

Characterization and analysis of the association between animal abuse and violence against women in the city of Pinhais, Paraná, Brazil

Caracterização e análise da associação entre casos de maus-tratos aos animais e violência contra mulher no município de Pinhais, Paraná, Brasil

Caracterización y análisis de la asociación entre los casos de maltrato de animales y la violencia contra las mujeres en el municipio de Pinhais, Paraná, Brasil

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Abstract

The objective of this study was to characterize the cases of animal abuse and violence against women, as well as to verify the existence of an association among these cases in the city of Pinhais, Paraná, Brazil. Reports of animal abuse and violence against women between January 2017 and January 2019, received by the city's monitoring institutions, were analyzed. To characterize the cases, a statistical analysis was performed using Excel® and R software. In relation to the animals, neglect of moderate severity was the type of abuse that most occurred. The Downtown neighborhood had the highest prevalence in all types of neglect and feline species was the most affected. In the cases of violence against women, the main aggressor was the ex-partner, with an average age of 39.15 years old. The victims presented an average age of 38.44 years old, and with a higher frequency of incomplete fundamental schooling and being employed. The most common violence was psychological, the Alto Tarumã and Downtown neighborhoods presented the highest prevalence. Case prevalence of animal abuse and violence against women per neighborhood showed an inconclusive relation. Therefore, it is concluded that a joint evaluation of the cases involving animal abuse and interpersonal violence is indispensable, establishing communication among institutions for an effective confrontation network and reinforces the need for public policies that recognize the Link.

Keywords: Pet; Animal neglect; The Link; Domestic violence; Public policies.

Resumo

O objetivo desse estudo foi caracterizar os casos de maus-tratos aos animais e violência contra mulher, assim como verificar a existência de associação entre esses casos no município de Pinhais, Paraná, Brasil. Foram analisadas denúncias de maus-tratos contra animais e casos de violência contra mulher ocorridos entre janeiro de 2017 e janeiro

de 2019, recebidas pelos órgãos fiscalizatórios do município. Para caracterização dos casos realizou-se a análise estatística utilizando o Excel® e o software R. A associação entre os casos de maus-tratos aos animais e de violência contra mulher foi analisada por meio da correlação de Pearson ($p < 0,05$). Em relação aos animais, a negligência de gravidade moderada foi o tipo de maus-tratos que mais ocorreu. O bairro Centro teve maior prevalência em todos os tipos de negligência e a espécie felina foi a mais acometida. Nos casos de violência contra mulher o principal agressor foi o ex-companheiro com idade média de 39,15 anos. As vítimas apresentaram idade média de 38,44 anos, e com maior frequência de ensino fundamental incompleto e de estar empregada. A violência de maior ocorrência foi a psicológica, sendo que os bairros Alto Tarumã e Centro apresentaram maior prevalência. As prevalências de maus-tratos aos animais e violência contra mulher por bairro mostraram uma correlação inconclusiva. Conclui-se, portanto, que é indispensável a avaliação conjunta dos casos que envolvam maus-tratos aos animais e violência interpessoal com estabelecimento de comunicação entre instituições para um efetivo enfrentamento em rede, reforçando a necessidade de políticas públicas que reconheçam a Teoria do Elo.

Palavras-chave: Animal de estimação; Negligência animal; Teoria do elo; Violência doméstica; Políticas públicas.

Resumen

El objetivo de este estudio fue caracterizar los casos de maltrato animal y violencia contra la mujer, así como verificar la existencia de asociación entre estos casos en el municipio de Pinhais, Paraná, Brasil. Se analizaron las denuncias de maltrato animal y los casos de violencia contra la mujer ocurridos entre enero de 2017 y enero de 2019, recibidos por los órganos de control del municipio. Para la caracterización de los casos, se realizó un análisis estadístico utilizando el software Excel® y R. La asociación entre los casos de maltrato de animales y la violencia contra las mujeres se analizó mediante la correlación de Pearson ($p < 0,05$). En cuanto a los animales, la negligencia de gravedad moderada fue el tipo de maltrato que más se produjo. El barrio del Centro presentó la mayor prevalencia en todos los tipos de maltrato y la especie felina fue la más afectada. En los casos de violencia contra la mujer el principal agresor fue la ex pareja con una edad media de 39,15 años. Las víctimas tenían una edad media de 38,44 años, con una mayor frecuencia de estudios primarios incompletos y de empleo. La violencia más frecuente fue la psicológica, y los barrios de Alto Tarumã y Centro presentaron la mayor prevalencia. La prevalencia del maltrato a los animales y la violencia contra las mujeres por vecindario mostraron una correlación no concluyente. Por lo tanto, concluimos que una evaluación conjunta de los casos de maltrato animal y violencia interpersonal con el establecimiento de la comunicación entre las instituciones es indispensable para una efectiva confrontación en red, reforzando la necesidad de políticas públicas que reconozcan el vínculo entre el maltrato animal y la violencia interpersonal.

