : 8,113
Hoarder : Elderly	1 : 1,530	1 : 1,503	1 : 3,110	1 : 3,105	1 : 1,753
Hoarder : Man elderly	1 : 652	1 : 615	1 : 1,179	1 : 1,236	1 : 716
Hoarder : Woman elderly	1 : 878	1 : 888	1 :1,931	1 : 1,869	1 : 1,037

Among the identified cases, 48/113 (42.5%) were classified as object hoarders, 41/113 (36.3%) as animal hoarders and 24/113 (21.2%) as both animal and object hoarding cases. In overall, animals were involved in 65/113 (57.5%) and objects in 72/113 (63.7%) hoarding cases (FIGURE 5), representing a ratio of 3.71 animal hoarding cases and 4.10 object hoarders per 100,000 inhabitants in Curitiba, one animal hoarding for every 42.729 and one object hoarder for every 36.498 inhabitants.

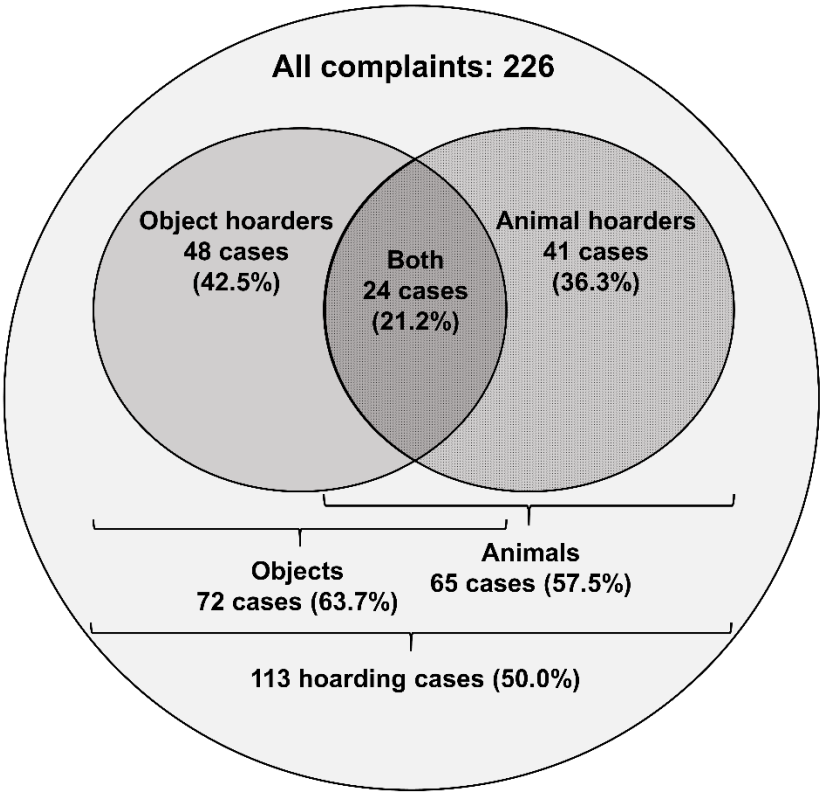

FIGURE 5: SCHEMATIC DIAGRAM OF INVESTIGATED COMPLAINTS AND IDENTIFIED HOARDING CASES IN CURITIBA FROM SEPTEMBER 2013 TO APRIL 2015.

The information about number of animals involved was available in 40/65 (61.5%) animal hoarding cases, representing a total of 1,114 animals involved (mean of 27.8 animals per case), being 724 dogs (ranging from one to 105, mean 13.9 per case) and 390 cats (ranging from one to 60, mean 13.4 per case). The information about type of objects accumulated was available in 55/72 (76.38%) object hoarding cases. One case may have more than one type of object accumulated. In 27/55 (49.09%) cases had recyclable material, in 38/55 (69.09%) cases had rubbish, in 22/55 (40.00%) had garbage, in 19/55 (34.54%) had clothes and in 11/55 (20.00%) had other types of material accumulated.

The correlation of total identified cases with population density ($r=0.40$), total population ($r=0.68$), male population ($r=0.68$), female population ($r=0.68$) and elderly population ($r=0.65$) were positive and significant ($p<0.01$). When analyses were developed proportionally, a significant and positive correlation was also found ($p<0.01$). This means that as the densities increased, the number of identified hoarders also increased. This was evident also on the linear tendency

of hoarders following the variation of the population densities in the neighborhoods (FIGURE 6).

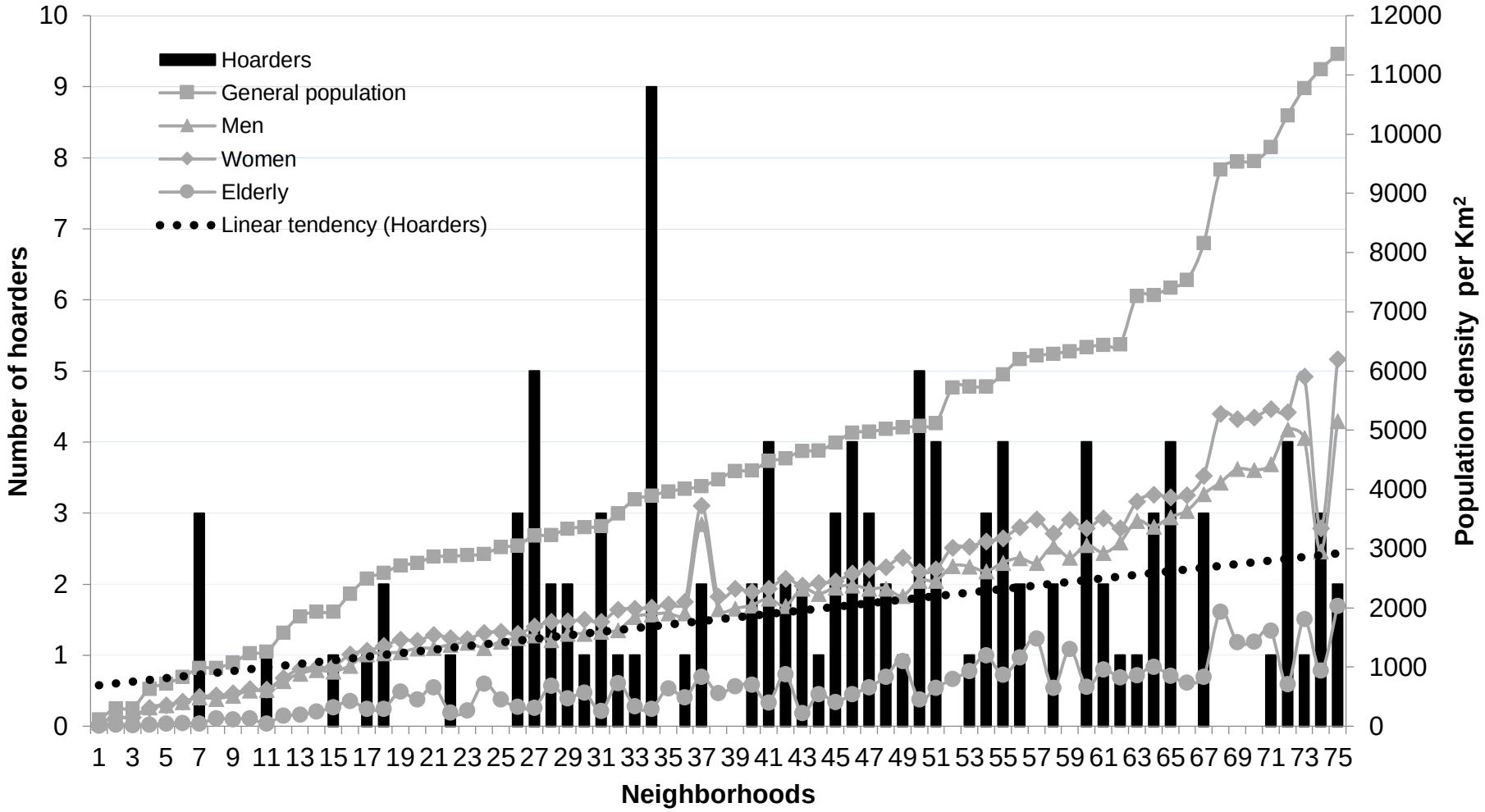

FIGURE 6: NUMBER OF HOARDERS PER NEIGHBORHOOD FROM SEPTEMBER 2013 TO APRIL 2015 AND DEMOGRAPHIC CHARACTERISTICS IN CURITIBA, PARANÁ STATE, BRAZIL.

The correlation of identified hoarding cases with neighborhood mean monthly income was significant and negative (r=-0.24; p=0.03). The mean monthly income was divided by strata and analyzed according to ratios of identified hoarders per demographic characteristics, showing that the strata between R$1,501 and 3,000 (US Dollar equivalent: $498.33 and $996.01) was with lower values of ratios (TABLE 2).

Regarding to geographic distribution, the identified cases were distributed in 46/75 (61.3%) neighborhoods ranging from one to nine, with mean of 2.45 cases per neighborhood. A cluster of identified hoarding cases was found in northern city (FIGURE 7) (OR 8.57; p<0.01). When analysis of animal and object hoarders' distribution were developed separately, no significant cluster was found.

