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Psychopathological Comorbid Symptoms in Animal Hoarding Disorder

Elisa Arrienti Ferreira[1] · Luis Henrique Paloski[1,2] · Dalton Breno Costa[1,3] · Carmen Moret-Tatay[4] · Tatiana Quarti Irigaray[1]

Abstract

The main goal of this research is to describe the psychopathological symptoms comorbid to animal hoarding disorder. This is a cross-sectional study with a sample of a 33 individuals sample diagnosed with animal hoarding disorder. For data collection, a Sociodemographic Data questionnaire and a Semi-Structured Clinical Interview were used, based on the DSM-5 Level 1 Cross-Cutting Symptom Measure. The sample consisted of 24 women (72.7%) and 9 men (27.30%), with a prevalence of 64% of the elderly. The mean number of self-reported animals per residence was 41.12 (DP = 24.41), totaling 1357 animals: 915 (68%) dogs, 382 (28%) cats, and 50 (4%) ducks. The results indicated animal hoarding disorder the comorbid psychopathological symptoms of depression (36%), anxiety (36%), memory deficits (27%), mania (21%) and obsessive-compulsive disorder (18%). The analyses revealed a higher occurrence of these symptoms among participants who had hoarded animals for over 20 years.

Keywords Animal hoarding disorder · Comorbid symptoms · Anxiety symptoms · Depression symptoms · Mania · Psychopathology · Obsessive-compulsive disorder

✉ Tatiana Quarti Irigaray
tatiana.irigaray@pucrs.br

[1] Postgraduate Program in Psychology of School of Heath and Life Sciences, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Av. Ipiranga, 6681, Building 11, 9th floor, Porto Alegre, Rio Grande do Sul 90619-900, Brazil

[2] Department of Psychology, Faculdade Meridional – IMED, Passo Fundo, Rio Grande do Sul, Brazil

[3] Department of Psychology, Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA), Porto Alegre, Rio Grande do Sul, Brazil

[4] MEBlab. Department of Psychology, Universidad Católica de Valencia San Vicente Mártir, Av. Ipiranga, 6681, Building 11, 9th floor, Valencia, Spain

Introduction

Animal hoarding disorder is a severe psychiatric condition with consequences in individual's different contexts of life [28]. This disorder is described by the Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-5) as a special manifestation of Hoarding Disorder. This disorder is characterized by the high number of hoarded animals and the inability of the individual to provide the veterinary care, sanitation, physical space and nutrition necessary for these animals, living in precarious conditions. [1].

Animal hoarding cases have already been described in several countries, such as Australia [10, 17], Brazil [3, 5], Canada [23], United States [4], Serbia [14], Spain [2] and United Kingdom [11]. Due to the occurrence of this disorder in different cultures, Lockwood [12] suggests that biological factors may contribute to a predisposition for this behavior.

In this disorder, there is a failure to recognize animal suffering and the lack of sanitation where the hoarder individual lives, hoarding compulsively and disorderly. Frequently the situation is confinement in small spaces, insufficient for the number of animals. Dogs and cats are the species most common. However, birds and farm animals can also be hoarded. Animals are often hungry, caged, stacked and even dead. The individual continues hoarding animals, even with the progressive deterioration of the environment [19, 32].

Reinisch [23] states that almost all hoarders argue that animals are well cared for, even with evidence of contrary facts, indicating that hoarders maintain an illusory pattern of "care" that is not consistent with reality. Comparing to individuals who hoarding objects, the insight of animal hoarders tends to be impoverished and environmental conditions are commonly more unhealthy [1]. According to Paloski et al. [18], some psychological and behavioral characteristics are more present in this population: impoverished insight, difficulties in donating animals and organizational deficits. Regarding animal hoarder profile, there is a prevalence of women and the elderly, mostly without partners [5, 18].