Palabras clave: Pet; El abandono de los animales; Teoría del vínculo; La violencia doméstica; Políticas públicas.

1. Introduction

The human-animal interaction, despite being quite old, has been changing over the years and molding itself to the new perspectives of society, being ideally positive for both. Based on affection, this change in the relationship between human and non-human animals has enabled the configuration of a new family structure known as the multi-species family. Despite this, the family environment can present unacceptable negative interactions such as animal mistreatment and domestic violence (Hammerschmidt & Molento, 2012; Irvine & Cilia, 2017; Collins, et al., 2018).

Violence is conceptualized as the use of physical force or imposition of power, expressed through threats or by doing, that promotes suffering, psychological harm, impaired development, deprivation, or death. Family violence is classified as a type of interpersonal violence involving relatives or intimate partners living or not under the same roof, which encompasses child and elder abuse and intimate partner violence and is considered domestic violence when committed within the same household (WHO, 2002; Monsalve, et al., 2019).

Technically, animal mistreatment is considered as direct or indirect actions, characterized as negligence, aggression or any form of action that promotes threat to the individual's well-being (McMillan, 2005). According to the Federal Council of Veterinary Medicine (CFMV) in resolution 1.236 of October 26, 2018, mistreatment is defined as "any act, direct or indirect, commissive or omissive, that intentionally or by negligence, malpractice or imprudence causes unnecessary pain or suffering to animals." Despite this definition being compatible with that of violence and considering animal sentience, animal mistreatment is still not considered in the definition nor as a type of violence (Monsalve, et al., 2019).

The main legal instruments for animal protection are Article 225 of the Constitution (Brazil, 1988) and the Environmental Crimes Law No. 9605/98 (Brazil, 1998), considering it a crime to practice acts of abuse, mistreatment, injury or

mutilation of wild, domestic or domesticated, native or exotic animals. However, animal mistreatment is treated in a generalist way by legislation, requiring a greater understanding of definitions and technical knowledge (Hammerschmidt, 2017). The occurrences of mistreatment can be dealt with in the administrative, civil and criminal spheres. Thus, municipalities have the fundamental role in screening and triage of cases involving animal suffering, responding to those involving administrative infractions and in the most serious cases, in which there is malicious action, making the referral to the competent bodies (Hammerschmidt, 2019).

The social awareness in relation to animal suffering has been getting more space in society, specially, by the perception of the connection between animal abuse and interpersonal violence, known as the Link (Balkin, et al., 2013). The violence involved in this relation is considered an intergenerational cycle, resulting from negative experiences since childhood in the family environment, expressed in a harmful way during childhood until adulthood. Several studies carried out in the last decades, especially in North America, proved the existence of this relation, allowing us to see that types of violence do not occur in isolation in society and recognizing that the occurrence of animal suffering might be a sign of problems in the family environment (Gomes & Soares, 2019).

The objective of this study was to characterize cases of animal abuse and violence against women, as well as to verify the existence of an association between these types of violence in the city of Pinhais, Paraná, Brazil.

2. Methodology

Study Location

The current study was carried out in the city of Pinhais, Paraná, Brazil. Pinhais is the smallest city in the state of Paraná in terms of territory, with approximately 61,007 km², consisting of 15 neighborhoods. Its population, in 2019, was estimated at 132,157 habitants (IBGE, 2017), while the population of dogs and cats, estimated in 2017, was 50,444 and 7,722, respectively (Baquero, et al., 2018).