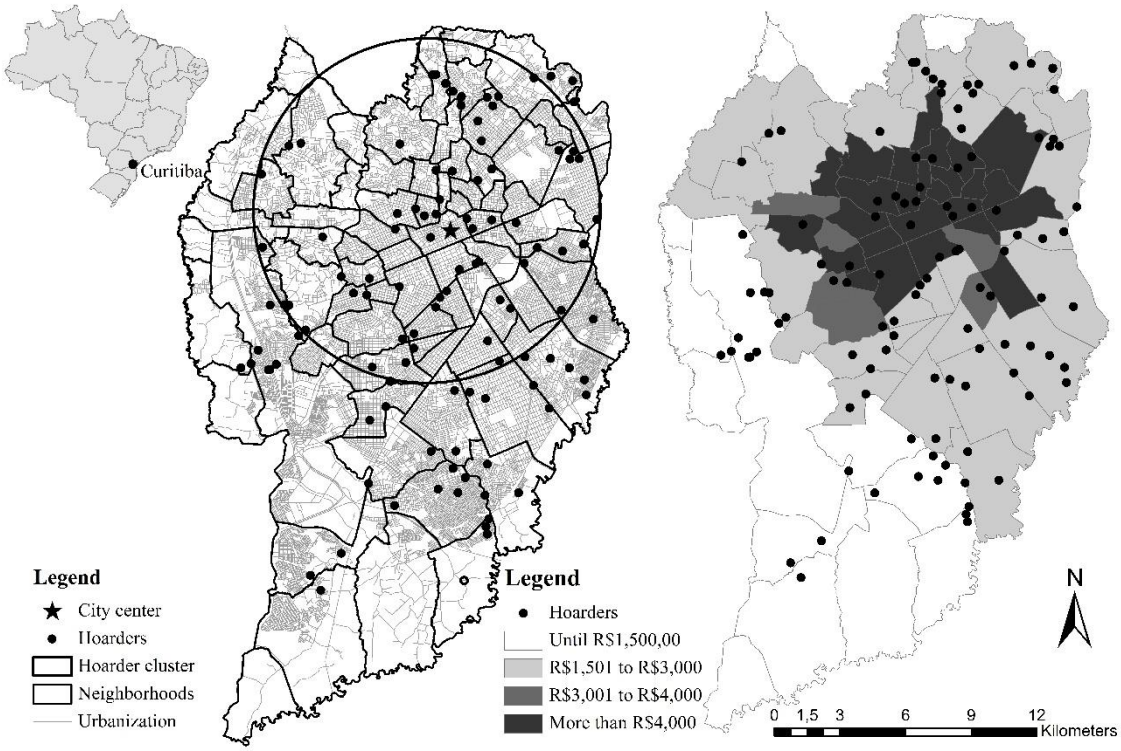

FIGURE 7: MAP DISTRIBUTION OF 113 IDENTIFIED HOARDING CASES IN CURITIBA FROM SEPTEMBER 2013 TO APRIL 2015 SHOWING (I) URBANIZATION AND SPATIAL CLUSTER AND (II) MEAN MONTHLY INCOME PER NEIGHBORHOOD.

2.6 DISCUSSION

Confirmed hoarding cases accounted for exactly half (50.0%) of total complaints received in the present study period (FIGURE 5). This finding was relatively higher than previously found in Baltimore, USA with only 27/735 (3.7%) participants rated as “pathological” hoarding (SAMUELS et al., 2008) and London, UK with 19/99 (19.2%) people meeting the criteria for hoarding disorder from referred people having accumulation and clutter (NORDSLETTEN et al., 2013). Since the present study was based on complaints by three official city secretaries, results herein were probably more representative of the entire city than previous studies, which may have underestimated the local frequency of hoarders due to not comprehensive survey methods.

Complaints ruled out as hoarding cases (27.0%) were related to large amount of recyclable material stored in organized in-house conditions and mostly for resale; or multiple pets found in apparent adequate conditions (RAMOS et al., 2013), temporarily or permanently housed, even when foster homes. Although excluded as hoarding cases herein, workgroup visits were kept in ruled out cases due to implications on public health and potential early stage of animal and/or object hoarding.

The ratio of 6.45 object and/or animal hoarders per 100,000 inhabitants found in the present study was lower than previously reported of 26.3 in Massachusetts, USA (FROST; STEKETEE; WILLIAMS, 2000); however, a 5-year period data was used in this study. The found ratio of 3.71 animal hoarders per 100,000 inhabitants was higher than previously reported of 0.25 to 0.80 per 100,000 people in the USA (PATRONEK, 1999) and 0.40 per 100,000 in New York City (WORTH; BECK, 1981). These contrasting results may be very important since is a first report on animal hoarding frequency and ratio in Brazil that may assist in the development of specific intervention strategies. Despite authors have no apparent explanation for the higher proportion of animal hoarders compared to object hoarders, previous studies may not have found as many animal hoarders since surveys came mostly from only one source, limiting the sample. For example, a previous study reported no animal hoarding in a clinical sample of 52 hoarders with and without Obsessive Compulsive Disorder

(PERTUSA et al., 2008). Differently, the currently survey in our study have been from three main sources, included complaints received by the Curitiba City Secretaries of Health, Environment and Social Assistance. Therefore, we hypothesize that our results may be more comprehensive and closer to the reality in such population. However, data may simply reflect more animal hoarders in Brazil than other places, since this is the first report on hoarding cases in Brazil.

Despite the aim of the present study was not comparative and clinical approach of object hoarder versus animal hoarder, previous studies have shown that differ in some aspects. Animal hoarders seems to live in more squalid conditions, tends to have only one species of animal and tends to be more prevalent in woman with high rates of recidivism than object hoarders (FROST; PATRONEK; ROSENFIELD, 2011). However, both types of hoarders presented a chronic course, intense emotional attachment to objects or animals and poor insight about the problem (FROST; PATRONEK; ROSENFIELD, 2011).

Based on overall ratio, around 12,300 hoarding cases may be extrapolated to the entire 190,755,799 habitants of the Brazilian population (IBGE, 2010), or around 10,370 when considered only the 84.3% urban population (since Curitiba is considered of 100% urban areas). No discussion could be made since to the authors' knowledge, this is the first report on country overall hoarding cases.

Among the confirmed animal hoarders in this study, 36.9% were also object hoarders (FIGURE 5). Similar results were found previously in Spain and Australia, which 44.0% and 45.4% animal hoarders presented signs of object hoarding, respectively (CALVO et al., 2014; OCKENDEN; DE GROEF; MARSTON, 2014). This finding has reinforced the critical role of veterinarians (REINISCH, 2009) and the needed of cross-disciplinary approach in cooperation among veterinarians with social service agencies, departments of health, fire, housing and mental health to better identify and develop appropriate intervention strategies (HOARDING OF ANIMALS RESEARCH CONSORTIUM, 2002).

The mean number of animals involved per case in which this information were available was lower than previously reported of 50 animals per case in Spain (CALVO et al., 2014) and 34 cats or 23 dogs per owner in New York City (WORTH; BECK, 1981). Involvement of dogs has been more reported than cats,

similarly to previously found in Spain (CALVO et al., 2014) and Australia (JOFFE et al., 2014) but contrasting with North America (HOARDING OF ANIMALS RESEARCH CONSORTIUM, 2002; PATRONEK, 1999; REINISCH, 2009). These differences may be attributed to Brazilian dog:cat ownership ratio of 7:1, particularly in Curitiba and surroundings (MARTINS et al., 2013; SERAFINI et al., 2008).

The present study has shown that hoarding frequency followed neighborhood population increase in any analyzed extracts (FIGURE 6). Therefore, may be inferred that as more people in the neighborhoods as more likely to occur the register of complaints, consequently more hoarding cases were identified. This finding reinforce the hoarders secretive nature (PATRONEK, 1999), wherein the accumulation may have isolated hoarders in their homes instead of hoarders choose to live in isolated areas, potentially accounting for suspicious case absence at the visit in this study. Moreover, the found correlation of identified cases with neighborhood population density ($p<0.01$) may be considered intuitive since, excluding other associated factors, more people live within a specific area, less available space these people are likely to have, consequently these spaces are more easily obstructed.

The hoarding frequency herein was inversely proportional to neighborhood income (FIGURE 6 AND 7), showing that as the neighborhood income decreases, the number of identified hoarders increase. This finding has been in accordance with the mental disorders in general, which may affect the groups with adverse circumstances and least resources (WORLD HEALTH ORGANIZATION, 2003). On the other hand, previous studies has shown that approximately 80 to 90% of hoarding cases presented excessive acquisition problems, which may be excessive buying, acquisition of free things or stealing (FROST; STEKETEE; TOLIN, 2011; FROST et al., 2013; GRISHAM; BALDWIN, 2015). Despite of the excessive buying may have direct relation with hoarder' income, the acquisition form of object and/or animals did not addressed in this study. In addition, the found correlation coefficient may be considered low ($r=-0.24$; $p=0.03$), suggesting that further studies should be performed to fully establish the relation between hoarding frequency and income, particularly

considering that relation with hoarder's income rather than neighborhood income has been previously reported (SAMUELS et al., 2008). Regardless, the found correlation may reflect the Brazilian reality and both findings have reinforced the potential social exclusion of hoarders, as previously described (CALVO et al., 2014; HOARDING OF ANIMALS RESEARCH CONSORTIUM, 2002; PATRONEK; NATHANSON, 2009).

An evident cluster of identified hoarding cases was found in geographic distribution at the northern Curitiba (FIGURE 7) and may be due to more concentrate urbanization and population density in this region, since rapid urbanization has been associated with the increase in the burden of mental disorders (WORLD HEALTH ORGANIZATION, 2003). Complaints were more likely to occur (since correlation between population density and total population to identified hoarding cases were statistically positive), but contrasted to a previous study in which the population was not correlated with the rate of hoarding complaints (FROST; STEKETEE; WILLIAMS, 2000).

The increase in complaints may be also due to other conditions related to hoarding behavior, such as the clutter extended to the outside of the house, extreme unsanitary conditions, accumulation of junk, fire hazard, odor and odd behavior (FROST; STEKETEE; WILLIAMS, 2000), and related to the local community characteristics', which should be further investigated in Brazil.

Finally, although not the focus of the present study, authors have found that relinquished puppies from neighborhood dogs and hoarder in-house litters may predispose or aggravate animal hoarding condition (data not shown).

In conclusion, to the authors' knowledge, this study has been the first assessment of hoarding cases in Brazil. This initial geographical and ecological approach performed herein provided a better analyze data in a population level of a big city (eighth biggest city in Brazil), which may stimulate future approaches and development of public health policies. Moreover, animal and/or object hoarding has been relatively frequent in southern Brazil, following distribution population patterns and inversely related to neighborhood income. Further studies with individual data should be performed and analyzed in a different epidemiology and statistical approaches.