No data were found regarding the prevalence of animal hoarding disorder. Research conducted in the United States and Europe suggests that its prevalence is 2 to 6%. The literature indicates that hoarding disorder usually starts early, between 11 and 15 years of age, and presents a chronic course [1]. Possible risk factors for Hoarding Disorder are individuals experiencing traumatic or stressful events at the beginning of the life cycle [31].

Recent studies also discuss the possibility of a division between animal hoarding disorder and object hoarding disorder, proposing animal hoarding disorder as a new nosographic category. This proposal is based on empirical studies and the literature review, suggesting specificities for the diagnosis of animal hoarders [5].

High rates of hoarding disorder psychopathology comorbid are found in clinical populations [7, 8]. DSM-5 reports about 75% of individuals diagnosed with hoarding disorder present mood or anxiety disorders. Major depressive disorder (up to 50% of cases), and generalized and social anxiety disorders are the most common comorbid psychopathologies. Obsessive-compulsive disorder (OCD) is also referred to as possible comorbidity and affects about 20% of individuals [1]. The scientific literature also mentions, but to a lesser extent, panic disorder, post-traumatic stress disorder, and compulsive eating disorder [22]. Studies suggest that hoarders may also present comorbid psychotic symptoms, such as delusional thoughts since many of them believe having a special ability to understand and sympathize with their animals [6, 12].

Although all evidence contradicts their perception, most hoarders believe and claim that their animals are being well cared for. These beliefs show not only serious thought distortions

but impoverished insight characteristic of hoarders [2, 6, 19]. In this sense, dementia comorbid with hoarding disorder are also suggested. This hypothesis is raised since hoarders tend not to show empathy for the poor conditions of hoarded animals [6, 19].

According to Frost et al. [7], there are no empirical studies that have investigated comorbid psychopathological aspects of animal hoarding disorder. This condition was only introduced in DSM-5 [1], a fact that justifies the lack of studies on the phenomenon, as well as this article reasoning, based mainly on the objects hoarding disorder.

In this perspective, the main objective of this study was to investigate the comorbid psychopathological symptoms of animal hoarding disorder in individuals from the city of Porto Alegre, in the southernmost Brazil. Thus, this study aimed to verify the association between the variables age, sex, marital status, income, number of animals, hoarding time and the psychopathological symptoms manifestation in animal hoarding disorder.

Method

Design

A cross-sectional and exploratory study was performed.

Participants

The Special Department for Animal Rights (*SEDA - Secretaria Especial de Direitos Animais*) from the city of Porto Alegre (RS - Brazil), through complaints and administrative procedures, identified 75 probable cases of animal hoarding. The research team visited 61 residences between August 2015 and May 2016. In total, 48 people welcome the team, but only 38 agreed to participate in the survey. The remaining 14 identified residences owners were not located at the addresses provided.

For characterization of the participants with animal hoarding disorder, the diagnostic criteria of DSM-5 [1] were used: (1) hoarding of several animals; (2) failure to provide minimum standards of nutrition, sanitation and veterinary care; (3) failure to act on the deteriorating condition of animals (including disease, hunger or death) and on the environment (e.g. overpopulation, extremely unhealthy conditions).

Among the 38 individuals evaluated, three did not meet the criteria necessary for the diagnosis of animal hoarding disorder. According to the information obtained through a questionnaire answered by *SEDA* veterinarians, the animals were in a good state of nutrition and health, and the environment was in good condition and sanitation. Besides, individuals provided minimal veterinary care and recognized the difficulties regarding large number of animals. One participant was excluded due to speech difficulties, which prevented data collection, and another due to the diagnosis of Schizophrenia mental disorder, which is an exclusion criterion [1].

The remaining 33 cases were evaluated by veterinarians. The evaluation identified animals in a poor state of nutrition and general health and the environment without minimum sanitation conditions. The animals also did not receive minimal veterinary care. Thus, the final sample consisted of 33 individuals who met the diagnostic criteria for animal hoarding disorder according to DSM-5.