Data Collection

All analyses were based on secondary data referring to the cases that occurred in the period of January 2017 and January 2019, from monitoring institutions of the city of Pinhais-PR. The Animal Protection and Defense Section (SEDEA) of the Environment City Office provided the data related to animal abuse reports, while the Specialized Center of Social Services (CREAS) provided the data referring to cases of violence against women.

Animal abuse reports

The SEDEA is part of the Animal Well-Being Division (DIBEA) and acts as a monitoring institution that performs inspections to verify animal abuse situations that are received through reports. All actions are based on the Municipal Law 1,356/2012, which predicts administrative punishment through educational sentence, fine or definitive loss of the animal. The one responsible for the irregularities in relation to the animal's well-being receives a notification to remedy them and, in case they do not, they receive an Infraction Notice followed by a fine, starting the administrative process. Depending on the severity of the situation, the case is forwarded to the police station through Police Report and sent to the Public Ministry.

The animal abuse reports are received by e-mail, telephone and in-person. During the inspection, the origin of the report is determined and the technical conduct to be applied is defined: closing the case, issuing a notification, issuing an infraction notice, handing a visit communication, the necessity or not for a follow-up, among others. In the first inspection, the inspector evaluates the situation of the animal and they can consider the need to issue only a recommendation – cases with no harm to the well-being of the animal – or a notification and infraction notice – cases with harm to the well-being of the animal

and/or abuse situation. In the re-inspection, the occurrence can be closed, if the problems found by the inspector were remedied, or it can evolve to the issuing of an infraction notice, according to the legislation.

From the cases database, the verified reports were analyzed. Of these reports, those that dealt with the same case that was reported more than once, those that had incomplete information about the type of abuse involved, and when it dealt only with cases of unsupervised access to the street or raising production animals that do not fit in the study were excluded.

The records and reports of the inspections were analyzed according to the description made by the inspection team. The following information was collected: gender of the alleged perpetrator, address, types of abuse involved (nutritional neglect, comfort neglect, health neglect, behavioral neglect, abandonment, intentional physical aggression, clandestine breeder, accumulation, unsupervised street access, sexual abuse, fights, religious rituals or raising production animals in urban environment), action taken, recurrence of the case (determined by the existence of other reports about the same case in other years) and species involved.

Cases of violence against women

The CREAS is the public city management unit meant for providing services to individuals and families that find themselves in a situation of personal or social risk, by violation of rights or contingency, that demand specialized interventions from special social protection (Brazil, 2011a). This institution can be composed of professionals with high school and higher education in specific fields (Social Services, Psychology, Law), considering the specificities of the specialized family monitoring performed in this reference unit. It can also be comprised of other higher education professionals, observing the CNAS Resolution N°17/2011 (Brazil, 2011b), whose field and profile (theoretical knowledge, methodological skills, professional conduct) must be defined based on the specificity of the services provided by the Unit.

The cases of violence against women are received through spontaneous demand (cases that are protocolled by the CREAS) and forwarded by the PROJUDI system (software that allows all judicial proceedings to happen electronically). All the cases received between January 2017 and January 2019 were analyzed, considering only those that presented a detailing of the type of violence suffered by the victim, making a total of 89 cases included in this study. Information was collected on the aggressor (age, relationship with the victim and schooling), on the victim (address, age, schooling, type of violence suffered (physical violence, psychological violence, emotional violence, economic violence or sexual violence), location of the occurrence, recurrence of the case, employment situation and income) and on the family (number of members, age, schooling, other associated vulnerabilities and existence of elderly people or people with disabilities).

For the purpose of this study, we considered the age group from 0 to 9 years old for children and from 10 to 19 years old for teenagers, according to the division created by the World Health Organization (WHO) and recognized by the Health Ministry.

Data Analysis

All data was tabulated in Excel® spreadsheets. For the characterization of cases of animal abuse and violence against women, the present study used the methodology of quantitative data analysis, as described by Pereira et al. (2018). The descriptive analyses were performed using Excel® and the R software. The relations among the variables type of violence against women, presence of elderly/disability/children/teenagers, schooling and income of the victim were analyzed (two at a time) through Fisher exact test or chi-square. To evaluate the correlation between the number of animal abuse cases and the number of cases of violence against women, by neighborhood, the Pearson correlation coefficient (linear) was used, considering a statistically significant correlation when p-value was less than 0.05.