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3 CHARACTERIZATION OF OBJECT AND/OR ANIMAL HOARDERS IN SOUTHERN BRAZIL

3.1 RESUMO

O comportamento de acumular tem sido considerado uma preocupação crescente de saúde pública e ambiental, com profundos impactos sociais. Por conseguinte, o objetivo do presente estudo foi estabelecer o perfil dos acumuladores de objetos e/ou animais em Curitiba, sul do Brasil. Os registros oficiais de casos de acumuladores suspeitos e de inspeções correspondentes foram computados e analisados, resultando em 113 casos identificados e 69/113 (61,06%) casos de acumulação completamente avaliados. Em geral, objetos estavam envolvidos em 72/69 (63,76%) e animais em 39/69 (56,52%) casos de acumulação; 43/69 (62,32%) acumuladores eram mulheres e 26/69 (37,68%) eram homens. Denúncias envolvendo mulheres foram significativamente maiores (p=0,02) entre os casos de acumulo de animais. A idade dos acumuladores variou de 33 a 84 anos (média=62,47 ± 11,30), com 29/69 (42,02%) <60 anos e 40/69 (57,97%) ≥60 anos. Uma alta frequência de acumuladores reportou que possuíam até o ensino médio [44/69 (63,76%)] e recebiam até um salário mínimo por mês [35/69 (50,72%)], sendo que essa baixa renda foi estatisticamente significativa entre os acumuladores de objetos (p=0,031). Na maioria dos casos, os acumuladores reportaram que vivem sozinhos [27/69 (39.13%)]. Problemas de saúde foram relatados em 53/69 (76,81%) casos, caracterizados principalmente por doenças crônicas. Risco de proliferação de vetores foi relatado em 61/69 (88,40%) casos. Odor desagradável foi perceptível em 45/69 (65,21%) casos, sendo significativamente relatado mais entre as mulheres (p=0,004) e entre casos de acumulo de animais (p=0,001). Risco de incêndio e desabamento foram relatados em 24/69 (34,78%) e 9/69 (13,04%) casos, respectivamente e estatisticamente mais frequentes em casos de acúmulo de objetos (p=0,018 e 0,021, respectivamente). Em resumo, acumuladores brasileiros podem ser caracterizados como mulheres, idosas, com problemas de saúde, com baixa renda, nível educacional básico e vivendo sozinhas sob riscos de proliferação de vetores e odor desagradável**.**

Palavras-chave: acumuladores compulsivos, perfil, riscos, saúde pública

3.2 ABSTRACT

Hoarding behavior has been considered a growing environmental and public health concern with deep social impacts. Accordingly, the aim of the present study was to establish the profile of object and/or animal hoarders in Curitiba, southern Brazil. Official records of suspicious hoarding cases and correspondent inspections were registered and analyzed, resulting in 113 identified and 69/113

(61.06%) fully assessed hoarding cases. In overall, objects were involved in 72/69 (63.76%) and animals in 39/69 (56.52%) hoarding cases; 43/69 (62.32%) hoarders were women and 26/69 (37.68%) were man. Complaints involving women were significantly higher (p=0.02) among the animal hoarding cases. The hoarder age ranged from 33 to 84 years (mean=62.47 ± 11.30), with 29/69 (42.02%) <60 and 40/69 (57.97%) ≥60 years old. A high frequency of hoarders reported had until the middle school [44/69 (63.76%)] and received up to one minimum wage [35/69 (50.72%)], with statistically significant lower income among object hoarders (p=0.031). In the most of cases hoarders reported living alone [27/69 (39.13%)]. Health problems were reported in 53/69 (76.81%) cases, mainly characterized by chronical diseases. Risk of vector proliferation was reported in 61/69 (88.40%) cases. Unpleasant odor was perceptible in 45/69 (65.21%) cases, more likely reported among women (p=0.004) and animal hoarding cases (p=0.001). Risk of fire and landslip were reported in 24/69 (34.78%) and 9/69 (13.04%) cases, respectively, and were more statistically frequent in object hoarding cases (p=0.018 and 0.021, respectively). In summary, Brazilian hoarders may be characterized by elderly and unhealthy women with low income, basic educational level and living alone under risk of vector proliferation and unpleasant odor.

Keywords: Hoarders, profile, risks, public health

3.3 INTRODUCTION

Mental disorders have been represented almost 12% of the global disease burden and accounted for substantial economic public health costs in a wide range of population groups, particularly in social vulnerability (WORLD HEALTH ORGANIZATION, 2003). The hoarding behavior may be understood as a particular mental disorder characterized by a persistent difficulty of discarding or disposing possessions, regardless their value. Brings about serious living obstruction spaces and harmful consequences for the person, related family and community (AMERICAN PSYCHIATRIC ASSOCIATION, 2013). Hoarding behavior has been reportedly impacted on public health due to extreme clutter leading to unsanitary living conditions, disease harboring and spreading, particularly zoonoses. Other concerns involving risk of falls, fire hazard, fire exits obstruction, endangering local public health, safety and welfare (FROST; STEKETEE; WILLIAMS, 2000; HOARDING OF ANIMALS RESEARCH CONSORTIUM, 2002; PATRONEK, 1999).

The clutter and other negative effects of hoarding behavior have been considered a growing environmental concern on public health. It is related also to poor physical health, increased injury risk, exacerbation of chronic diseases, occupational impairment, social concerns as homelessness risk, social isolation, and economic burdens (FLEURY; GAUDETTE; MORAN, 2012; TOLIN et al., 2008). Frustrations from family member regarding hoarding behavior may cause strain on relationships (FLEURY; GAUDETTE; MORAN, 2012). Conditions of hoarding places may worsen when animal accumulation is involved (FROST; STEKETEE; WILLIAMS, 2000), singly or in association with object hoarding, exacerbating animal noise and feces odor complaints from neighbors (CALVO et al., 2014; FROST; STEKETEE; WILLIAMS, 2000; JOFFE et al., 2014; PATRONEK, 1999).

Previous studies have been reported the people profile who exhibit the object and/or animal hoarding behavior in the United States (MCGUIRE et al., 2013; PATRONEK, 1999; RODRIGUEZ et al., 2013), Spain (CALVO et al., 2014; RODRÍGUEZ LOZANO et al., 2014), Italy (BULLI et al., 2013), United Kingdom (NORDSLETTEN et al., 2013) and Australia (JOFFE et al., 2014; OCKENDEN; DE GROEF; MARSTON, 2014). Therefore, due to possible cultural differences is crucial to determine the main characteristics of hoarders in Brazil. This information could support the specific public policies implementation for the right cases conduct.

Accordingly, the aim of this study was establish the profile of people who hoard objects and/or animals and determine the main associated characteristics in Curitiba, Paraná state, southern Brazil. This study is part of a global project with intent to develop a specific multidisciplinary care protocol for compulsive hoarding cases in Curitiba, which may be extrapolated to other major cities in Brazil.

3.4 METHODS

The present study has been conducted in Curitiba (25°25’47 “S, 49°16’19” W), biggest city of Paraná state and the eighth most populated city in Brazil (IBGE, 2010).

The Curitiba city hall has specific departments, officially responsible to receive complaints regarding problems with animals, health, environment and

social vulnerability by a central phone. Consequently, has qualified inspectors responsible exclusively for investigate these complaints, which may be nurses, veterinarians, and/or biologists. Inspectors lead in consideration the direct observation of the environment and animals conditions during the investigation and may enter in the house if necessary to better analyze the denounced situation. At the same time, was formed a hoarding workgroup with these public health professionals in partnership with psychologists, physicians and social workers of Curitiba city hall and researchers of Federal University of Paraná. This workgroup has been acted in consulting, discussion and training about hoarding, helping inspectors in identification and conduct of the cases.

The basis used by inspectors to considerer a complaint as a hoarding case was local observation of object and/or animal accumulation inside and/or outside the house at the investigation moment and preview historic of hoarding cases in Curitiba prefecture records. The criteria used specifically for object hoarding cases identification was local observation of a large amount of items accumulated without an apparent purpose with living spaces obstruction (AMERICAN PSYCHIATRIC ASSOCIATION, 2013) and report of difficulty to dispose objects (AMERICAN PSYCHIATRIC ASSOCIATION, 2013). The criteria used specifically for animal hoarding cases identification was local observation of animal accumulation, lack of health standards, space, nutrition or veterinary care (PATRONEK; LOAR; NATHANSON, 2006) and refuse to donate their animals. In summary, the case identification applied herein took into consideration the physical consequences of the hoarding behavior, which affected the family members and community, leading to complaints registry. All identified hoarding cases in this study were referred by the hoarding workgroup to psychiatrists and psychologists from the Curitiba City Hall to proceed the adequate diagnosis and treatment needed, which were not included as part of this study.

To proceed the development of this study, all register data of complaints and results of investigations related to object and/or animal hoarding behavior received by the City Secretaries of Health, Environment and Social Assistance from September 2013 to April 2015 were registered and analyzed. Despite the complexity of hoarding issue, the present study has focused at the epidemiological and general approaches.

The cited workgroup developed the hoarding cases inspection record based on HOMES® Multi-disciplinary Hoarding Risk Assessment (BRATIOTIS; SCHMALISCH; STEKETEE, 2011). This survey questionnaire was apply on hoarding cases previously identified, and was filled according to conversation with the hoarder and environment observation.

The variables collected and analyzed included sociodemographic characteristics of the hoarder such as age, gender, education level and monthly income. In addition, data about health factors associated with the hoarding situation like health problems, relatives' assistance, self-care and perceptible mental impairment. Other risk factors associated were evaluated, essentially about presence of unpleasant odor, risk of pest infestation, fire or landslip). Finally, characteristics regarding animals like number, specie, general conditions and living environment.

In order to proceed statistical analyses, the data was gathered in object hoarders (cases in which objects were involved) and animal hoarders (cases in which animals were involved). The monthly income was divided in 3 categories, based on the Brazilian minimum wage (MW) of R$ 880.00 (U$225.00) at the time (≤1; >1-≤3; >3 MW). The education level was grouped in 3 categories (Until elementary school, high school and college) and the age was divided in 2 categories (<60 and ≥60 years old), according to Brazilian Elderly Statute (BRASIL, 2003).

Statistical Analyses were conducted using the R environmental (R DEVELOPMENT CORE TEAM, 2014). All variables were evaluated using the descriptive analyses and chi-square test (significance level=0.05). The multiple associations between the variables were assessed using the multiple correspondence analysis (MCA) according to the type of hoarding (Object and animal hoarders). The interpretation of the analysis was visual, by comparing the proximity and length of the vectors of each variable category using ca (GREENACRE, 2007), FactoMineR (HUSSON et al., 2016) and factoextra (KASSAMBARA; MUNDT, 2015) package of R(R DEVELOPMENT CORE TEAM, 2014).

The Ethics Research Committee of the Health Sciences Sector of Federal University of Paraná (protocol number 1,105,785/15) and the Curitiba Secretaries of Health, Environment and Social Assistance has approved the present study.

The hoarding inspection record have been officially included as part of the Curitiba hoarding policy program.

3.5 RESULTS

A total of 226 hoarding complaints were obtained and investigated during the study period, from which 113/226 (50.0%) were confirmed and 61/226 (27.0%) discharged as hoarding cases, 32/226 (14.2%) not present at the visit and 20/226 (8.8%) with address not found. Among the 113 identified hoarding cases was possible to obtain and analyze 69/113 (61.06%) inspection records. These 44/113 (38.93%) remaining were referents to hoarders that didn't answer because died, were hospitalized, moved during the study or refused to receive workgroup visits.

Among the 69 inspection records obtained, 25/69 (36.23%) were from animal hoarders only, 30/69 (43.47%) were from object hoarders only and 14/69 (20.28%) were from both animal and object hoarders. Therefore, animals were involved in 39/69 (56.52%) and objects in 72/69 (63.76%) hoarding cases.