Instruments

Sociodemographic Data Questionnaire was applied, including the following variables: age, sex, marital status, education level, income, cigarette and alcohol use (quantity and frequency), number and species of animals in the residence and animal characteristics.

Semi-Structured Clinical Interview, based on DSM-5 Level 1 Cross-Cutting Symptom Measure [1], was performed. The scale originally consists of 23 questions that evaluate 13 domains considered relevant for the diagnosis of psychopathology. In this study, only nine domains were applied: depression, suicidal ideation, mania, anxiety, panic, obsessive-compulsive disorder symptoms, social phobia, psychosis, and memory deficits. Thus, the participant should answer how much (or how often) had been experiencing these symptoms.

Data Collect and Compliance with Ethical Standards

The project was approved by the Research Ethics Committee of PUCRS (CEP-PUCRS), under the number 44489715.8.0000.5336. There is no potential conflicts of interest. Contacts were made with participants through home visits and those who agreed to participate completed and signed the Informed Consent Form. Participants answered individually to the assessment instruments, lasting approximately 1 h and 30 min. The evaluations were conducted by the project coordinator and auxiliary team. The team was formed by psychologists and Psychology undergraduate students, previously trained to apply the instruments and perform the interview. The visits in the residences of potential hoarders were accompanied by a veterinarian and a *SEDA* inspector. The State of Rio Grande do Sul Public Prosecutor Office provided transportation to the participant's residence.

The instruments were conducted inside the visited houses. When there were no conditions for conducting the evaluation process in the residences, a vehicle offered by the Public Prosecutor Office of RS was used. During the evaluation of the participants, the animals were examined and treated by *SEDA* veterinarians. Formal reports were produced with information on animal conditions and the environment, which were also included in this paper. Animals identified in need of specialized treatment or castration were removed to a veterinary hospital when the hoarder allowed it.

Data Analysis

Data were organized and analyzed in a database created in the Statistical Package for Social Sciences (SPSS, version 17) for Windows. Data were described using absolute (n) and relative (%) frequencies for qualitative variables, and mean and standard deviation for quantitative variables. Chi-square test was used to verify associations between the variables: age (20–59 years and ≥ 60 years), gender (male and female), marital status (with or without partner), income (1 to 2 minimum wage and ≥ 3), number of animals (3–39 animals and ≥ 40 animals) and hoarding time (1–19 years and 20 years), and the expression of psychopathological symptoms (yes or no), which were transformed into categorical variables.

Results

The final sample of this study consisted of 33 individuals, mean of 41.12 self-reported animals (± 24.41) per household, totaling 1.357 animals (Table 1). The participants had between 3 and

Table 1 Sociodemographic characteristics of animal hoarders

	n	%
Age group		
20 to 59 years old	12	36.40
60 or more years old	21	63.60
Education level		
Up to 8 years of study	13	39.40
9 or more years of study	20	60.60
Sex		
Female	24	72.70
Male	9	27.30
Marital status		
No partner	29	87.90
With partner	4	12.10
Income[a]		
1 to 2 minimum wage	25	75.80
3 or more minimum wage	8	24.20
Number of animals		
3 to 39 animals	17	51,50
40 or more animals	16	48,50
Hoarding time		
1 to 19 years	18	54,50
20 or more years	15	45,50

[a] 1 minimum wage = R$ 788,00 / per month

101 animals in the residences, being 915 (68%) dogs, 382 (28%) cats and 50 (4.0%) ducks. The number of animals may be higher than participants reported, mainly due to animal deaths and the difficulty of hoarders in making an accurate count. The participant who had only 3 animals at the time of the data collection had previously experienced *SEDA* intervention, when approximately 120 dogs were removed.

Regarding animal characteristics, only 18% of the residences animals were all castrated. In 78% of the cases, at least one animal had been adopted less than a year ago, 54% had some favorite animal and 85% of the sample named their animals. Animal abandonment behavior in front of hoarders' residences was frequent, as 57% of individuals stated that people left animals around or even inside their houses. Among the participants, 50% collected and hoarded objects, such as remains of building materials, clothing, recyclables and garbage, besides the animals.