Ethical Considerations

The current study was submitted to and approved by the Research Ethics Committee of the Federal University of Paraná (UFPR), under registration n° 2.918.857, in September 26th, 2018.

3. Results and Discussion

Characterization of Animal Abuse Cases

It was received 1,159 reports in the period from January 2017 to January 2019, 465 (40.12%) of these reports occurred in 2017, 576 (49.70%) occurred in 2018 and 118 (10.18%) occurred in 2019. Out of the 328 verified reports, 173 (52.74%) were included in the study.

Analyzing the profile of the denounced, it was verified that 97 (59.5%) were women and 66 (40.5%) were men, presenting an average age of 48.3 years old and 51.5 years old, respectively. Despite this result being different from what has been shown in other studies, in which men presented as the most denounced (Hensley & Tallichet, 2008; Hammerschmidt & Molento, 2012), the study developed by Tiplady, Walsh and Phillips (2012) suggests that animals that are the target of abuse are more likely to belong to women than men.

The cases of abuse involved 821 animals, the most frequent being dogs (72.5%; 595/821) and cats (17.2%; 141/821) (TABLE 1). Despite the reports involving more dogs than cats, if we consider the populational estimative of these animals in the city of Pinhais, Paraná (Baquero, et al., 2018), where we have 50,444 dogs and 7,722 cats, the most afflicted species is the feline species ($141/7722 \times 1000 = 18.3$ abuse cases each thousand cats; $595/50444 \times 1000 = 11.8$ abuse cases each thousand dogs), presenting a dog reports/cat reports ratio of 2:3. Marconcin and collaborators (2017) found a dog reports/cat reports ratio of 45:1 in this same city, however, the population of these animals was still unknown. In the cities of Curitiba and Campo Largo, Paraná, the canine species was the one that presented the highest number of abuse cases in relation to the other evaluated species, but the populational estimative of these animals was also not considered (Hammerschmidt & Molento, 2012; Costa, et al., 2017). On the other hand, Marlet and Maiorka (2010) suggest that cats are the elected animals for abuse practices, seen as they found a higher occurrence of abuse in cats than in dogs, in proportion to the size of their populations. The existence of a higher number of dogs involved in abuse cases can be explained by dogs being the most popular pets, however, the fact of cats presenting nocturnal and arboreal behavior, having easy access to the streets and presenting a tendency to isolate when sick can mask a higher number of abuse cases against them (Marlet & Maiorka, 2010; Garcia, 2017; Machado, et al., 2019).

Table 1 - Frequency of reports by animal species and frequency of animals involved in cases of mistreatment in the period from January 2017 to January 2019 in the municipality of Pinhais, Paraná, Brazil.