The total of analyzed records, 43/69 (62.31%) were correspondent to women and 26/69 (37.68%) to man, of which women were significantly higher ($p=0.02$) among the animal hoarder cases ($n=39$). The hoarders' age ranging from 33-84 years (mean=62.47 ± 11.30), and 29/69 (42.02%) less than 60 years old and 40/69 (57.97%) with 60 years old or more. A high frequency of hoarders reported had until the middle school [44/69 (63.76%)] and in the most of cases hoarders reported living alone [27/69 (39.13%)]. Up to one minimum wage [35/69 (50.72%)] was the income reported with more frequency by the hoarders and this income was statistically significant most reported among the 44 object hoarding cases ($p=0.031$). Other information regarding demographic characteristics was presented in TABLE 3.

TABLE 3: SOCIODEMOGRAPHIC PROFILE OF PEOPLE WHO HOARD OBJECTS AND/OR ANIMALS IN CURITIBA, BRAZIL, FROM 2013 TO 2015.

Characteristics	**Total (69 cases)**		**CI 95%**
Gender	**n**	**%**	
Female	43	62.31	48.2 – 75.8
Male	26	37.68	24.2 – 51.8
Age (years)			
Mean ± SD	62.47 ± 11.30		
0-49	10	14.49	4.5 – 23.9
50-59	19	27.53	15.2 – 38.5
60-69	20	28.98	18.2 – 41.5
70 or more	20	28.98	16.4 – 39.7
Level of education			
Illiterate	8	11.59	4.5 – 19.7
Elementary School (in or complete)	22	31.88	20.6 – 42.4
Middle School (in or complete)	14	20.28	10.6 – 29.1
High School (in or complete)	16	23.18	13.0 – 36.4
College (in or complete)	8	11.59	4.5 – 21.2
No Answer	1	1.44	
Monthly income			
Without income	8	11.59	3.0 – 20.3
≤ 1 MW	27	39.13	14.2 – 35.2
>1-≤ 3 MW	23	33.33	37.0 – 66.7
> 3 MW	9	13.04	5.8 – 23.0
No answer	2	2.89	
Number of people living in the household			
0	1	1.44	0.0 – 4.9
1	27	39.13	28.2 – 53.3
2	21	30.43	13.3 – 46.4
3	10	14.49	7.3 – 25.8
≥4	10	14.49	5.8 – 23.9

Concerning the health factors associated with cases, 53/69 (76.81%) reported previously health problems, mainly chronic diseases such as diabetes, high blood pressure, depression, cancer, etc. and 58/69 (84.05 %) reported that they were assisted by their relatives. As regard self-care, 38/69 (55.07%) people who hoard have not presented personal hygiene and in 37/69 (53.62%) have not shown noticeable mental impairment.

Furthermore, regarding the risk factors associated, the possibility of vector proliferation was reported in 61/69 (88.40%) cases. The unpleasant odor was perceptible in 45/69 (65.21%) cases, reported significantly more among female hoarding cases (p=0.004) and among animal hoarding cases (p=0.001). Fire and landslip risks was reported in 24/69 (34.78%) and 9/69 (13.04%) cases, respectively. Both, fire and landslip risks were significantly higher among object hoarding cases (p=0.018 and p=0.021, respectively) (TABLE 4).

TABLE 4: RISK FACTORS ASSOCIATED WITH HOARDING SITUATION PER TYPE OF ACCUMULATION IN CURITIBA, BRAZIL, FROM 2013 TO 2015.

	Object hoarders		**Animal Hoarders**	
	n (%)	**p**	**n (%)**	**p**
Unpleasant odor				
Yes (N=45)	23 (51.1)	0.003	32 (71.1)	0.001
No (N=24)	21 (87.5)		7 (29.2)	
Risk of vectors proliferation				
Yes (N=61)	38 (62.3)	0.635	36 (59.0)	0.449
No (N=7)	5 (71.4)		3 (42.9)	
Risk of fire				
Yes (N=24)	20 (83,3)	0.018	10 (41.7)	0.08
No (N=45)	24 (53,3)		29 (64.4)	
Risk of landslip				
Yes (N=9)	9 (100.0)	0.021	3 (33.3)	0.156
No (N=59)	34 (57.6)		36 (61.0)	

Cases involving animals were reported in 39/69 (56.52%) records. A total of 1104 animals whereas 722 dogs (ranging from one up to 105, mean=20.05 dogs per case) and 382 cats (ranging from one up to 60, mean=13.64 cats per case). In 11/39 (28.20%) cases were reported only dogs, in 3/39 (7.69%) only cats and in 25/39 (64.10%) both dogs and cats (FIGURE 8). In 10/39 (25.64%) cases were reported presence of other species in the hoarders' house.

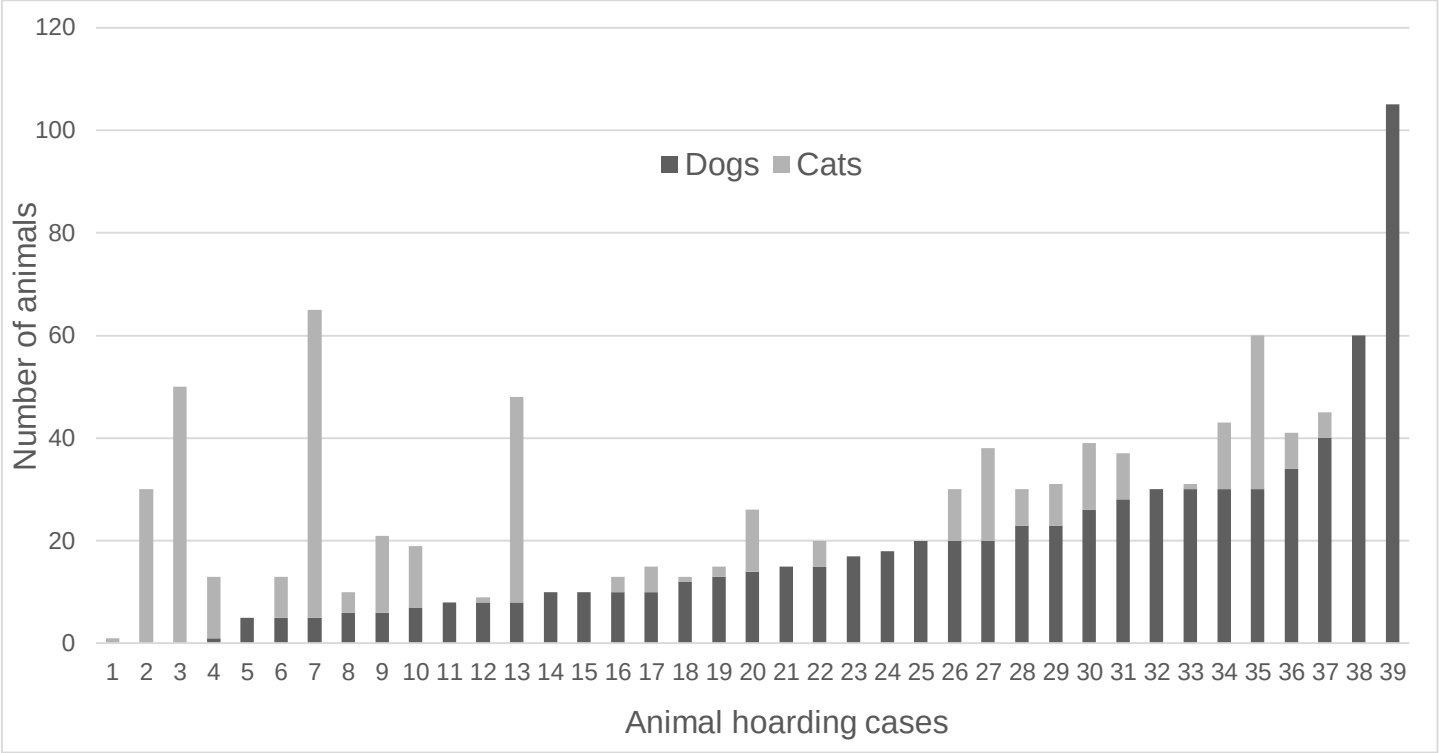

FIGURE 8: DISTRIBUTION OF DOGS AND CATS PER ANIMAL HOARDING CASE IN CURITIBA, BRAZIL FROM 2013 TO 2015.

The general conditions of the animals, collectively, was considered regular in 17/39 (43.58%) cases, good in 12/39 (30.76%) cases, bad in 8/39 (20.51%) cases and in 2/39 (5.12%) cases had no answer for this question. Concerning the animal environment, in 36/39 (92.30%) cases, the animals lived free at the yard, in 21/39 (53.84%) cases had animals inside home, in 10/39 (25.64%) had animals in individual kennels, in 10/39 (25.64%) had animals in collective kennels, in 10/39 (25.64%) had chained animals and 5/39 (12.82%) had caged animals.

The multiple correspondence analysis with all variables selected has shown significant association among animal hoarders, women, with report of health problem, with relative's assistance and no risk of landslip (FIGURE 9A). For object hoarders, there were significant association among risk of fire, landslip and no report of unpleasant odor (FIGURE 9B).