In this sample, 73% of participants were women and 27% men. The mean age of the participants was 61.39 years (± 12.69), with a prevalence of 64% elderly individuals. Considering education, the mean was 9.39 years (SD = 4.40), whose amplitude was from 0 to 16 years. Only 39% were not active in the labor market and 61% were retirees or pensioners. Regarding leisure activities, 54% did not perform any activity and 42% had no habit of leaving home for social events. More than half of the sample (64%) reported some health problem and 48% were using continuous medication. Regarding substance use, 15% of participants were smokers, 25% drank alcohol weekly, and only 3% used cannabis regularly. In addition, 88% of the participants had no partner (separated, widowed or single) and 52% lived alone. Other symptoms assessed by the Clinical Interview semi-structured are shown in Table 2.

The results obtained through the Semi-Structured Clinical Interview revealed the presence of varied symptoms of different psychopathological disorders: 36.4% of the individuals presented depressive symptomatology; 21.2% mania symptoms; 18.2% OCD symptoms;

Table 2 Sociodemographic and cognitive characteristics of participants

	n	%	M	SD	Minimum - Maximum
Gender					
Female	24	36,40	–	–	–
Male	9	63,60	–	–	–
Marital status					
Single	22	66,67	–	–	–
Married	4	12,12	–	–	–
Separate	3	9,09	–	–	–
Widower	4	12,12	–	–	–
Income[a]					
1 a 2 MS	25	75,76	–	–	–
3 a 4 MS	3	9,09	–	–	–
5 a 6 MS	2	6,06	–	–	–
7 a 8 MS	1	3,03	–	–	–
More than 10 MS	2	6,06	–	–	–
MMSE (raw score)	33	–	24,09	5,36	9,00 – 30,00
Verbal fluency (raw score)	32	–	15,91	6,19	4,00 – 32,00
Rey Complex Figure – Copy total (raw score)	29	–	28,03	8,34	4,00 – 36,00
Rey Complex Figure – Recall total (raw score)	30	–	12,25	8,42	0,00 – 29,50
Similarities (raw score)	30	–	24,30	11,63	0,00 – 41,00

[a] 1 minimum salary refers to BRL 788.00/month; MMSE = Mini Mental State Examination

27% memory deficits; and distinct anxiety disorders symptoms were also found in the sample. Based on the Chi-Square analysis, it was found a significantly higher occurrence of symptoms of mania, panic, OCD, psychosis and memory deficits in participants who had hoarding animals for over 20 years.

The results showed that most hoarders are lonely individuals. In addition, more than half of the hoarders did not have medical attention. All these aspects may contribute to the symptoms of mania, panic, OCD, psychosis and memory deficits in participants who hoarded animals for years. Other information about the associations is presented in Table 3.

Discussion

The main objective of this study was to describe the psychopathological symptoms comorbid to animal hoarding disorder. The results suggested that many participants had symptoms of depression and anxiety. Researches corroborate this finding, demonstrating a positive association between these symptomatology and hoarding behavior [9, 30]. A study by Frost, Steketee and Tolin et al. [30], found a higher depressive symptoms prevalence, identifying more than 50% of individuals with this symptomatology. The present study found social anxiety symptoms only in one hoarder individual. Other studies have found higher rates in this population [8, 22, 30].

The results also identify the presence of mania symptoms in the sample evaluated. Studies with individuals who hoarded objects found lower levels, about 3% [8, 22, 24, 25]. The difference between the instruments applied to measure the symptoms is a hypothesis to explain this variation. In addition, the studies work with distinct populations, one considering object hoarders and other animal hoarders. Therefore, it can be inferred that mania symptoms may be more common in animal hoarding disorder. However, this finding requires further investigation.