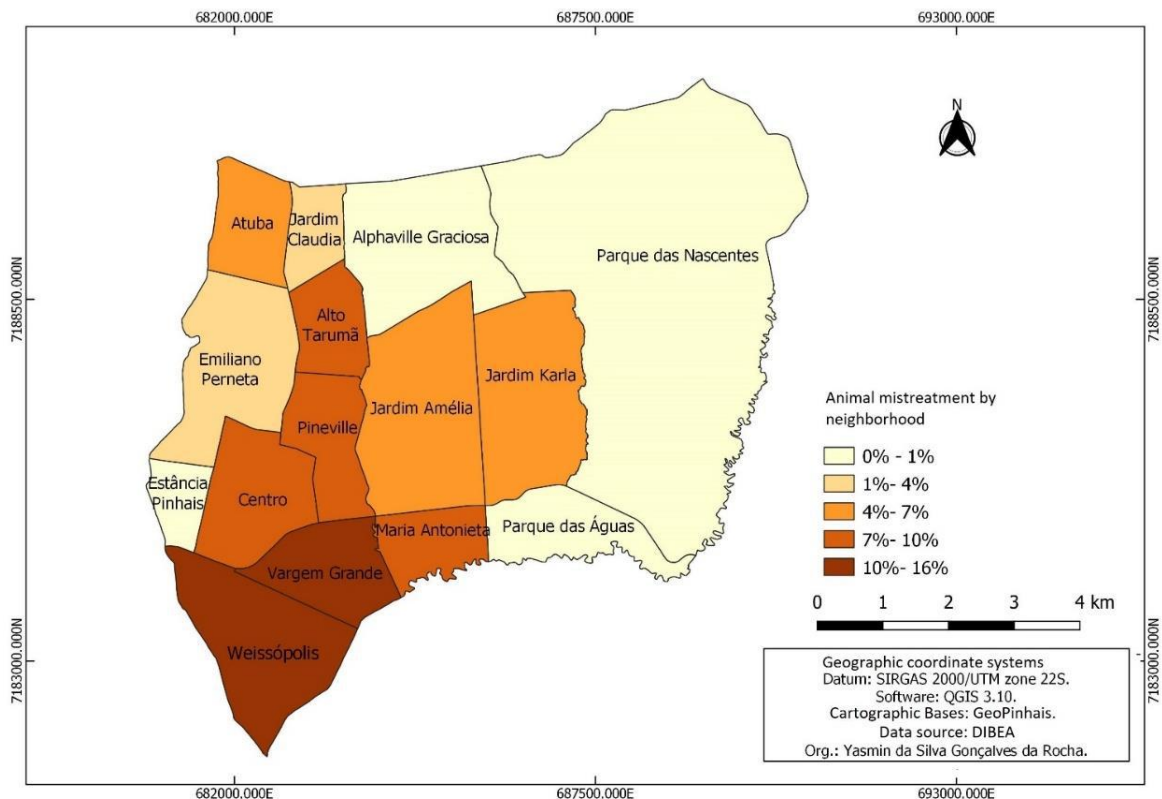
Animal species	Frequency of Reports	%	Frequency of Animals	%
Dogs	167	85,2	595	72,5
Cats	20	10,2	141	17,2
Horses	4	2,0	10	1,2
Birds	2	1,0	48	5,8
Wild	2	1,0	2	0,2
Others	1	0,5	25	3,0
Total	196	100	821	100

Source: The authors (2020).

Among the 173 reports, neglect was the most common type of abuse, being detected in 166 (95.95%) cases. Neglect occurs when one fails to provide the basic physical and mental needs of the animal, usually chronically (Garcia, 2017; Hammerschmidt, et al., 2017). It is important to understand that, from a technical point of view, neglect must be considered as abuse, due to being less noticed than a physical aggression and due to the fact that several scientific studies point to it as the most common type of abuse in Brazil and abroad (Costa, et al., 2017; Monsalve, et al., 2018; Glanville, et al., 2019). There were cases in which more than one type of neglect was detected, resulting in 369 neglect occurrences. The most neglected need in the evaluated cases was comfort (36.04%; 133/369), followed by behavioral need (22.76%; 84/369). This result corroborates the evaluations by Hammerschmidt (2017) and Monsalve et al. (2018) in the same city.

The spatial distribution of the percentage of animal abuse cases per neighborhood in this period (Figure 1) showed a higher concentration in the more populated neighborhoods and with a monthly income between R\$ 450.00 and R\$ 2,000.00. Considering the population per neighborhood, it was possible to geographically distribute each type of neglect according to the prevalence of these cases (Figure 2), showing that the Downtown neighborhood presented the highest prevalence for all types of neglected needs. On the other hand, the Estância Pinhais, Alphaville Graciosa and Parque das Águas neighborhoods presented the lowest prevalence for four types of neglect.

Figure 1 - Spatial distribution of the percentage of animal mistreatment cases by neighborhood in the period from January 2017 to January 2019 in the municipality of Pinhais, Paraná, Brazil.