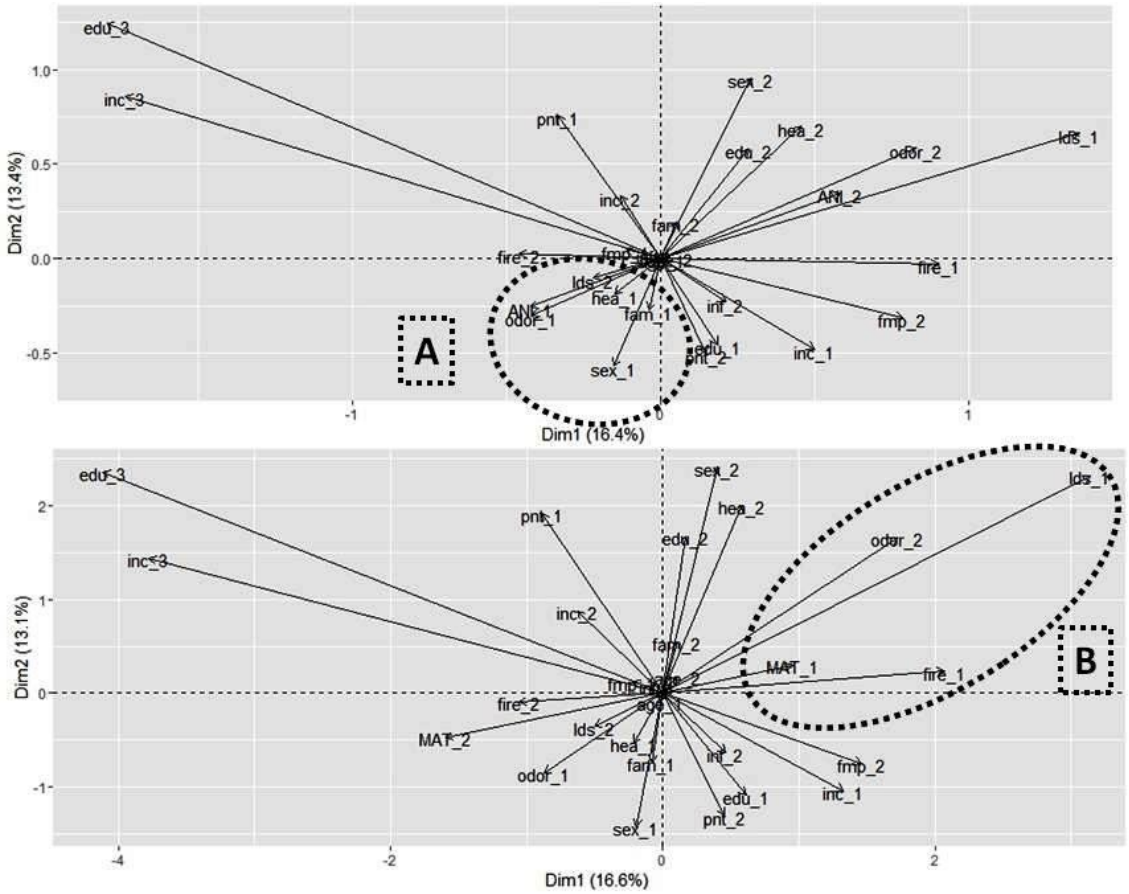

FIGURE 9: MULTIPLE CORRESPONDENCE ANALYSIS BETWEEN HOARDERS' GENDER GROUPS (SEX_1 = WOMAN; SEX_2 = MEN), HOARDERS' INCOME (INC_1= LESS OR EQUAL THAN 1 MINIMUM WAGE; INC_2= MORE THAN 1MINIMUM WAGE), HOARDERS' EDUCATION LEVEL (EDU_1=UNTIL MIDDLE SCHOOL; EDU_2= MORE THAN HIGH SCHOOL), HEALTH PROBLEM (HEA_1=YES; HEA_2=NO), FAMILY ASSISTANCE (FAM_1=YES; FAM_2=NO), UNPLEASANT ODOR (ODOR_1=YES; ODOR_2=NO), FIRE RISK (FIRE_1=YES; FIRE_2=NO) AND LANDSLIP RISK (LDS_1=YES; LDS_2=NO) ACCORDING TO THE ANIMAL HOARDING CASES (A) AND OBJECT HOARDING CASES (B) OF CURITIBA, BRAZIL, FROM 2013 TO 2015.

3.6 DISCUSSION

This report has reflected the first assessment to date of the object and/or animal hoarding cases characteristics in a Brazilian sample, as well as the main consequences of this disorder on public health.

The high frequency of women hoarder cases found in this study (TABLE 3) was similar to previously described in literature. However, while in this study

the woman frequency found was 62.31%, in the previous studies was 68.9% (BULLI et al., 2013), 71.4% (WINCZE; STEKETEE; FROST, 2007), 72.4% (JOFFE et al., 2014), 76% (PATRONEK, 1999), 79.8% (MEYER et al., 2013), 83.1% (HOARDING OF ANIMALS RESEARCH CONSORTIUM, 2002) and 93.5% (TOLIN et al., 2008). The high frequencies of woman in other researches has been attributed to mostly female samples on hoarding investigations (MATAIX-COLS et al., 2010). In our study, the methodology for sample recruitment was based in city complaints official data, the highest women cases number detected probably reflects a reality regard more woman hoarding than man in Curitiba city.

The average age found in this study was 62.47 years old (SD=11.30) (TABLE 3), higher than previously reported of 36.2 years old (SD=13.5) (BULLI et al., 2013), 48.8 (SD=14.89) (NORDSLETTEN et al., 2013), 49.18 (10.40) (TOLIN et al., 2008), 53.3 (SD=9.46) (MEYER et al., 2013), 54.8 (SD=9.4) (WINCZE; STEKETEE; FROST, 2007) and 54.8 (JOFFE et al., 2014). In Brazil an individual with sixty years old or more is considered elderly (BRASIL, 2003). The frequency of elderly hoarders found in this study (57.97%) was similar to before described of 63% among animal hoarders (CALVO et al., 2014).

According to education level, study up to middle school [44/69 (63.76%)], which is equivalent to eight years of study in Brazil, was cited with more frequency by hoarders (TABLE 3). This result contrast with described previously where all the persons interviewed in New York has studied up to high school (12 years of study) (WORTH; BECK, 1981), or in Boston an average of 17.8 years of education (WINCZE; STEKETEE; FROST, 2007), in Italy 52.5% with 17–18 years of education (BULLI et al., 2013) and 42.1% with a university diploma in London (NORDSLETTEN et al., 2013). This data have been important to compare hoarders' characteristics worldwide and should be lead in consideration when developing a specific care protocol, once may reflect the situation of education in Brazil.

Regarding hoarders' annual income, 35/69 (50.72%) reported had received up to U$2,700 (1 minimum wage per month), 23/69 (33.33%) received from U$2,701 to 8,102 and 9/69 (13.04%) more than U$8,102 (TABLE 3). This income was lower than previously reported with annual average from U$6,491 to U$43,191 in New York (WORTH; BECK, 1981) and with 37.03% more than

U$20,000 in Baltimore (SAMUELS et al., 2008). Regardless of values, 78.57% of hoarders described as having a borderline financial situation in Spain (CALVO et al., 2014). This finding has highlighted the financial situation of hoarders in Curitiba population and it is accordingly with previous studies in which it is evident the economic challenges and difficulties facing by this population (NORDSLETTEN et al., 2013; TOLIN et al., 2008).

Living alone [27/69 (39.13%)] were most reported in this study (TABLE 3). This result was lower than other studies in which 55.6% and 83% of hoarders lives alone in the USA (PATRONEK, 1999) and Spain (CALVO et al., 2014), respectively. In addition, 14.8% reported living with another person in the USA (PATRONEK, 1999). However, a previously study demonstrated that 64% of the females hoarders and 37.5% of the males lived with someone else (OCKENDEN; DE GROEF; MARSTON, 2014). Regardless of living with someone else, the majority of hoarders reported that has relatives' assistance. This reinforce the importance to include in the multidisciplinary care protocol the raising awareness of families and households about hoarding issue. Also, was found in our study a case in which the hoarder no lives in the same house where maintains the animals and objects. This possibility had already been cited in literature and may occur when the accumulated items spread beyond the areas in use and occupying other spaces such as vehicles, yards, workplace and even relative's home (AMERICAN PSYCHIATRIC ASSOCIATION, 2013).

A high frequency of hoarders in this study reported health problems (76.81%), mainly chronic diseases. This finding was similar to previously reported of 63.6% hoarding participants meeting diagnostic criteria for chronic medical conditions (TOLIN et al., 2008). In contrast, in other study the majority of hoarders (63.2%) related that their health was in good conditions (NORDSLETTEN et al., 2013), may reveal poor perception of their physical health. Furthermore, half of hoarders in our study have not demonstrated noticeable mental impairment and self-care. These findings increase the role of health department in participate on the developing of the multidisciplinary care protocol, both in primary care and mental health.

Hoarding cases may be considered a serious public health hazard once has been accompanying by considerable health and environmental risks (DIEFENBACH et al., 2013; FLEURY; GAUDETTE; MORAN, 2012; VALENTE,

2009). The possibility of vector proliferation was reported in 88.40% of cases in this study, probably due to the unsanitary environment. This finding is similar to prior study that report 88% of hoarding complaints citing the unsanitary conditions (FROST; STEKETEE; WILLIAMS, 2000). This high rate has alarmed city health surveillance because vector proliferation may increase disease's transmission, putting the own hoarder in risk, but also their households and the entirely neighborhood.

Unpleasant odor also may indicate the environment unsanitary conditions, and was perceptible in 65.21% cases, similar to previously described in which odor was reported in 53% of hoarding complaints (FROST; STEKETEE; WILLIAMS, 2000). Moreover, this condition was significantly most reported among female hoarders and among cases in which animals were involved. This result has indicated that these cases may occur in worse unsanitary conditions than males and/or object hoarding cases. A previous study also showed that the animal hoarders were in less sanitary conditions than object hoarders were (FROST; STEKETEE; WILLIAMS, 2000).

The risk of fire was reported in 34.78% of cases in our findings, contrasting with previous report of 67% of cases (FROST; STEKETEE; WILLIAMS, 2000) and 70.4% of animal hoarding cases (HOARDING OF ANIMALS RESEARCH CONSORTIUM, 2002). The landslip risk was reported in 13.04% of our cases and it was significantly most cited among object hoarders, in contrast of another study in which landslip risk was reported in 80.2% of animal hoarding cases (HOARDING OF ANIMALS RESEARCH CONSORTIUM, 2002). Both conditions were significantly most cited among object hoarders. This finding has concerned because the extent of clutter may represent a physical risk for the hoarder, besides also act as a fuel, obstruct fire exists and absorb the water used to combat fire (FLEURY; GAUDETTE; MORAN, 2012), which may lead to disastrous consequences.

Animal hoarders were significantly more women ($p=0.02$) and had both, dogs and cats in the same case (64.10%). However, it was evident that in cases where dogs were majority had less cats and vice versa (FIGURE 8). It was in contrast with earlier study that has showed mostly cases with dogs involvement only (58.33%) (CALVO et al., 2014). The general conditions of animal involved was classified as regular or good in 43.58% and 30.76% of cases, respectively,

contrasting with a previous report where 83.33% of cases with animals in bad conditions (CALVO et al., 2014). A high rate of animals were observed living free at yard (92.30%) and inside home (53.84%). Animals inside hoarder's home may indicate that has close contact with hoarders and their households and in association of animal hoarding cases unsanitary conditions may facilitate the possibility of disease transmission.

The multiple correspondence analysis reinforced the significant association among animal hoarders, women, with report of health problem, with relative's assistance and no report of landslip risk (FIGURE 9A). For object hoarders, there were significant association among risk of fire, landslip and no report of unpleasant odor (FIGURE 9B).

In summary, the demographic findings reported in our study has established the hoarder profile of Curitiba as elderly woman, with low income and level of education, living alone or with another person, with health problems report and relatives' assistance. The main risk associated were vector proliferation and unpleasant odor, indicating unsanitary conditions of the hoarder environment. Animal hoarders had mostly dogs and cats involved in regular or good conditions and were significantly more women with report of unpleasant odor. Object hoarder were significantly more people with low income, more reported of fire and landslip risks.