Table 3 Chi-Square characteristics analysis of hoarders and occurrence of psychopathology in the last 30 days

	Age X^2	p	Sex X^2	p	Marital status X^2	p	Income X^2	p	Number of animals X^2	p	Hoarding time X^2	p
Depression	.075	.784	.050	.824	.267	.605	.614	.433	2.496	.114	3.422	.064
Suicidal ideation	1.252	.263	2.257	.133	1.052	.305	1.760	.185	.443	.506	.602	.438
Mania	.240	.625	1.022	.312	.038	.846	.523	.469	.113	.737	6.191	.013*
Anxiety	.075	.784	.344	.558	2.839	.092	2.937	.087	.732	.392	.157	.692
Panic	.029	.865	.132	.717	.132	.716	.245	.621	.007	.935	4.474	.034*
Obsessive-compulsive	1.356	.244	1.751	.186	.132	.716	.245	.621	.983	.321	11.103	≤.001*
Social phobia	2.078	.149	2.683	.101	.263	.608	2.934	.087	1.356	.244	1.238	.266
Psychosis	.013	.908	2.257	.133	.816	.366	1.760	.185	.443	.506	5.094	.024*
Memory deficits	1.126	.289	1.744	.187	1.073	.300	1.301	.254	.248	.619	5.387	.020*

* Significant correlation ($p \leq 0.05$) ** Significant correlation ($p \leq 0.001$)

Another important result is the presence of OCD symptoms in the sample, which is similar to results presented in studies with objects hoarders [9, 26]. Samuels et al. [26] also found a positive association between OCD symptoms and animal hoarding disorder. The DSM-IV-TR (2002) classified the hoarding behavior as a potential OCD symptom. Once that hoarding disorder was recently characterized in the DSM-5, the OCD can be considered as a possible comorbid condition.

Memory deficits were observed in some participants in this research. Studies show the presence of self-reported memory deficits [29, 31] and visual work memory deficits in individuals with object hoarding disorder [13].

This study also aimed to know the sociodemographic profile of the sample. The findings show that a portion of the sample is a smoker and drank alcohol weekly. This result corroborates data from a previous study that shows the presence of higher substance abuse in hoarders individuals when compared with individuals without hoarding behaviors [26].

Most participants had no partner and lived alone. An explanatory hypothesis for this finding is that hoarders have difficulty to develop emotional bonds in human relationships and seem to need the unconditional love of their animals [16, 23]. Social isolation and avoidance behaviors are often present in this population, which commonly considers interaction with animals more comfortable, safer, and rewarding than interaction with people [16, 20].

This research also aimed to verify the association between the variables age, sex, marital status, income, number of animals, hoarding time and psychopathological symptoms. Significantly higher symptoms of mania, panic, OCD, psychosis and memory deficits were found in participants who had hoarding animals for over 20 years. The high level of stress suffered by the animals' owners during years is a hypothesis to explain this finding. The environments where these animals live are sources of noise, zoonosis, and lack of sanitation. Furthermore, the individual usually does not have enough income to feed a large number of animals and does not participate in social and leisure activities. All these aspects may be directly related to the development of psychopathologies [21, 27].

The results indicate that most hoarders are lonely, which reflects the absence of a social network and facilitates disease development [15]. In addition, more than half of the individuals did not have medical care, neglecting their physical conditions, usually considerably damaged. All of these aspects may have contributed to the emergence of the symptoms found in individuals who had hoarded animals for over 20 years.

Animal hoarding disorder is recently exhibited in the DSM-5 [1]. This justifies the lack of specific research regarding this pathology and the studies about object hoarding disorder referenced to discuss the results. Another limitation identified is that most of these studies predate the publication of DSM-5, for this reason objects hoarding behavior is mentioned as an OCD symptom.

The results of this study reinforce the need for new studies with this population, which remains understudied in the scientific community. In order to develop specific guidelines for the treatment of animal hoarding, future studies are important to reduce the suffering of people and animals that have their lives significantly impaired.

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