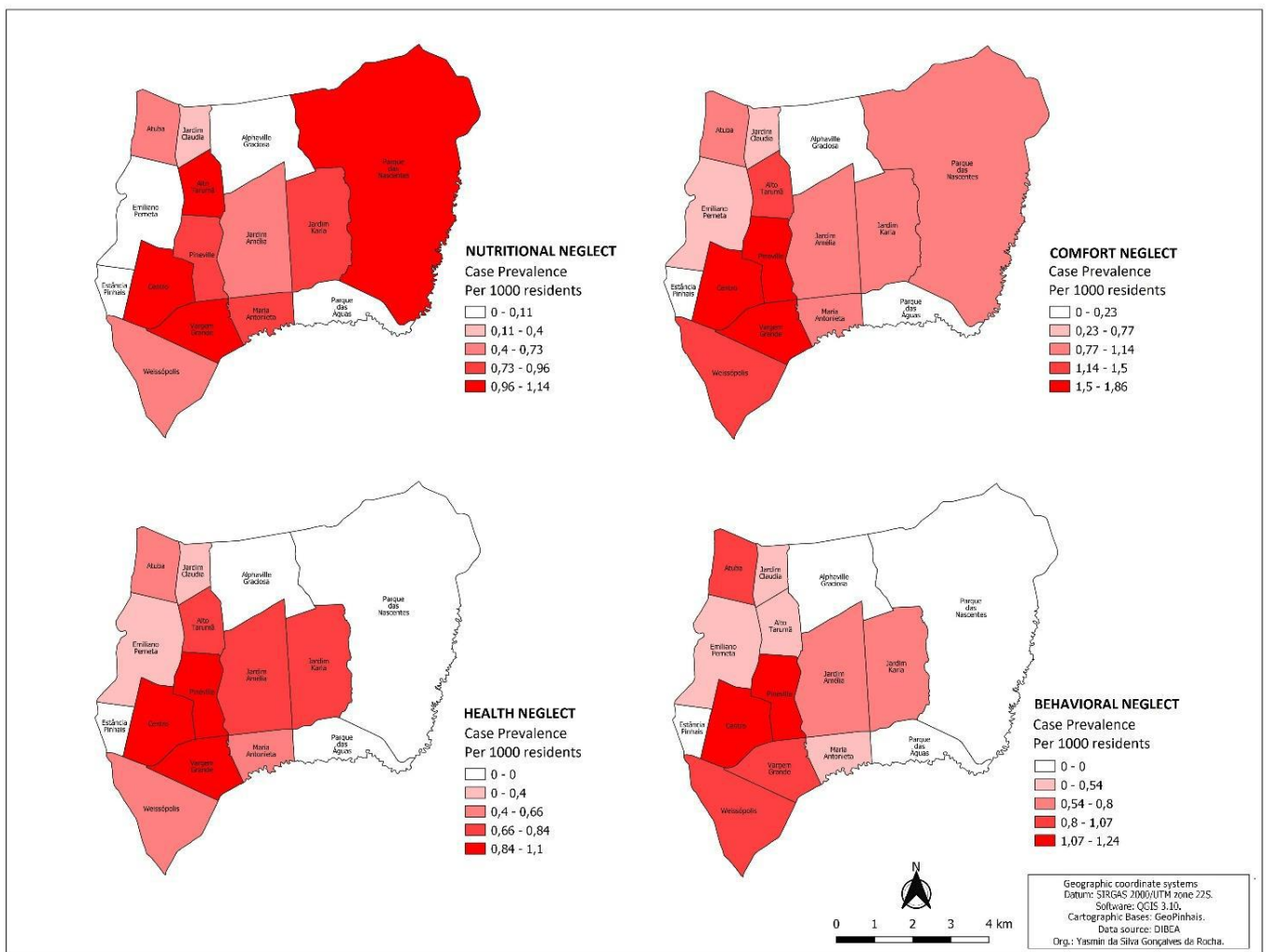


Source: The authors (2020).