The data presented has several implications and should be taking into account to help in development and implement a specific multidisciplinary care protocol for hoarding cases in Curitiba, which may be extrapolated to other major cities in Brazil.

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4 GENERAL CONCLUSIONS

Hoarding is a mental disorder characterized by the persistent difficulty of discarding or disposing possessions, regardless their value, with serious obstruction of living spaces. This behavior have been poorly understood, especially in developing countries. The present study reinforces that object and/or animal hoarding is a mental disorder with severe consequences on health, welfare, and safety of humans, animals, and the environment.

In this dissertation was highlighted the frequency, spatial distribution and characteristics of object and/or animal hoarding cases in Curitiba, Paraná State, Brazil. Complementary information on spatial distribution of 69 hoarding cases fully assessed, separated by gender (SUPPLEMENT 4), age (SUPPLEMENT 5), monthly income (SUPPLEMENT 6) and education level (SUPPLEMENT 7) were provided and may indicate additional differences in hoarders geographic distribution patterns, mainly in monthly income and education level.

Throughout the study, the workgroup has been published and presented this issue in several divulgation channels and technical events, in attempt to increase awareness and stimulate discussion on hoarding issue. The inclusion of hoarding inspection record (SUPPLEMENT 8) and hoarder visits on official routine of the Curitiba City Hall may represent an initial step on development of intervention strategy with a multidisciplinary care protocol for hoarding cases.

Data contained herein may be valuable for public health practitioners worldwide, particularly in Latin America, contributing to development of specific public health policies and adequate approach of hoarding cases.

5 SUPPLEMENTS

SUPPLEMENT 1 – Paraná Araucária Foundation Approval (Certificate)

FUNDAÇÃO ARAUCÁRIA
Apoio ao Desenvolvimento Científico e Tecnológico do Paraná

Ato da Diretoria Executiva 107/2013

Ref.: Chamada de Projetos 04/2013 - Programa Pesquisa para o Sistema Único de Saúde: Gestão Compartilhada em Saúde - PPSUS Edição 2012 (Fundação Araucária-PR / SESA-PR / MS-Decit/ CNPq)

Resultados PPSUS

A Diretoria Executiva da Fundação Araucária de Apoio ao Desenvolvimento Científico e Tecnológico do Estado do Paraná torna público o resultado da aprovação dos projetos submetidos à Chamada 04/2013 – "Programa Pesquisa para o Sistema Único de Saúde: Gestão Compartilhada em Saúde - PPSUS Edição 2012".

COORDENADOR	*TÍTULO*	*IES*
Alexander Welker Biondo	*Perfil e protocolo de atenção aos acumuladores de animais e/ou objetos em Curitiba, Paraná*	*UFPR*

Curitiba, 03 de setembro de 2013.

Prof. Dr. Paulo Roberto Brofman
Presidente

Profa. Dra. Janesca Alban Roman
Diretora Científica

José Carlos Gehr
Diretor Administrativo e Financeiro

www.FundacaoAraucaria.org.br • www.FapPR.pr.gov.br

SUPPLEMENT 2 – Health Research Ethics Committee (Certificate)

UNIVERSIDADE FEDERAL DO PARANÁ - SETOR DE CIÊNCIAS DA SAÚDE/ SCS -

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Perfil e mapeamento dos casos de acumuladores de objetos e/ou animais em Curitiba/PR.

Pesquisador: Graziela Ribeiro da Cunha

Área Temática:

Versão: 2

CAAE: 44085215.3.0000.0102

Instituição Proponente: Programa de Pós-graduação em Ciências Veterinárias

Patrocinador Principal: Fundação Araucária

DADOS DO PARECER

Número do Parecer: 1.105.785

Data da Relatoria: 03/06/2015

SUPPLEMENT 3 – Published article: “The animal accumulation has become recognized as a mental disorder”

MEDICINA VETERINÁRIA DO COLETIVO

Clínica Veterinária

O acúmulo de animais passa a ser reconhecido como transtorno mental de acumulação

Ilustração produzida por Fernando Gonsales, médico veterinário e cartunista criador do personagem Níquel Náusea – http://goo.gl/al5aqg

A questão dos acumuladores foi novamente destaque no cenário nacional com o Seminário “Acumulação Compulsiva: desconstruindo preconceitos e construindo políticas públicas”, que reuniu mais de setecentas pessoas no mês de outubro de 2014, em São Paulo, SP, para discutir os avanços e as experiências sobre o tema. Além disso, a acumulação compulsiva de animais também foi um dos temas centrais da V Conferência Internacional de Medicina Veterinária do Coletivo, realizada em novembro de 2014 na Universidade Federal de Minas Gerais, em Belo Horizonte. Esses encontros técnicos, cada vez mais frequentes, demonstram uma demanda social cada vez maior por estratégias efetivas de abordagem e resolução do problema. Servem também de alerta para que o médico veterinário esteja preparado para intervir quando houver necessidade, assumindo seu papel de fundamental importância nos casos em que há o envolvimento de animais.

A quinta e mais recente edição internacional do Manual de Diagnóstico e Estatístico de Desordens Mentais (DSM-V) – publicada em maio de 2013 e cuja tradução está sendo lançada no Brasil – incluirá um capítulo de “Transtornos Obsessivo-Compulsivos e Transtornos Relacionados”, onde consta o novo transtorno de acumulação compulsiva como uma desordem específica com características próprias e distinta das demais. A inclusão do transtorno de acumulação compulsiva no DSM-V é um reflexo da evidência crescente dessa desordem e um grande avanço para o correto encaminhamento dos casos de acumuladores, que antes eram considerados como um sintoma ou um comportamento de pacientes portadores de outras condições neurológicas, principalmente de transtorno obsessivo-compulsivo. Um diagnóstico mais específico permite a conscientização das pessoas, a identificação aprimorada dos casos, o estímulo às pesquisas e o consequente desenvolvimento de estratégias

de abordagens e tratamentos mais eficazes para esse transtorno.

O transtorno de acumulação de animais representa especificamente um problema multifatorial que pode apresentar características diferentes em cada caso. Desse modo, a forma de intervenção, o plano de tratamento e a gestão de cuidados dependem da avaliação individual do paciente e de seu entorno, levando em conta os fatores biológicos, psicológicos, sociais e ambientais, bem como as limitações inevitáveis de recursos e serviços oferecidos pelo poder público. (Figuras 1 e 2)

Para facilitar o entendimento do universo dos acumuladores de animais e o planejamento da estratégia de intervenção, eles foram classificados em três tipos, de acordo com as condições associadas de interação e habilidades sociais, risco dos animais, nível de compulsão, aquisição ativa ou passiva de animais, grau de empatia, apego com outros seres humanos e com os animais, negação ou minimização dos problemas, controle da situação, resposta frente às autoridades competentes e, finalmente, da presença de problemas médicos ou psicológicos associados. Sendo assim, temos:

1. Cuidador sobrecarregado: Exibe certo grau de consciência sobre os problemas da falta de cuidados com os animais. Relaciona o problema provocado por uma alteração nas circunstâncias ou recursos sociais, econômicos e/ou médicos (como, por exemplo, a perda do cônjuge que ajudou a cuidar dos animais, doença ou invalidez, perda de emprego ou renda). Faz um esforço inicial para fornecer o cuidado adequado aos animais sob sua responsabilidade, mas eventualmente fica sobrecarregado e é incapaz de solucionar os problemas de forma eficaz. Tem uma forte ligação com os animais, como se eles fossem membros da família. Tende a ser uma pessoa reservada ou isolada, e a adquirir animais passivamente e minimizar os problemas. Tem sua autoestima ligada ao papel de cuidador de animais.

2. Resgatador: É o tipo mais comum nos Estados Unidos. Tem um forte sentido de missão para salvar animais

Figura 2 - Animais que estavam com acumuladora de animais de 57 anos, do município de Guarulhos, SP (mais de cem cães)

que leva à compulsão inevitável, adquirindo animais ativamente e acreditando que é a única pessoa capaz de fornecer cuidados adequados a eles. O padrão inicial de adoção em seguida ao resgate é substituído somente pelo resgate. Teme a morte (dos animais e de si próprio) e se opõe à eutanásia. Começa com os recursos adequados de cuidados com os animais, porém o número de animais ultrapassa gradualmente a capacidade de fornecer cuidados mínimos. Mostra dificuldade em recusar pedidos para resgatar mais animais. Evita autoridades e/ou impede o seu acesso. Não é, necessariamente, socialmente isolado.

3. Explorador: Tipo mais difícil ou problemático. Adquire animais meramente para atender às necessidades próprias. Demonstra características sociopatas e/ou distúrbios de personalidade, ficando evidente a falta de empatia por pessoas e animais, sendo indiferente ao dano causado a eles. Tende à extrema negação da situação, rejeitando autoridades e recusando a preocupação legítima de qualquer pessoa externa sobre os cuidados com os animais. Acredita que seu conhecimento é superior ao de todos os outros e adota o papel de especialista com extrema necessidade de controlar. Tem charme e carisma superficial, sendo muito articulado, especializado na elaboração de desculpas e explicações e capaz de apresentar uma aparência que transmite credibilidade e competência. Manipulador e esperto, com ausência de culpa, remorso ou consciência social.