The closed cases were analyzed in order to classify the severity of the involved neglect in light, moderate or severe, according to Garcia (2017). Out of the 173 reports included in this study, 84 (49%) had been closed, 79 (94%) being related to the occurrence of some type of neglect. Graphic 1 shows that 3.8% (3/79) of the closed cases were characterized as light neglect, which occurs when the neglected animal is not in danger, but the conditions must be corrected so that it does not

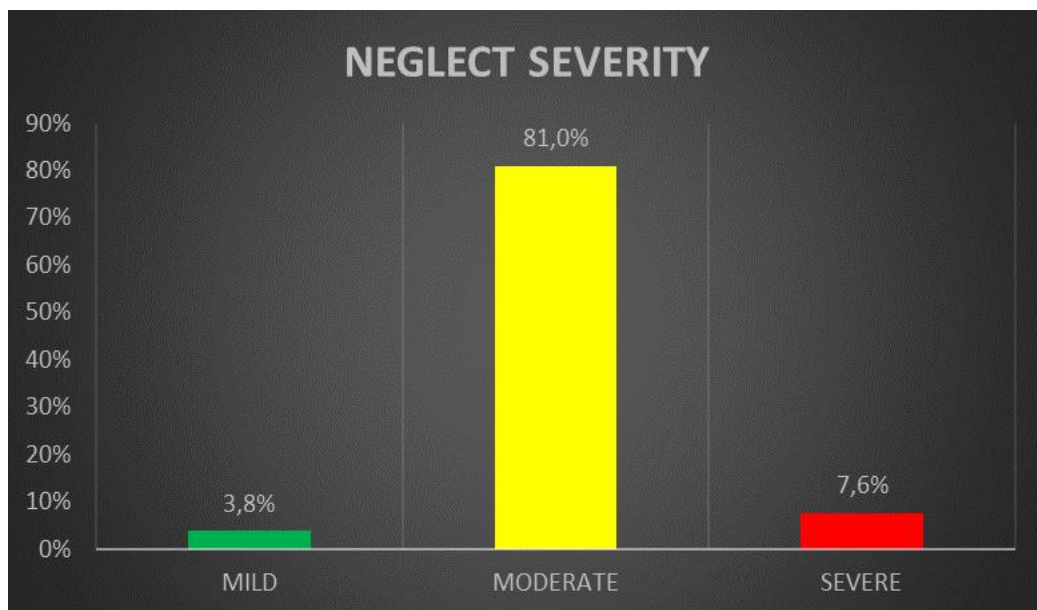
escalate, with a social-educational intervention, such as verbal orientation or issuing a recommendation, being sufficient. Most of the occurrences were considered of moderate severity, corresponding to 81% (64/79) of the closed cases, being those in which there has already been a social-educational intervention and the conditions of the animal were not corrected, requiring a professional intervention with the issuing of a notice. The notice is the first official document of the inspection service that contains the description of the verified irregularities, in addition to the improvements required from the responsible person in relation to animal care, stipulating a deadline for regularization and return of the inspectors for a new inspection (Hammerschmidt, 2019). The severe cases of neglect were those that presented imminent and permanent danger to the animal, requiring an intervention through legal protection services with the issuing of an infraction notice, forwarding to the Public Ministry or apprehension of the involved animals, corresponding to 7.6% (6/79) of the closed cases.

Figure 2 - Spatial distribution of the types of animal neglect prevalence by neighborhood, considering the number of human residents, in the period from January 2017 to January 2019 in the municipality of Pinhais, Paraná, Brazil.



Source: The authors (2020).

Graphic 1 - Percentage of cases of maltreatment of animals classified according to the severity of the neglect presented in the municipality of Pinhais, Paraná, Brazil.



Source: The authors (2020).