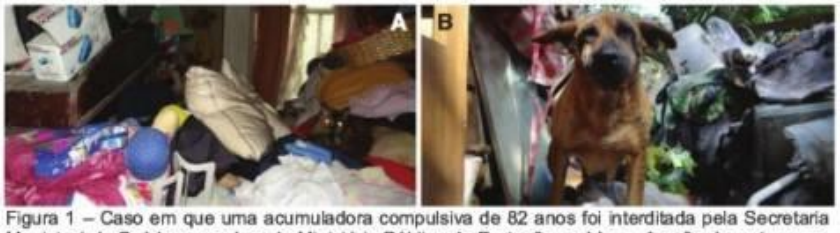

Figura 1 – Caso em que uma acumuladora compulsiva de 82 anos foi interditada pela Secretaria Municipal de Saúde por ordem do Ministério Público de Proteção ao Idoso. A ação desastrosa resultou no internamento à revelia da idosa, que morreu de infarto duas semanas mais tarde. A) Interior da casa da acumuladora. O gato pôde ser identificado apenas com a luz do flash da câmera fotográfica, e morreu na semana seguinte. B) Exterior da casa da acumuladora. A cadela da foto estava com uma ninhada de filhotes que morreram por ação criminosa na noite seguinte ao internamento da acumuladora

O reconhecimento desses três tipos diferentes de acumuladores de animais auxilia na tomada de decisões para o enfrentamento e a resolução dos casos, pois algumas estratégias de intervenção são

INTERVENÇÃO SEGUNDO O TIPO DE ACUMULADOR			
	ESTRATÉGIA GERAL		
Tipo de acumulador	Persuasão com acordo verbal	Ameaça de ação legal	Processo
Cuidador sobrecarregado	Bem provável - Receptivo a reduzir o número de animais	Pode ser suficiente para reduzir a probabilidade de recidiva	Frequentemente desnecessário e pode ser contraprodutivo
Resgatador	Improvável - Pelo menos nos estágios iniciais	Motivação dirigida é de continuar com esforços de resgate. Portanto, a ameaça deve oferecer a possibilidade de uma operação de redução de número	Pode ser necessário quando a ameaça falhar
Explorador	Refratário - Tratar com denúncia	Improvável de ser intimidado	Provavelmente essencial

Figura 3 – Estratégias de intervenção de acordo com o tipo de acumulador, adaptado do Animal Hoarding: Structuring interdisciplinary responses to help people, animals, and communities at risk. Patronek, Loar, Nathanson, orgs. 2006

mais prováveis de serem eficazes com um tipo de acumulador do que com os outros (Figura 3).

Independentemente da abordagem utilizada em cada caso, ressalta-se a importância da intervenção multidisciplinar que envolva aspectos da saúde humana, animal e ambiental (saúde única), com especial atenção à prevenção da recidiva, que é de aproximadamente 100% nos Estados Unidos. Enfatiza-se ainda a importância da participação ativa da comunidade, que pode auxiliar na identificação, comunicação ao poder público e monitoramento dos casos.

Na cidade de Curitiba foi criado o Grupo de Trabalho de Acumuladores (GTA), que inclui a Rede de Proteção Animal da Secretaria Municipal de Meio Ambiente, o Serviço de Saúde Mental e o Centro de Saúde Ambiental da Secretaria Municipal de Saúde, a Fundação de Ação Social e o Departamento de Medicina Veterinária da Universidade Federal do Paraná, em estreito contato com o Ministério Público e a Câmara Municipal de Vereadores. O projeto resultante, intitulado "Perfil e protocolo de atenção aos acumuladores de animais e/ou objetos em Curitiba, Paraná", foi recentemente aprovado e obteve R$140.000,00 em recursos pelo Programa de Pesquisa para o Sistema Único de Saúde: Gestão Compartilhada em Saúde (PPSUS Edição 2012), por intermédio do órgão de fomento estadual à pesquisa, a Fundação Araucária do Paraná.

Na fase atual do projeto estão sendo identificados os potenciais acumuladores da cidade, por meio da busca ativa das denúncias registradas no Ministério Público ou na Central 156 das Secretarias Municipal de Saúde e do Meio Ambiente e da Fundação de Assistência Social.

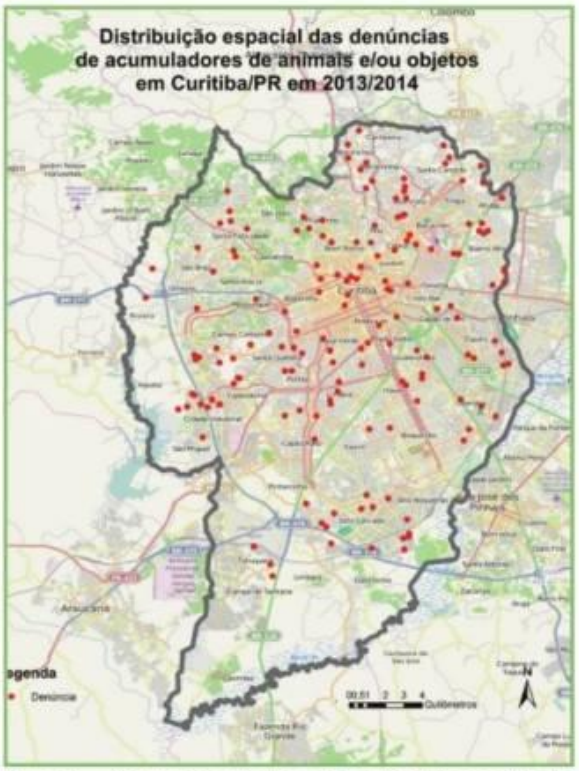

Figura 4 – Resultados preliminares da distribuição espacial das 189 denúncias de acumuladores de animais e/ou objetos em Curitiba/PR

As 189 denúncias referentes a acumuladores de animais e/ou objetos computadas até o momento foram analisadas, e os resultados preliminares mostram uma distribuição espacial sem tendência social, econômica ou geográfica (Figura 4). Além disso, pressupondo que a população de Curitiba seja de 1.848.943 habitantes (IBGE, 2013), pela primeira vez se tem uma proporção real de acumuladores no Brasil, de aproximadamente um acumulador para cada 10.000 habitantes (1:10.000).

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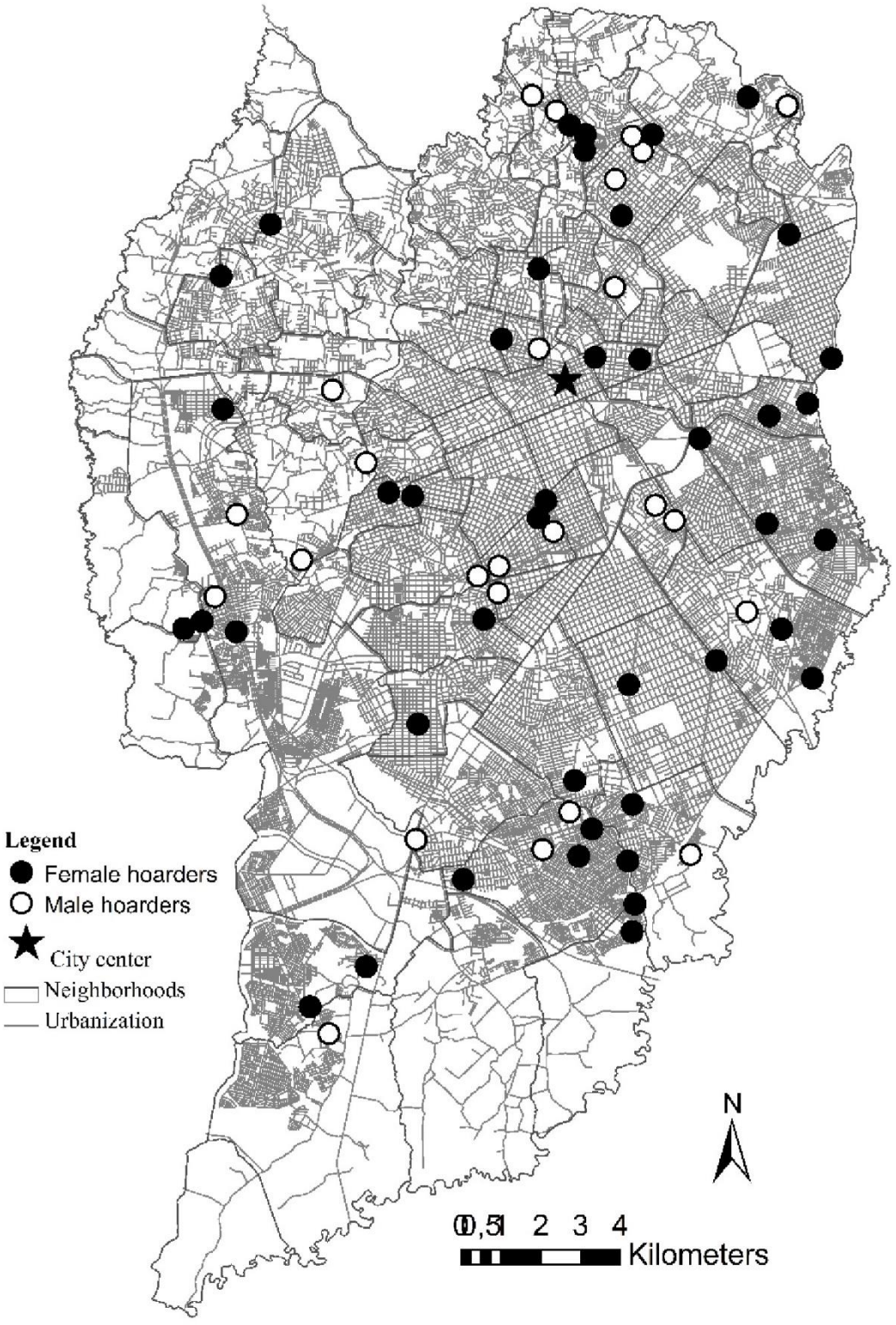
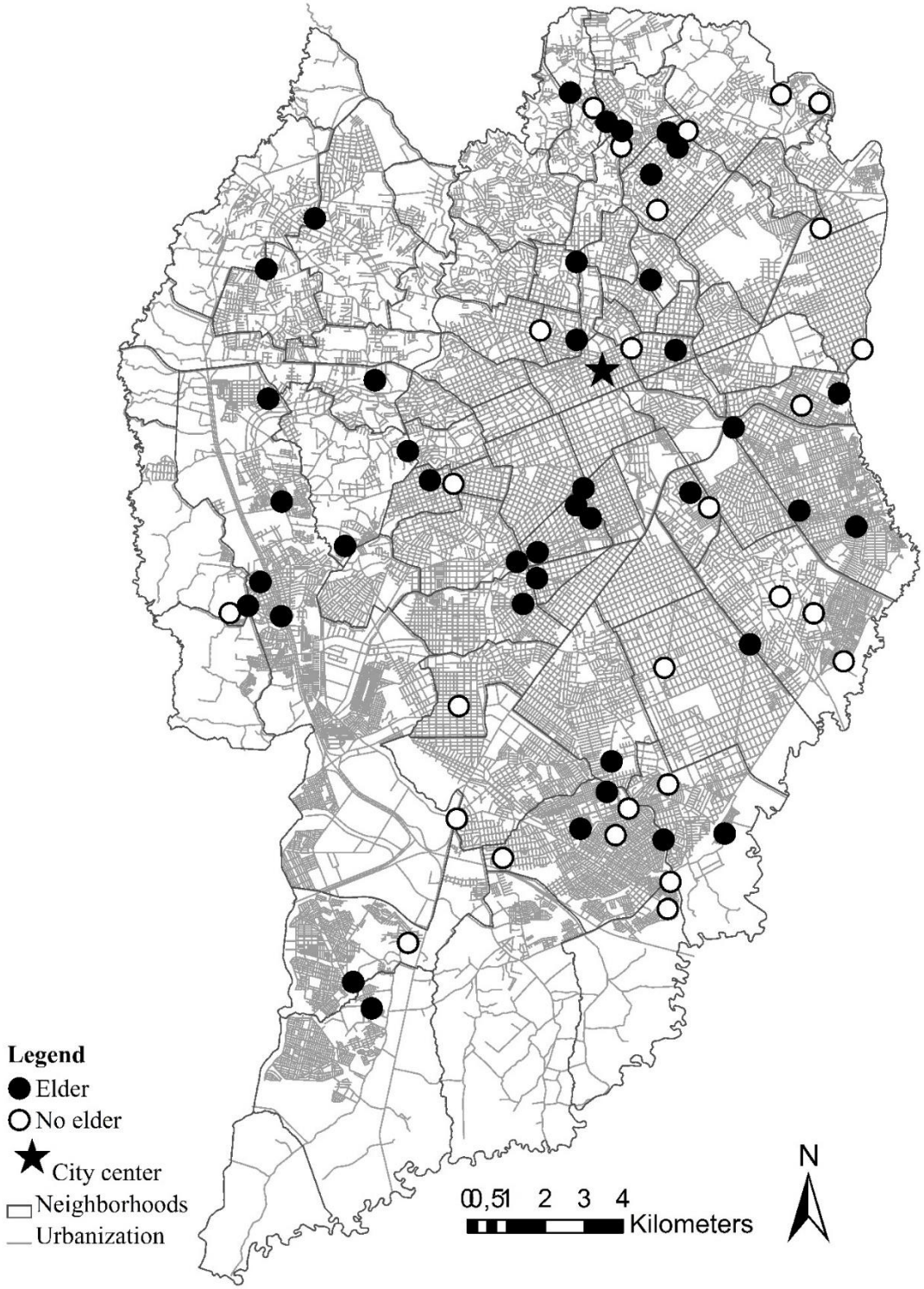
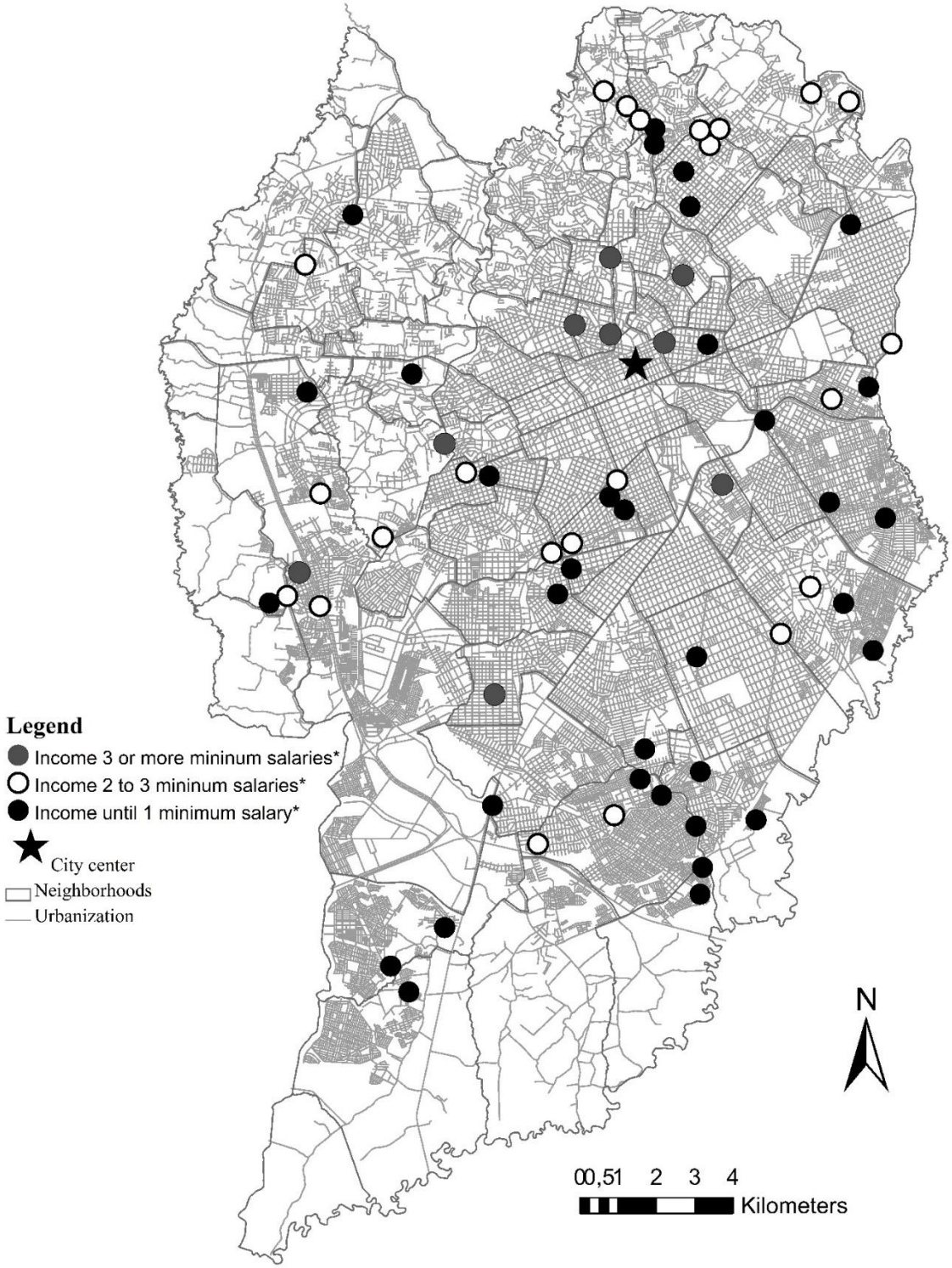
SUPPLEMENT 4 – Map distribution of 69 hoarders cases fully assessed per hoarder gender from 2013 to 2015, Curitiba, Brazil



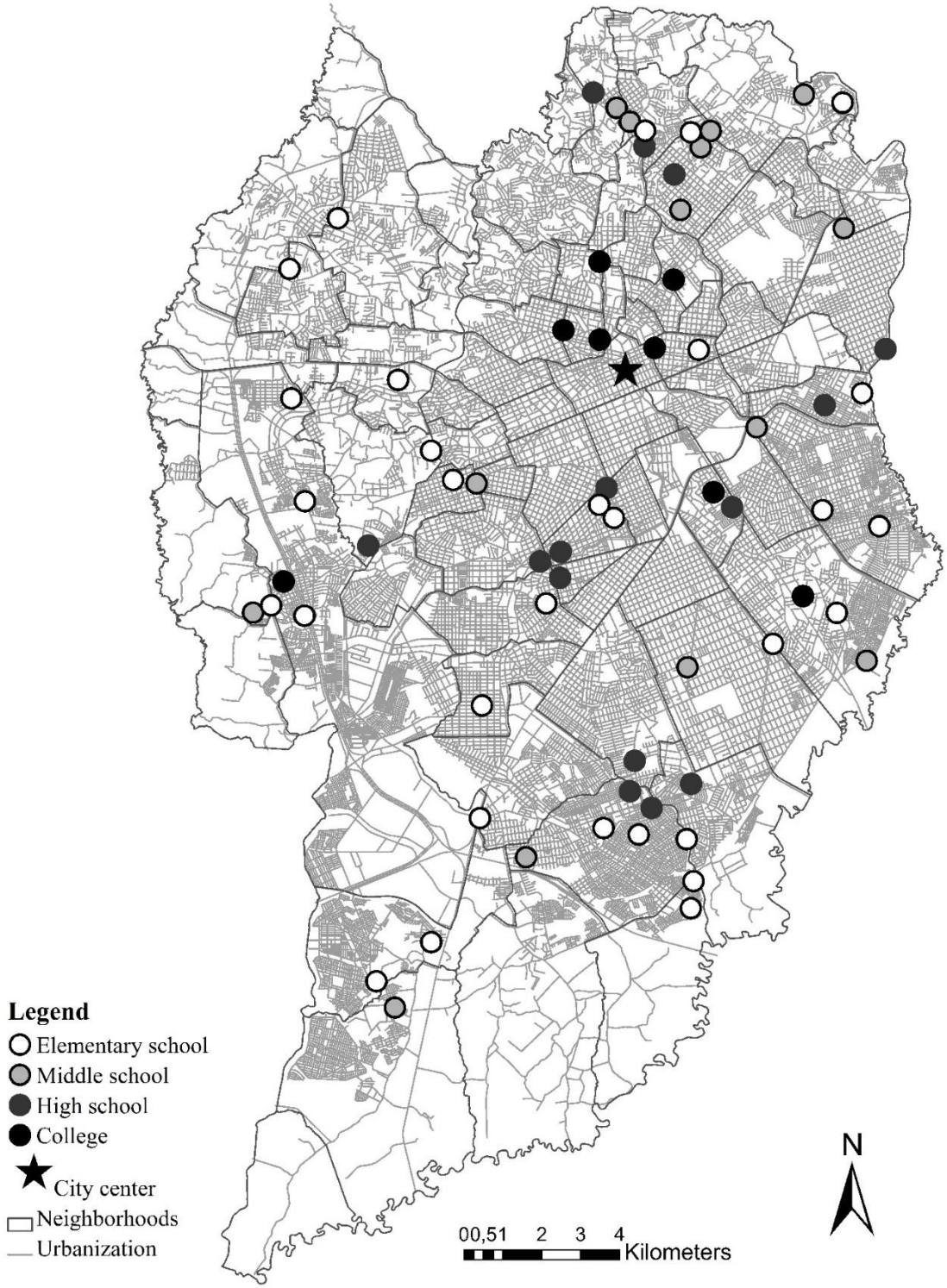
SUPPLEMENT 5 – Map distribution of 69 hoarders cases fully assessed per hoarder age from 2013 to 2015, Curitiba, Brazil



SUPPLEMENT 6 – Map distribution of 69 hoarders cases fully assessed per hoarder monthly income from 2013 to 2015, Curitiba, Brazil



SUPPLEMENT 7 – Map distribution of 69 hoarders cases fully assessed per hoarder education level from 2013 to 2015, Curitiba, Brazil



6 VITA

Graziela Ribeiro da Cunha is veterinarian graduated by Federal University of Paraná, campus Curitiba, in 2011. Specialist in Shelter Medicine by the Residency Program in Professional Area at Veterinary Hospital of Federal University of Paraná, conclusion in 2015. Its main areas of work are veterinary public health, population management of domestic animals, animal cruelty, hoarders, zoonoses and epidemiology.