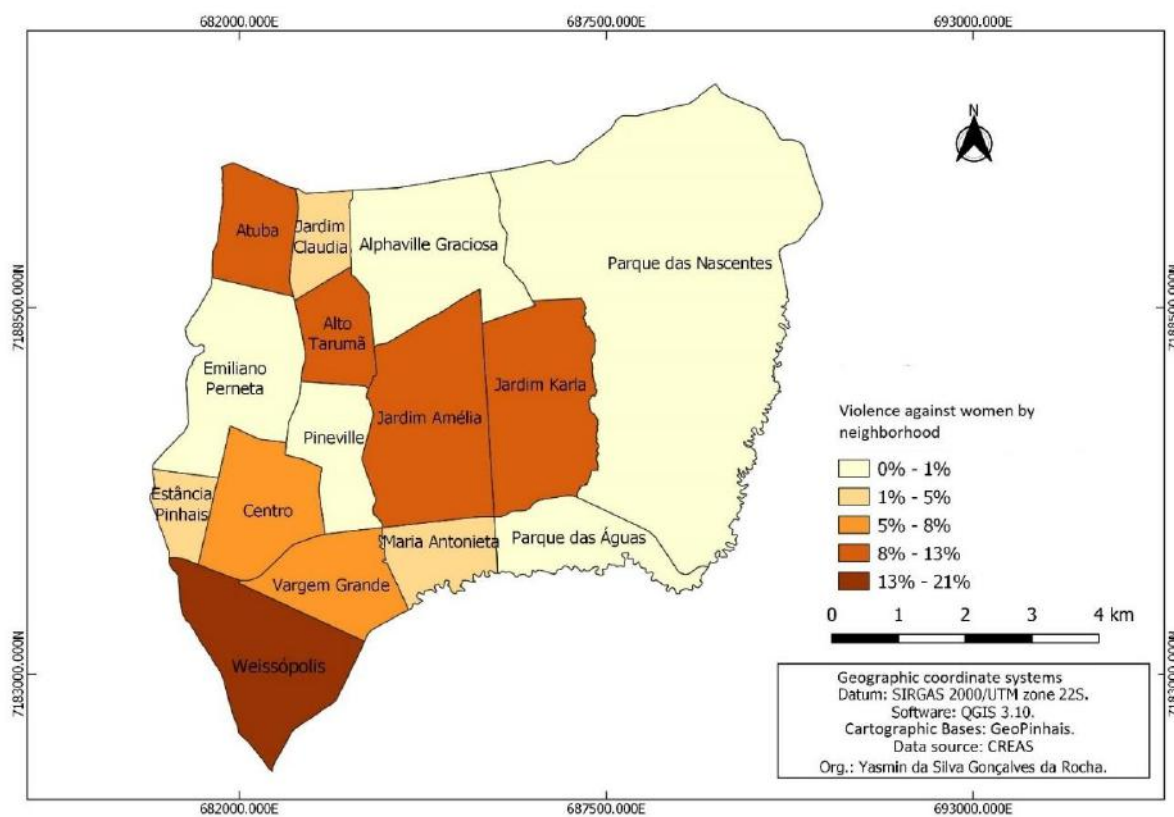
CHARACTERIZATION OF THE CASES OF VIOLENCE AGAINST WOMEN

Eighty-nine cases of violence against women received by the Specialized Social Services Center (CREAS) in the period from January 2017 to January 2019 were analyzed. Of these cases, 29 (32.58%) were obtained from spontaneous demand, that is, cases that are protocolled by the institution itself, and 60 (67.41%) were forwarded by the PROJUDI system. The spatial distribution of the percentage of cases of violence against women per neighborhood is shown in Figure 3. However, it is noted that the highest number of cases is concentrated in neighborhoods with higher populational density, following the same dynamic as the animal abuse cases.

The aggressor profile analysis pointed out that in 65 (73.0%) of cases, the ex-partner was responsible for the violence, followed by the current partner (16.9%; 15/89), as shown in Table 2. The age of the aggressors varied from 17 to 76 years old, with an average age of 39.15 years old and standard deviation of 14.90 years old. The results obtained were similar to studies carried out in Rio Grande do Sul and Rondônia states (Oliveira, et al., 2019; Gedrat, et al., 2020). However, in relation to the relationship of the aggressor, a study performed in Guarapuava-PR found more cases perpetrated by the current partner, followed by the ex-partner (Madureira, et al., 2014).

The victims presented ages from 18 to 88 years old, with an average age of 38.44 years old and standard deviation of 14.25 years old. Most of them had incomplete basic education (38.2%; 34/89), were employed (43.8%; 39/89) with an average income of R\$ 1,088.85, as shown on Table 3. A study carried out in the same city with cases from 2009 to 2010 presented the same characteristics in relation to employment situation and average income, differing only in the schooling aspect, in which complete high school education was more frequent (Mattos, et al., 2012). These results corroborate with other studies carried out in Brazil (Almeida & Souza, 2017; Santos, et al., 2018; Oliveira, et al., 2019).

Figure 3 - Spatial distribution of the percentage of cases of violence against women by neighborhood in the municipality of Pinhais, Paraná, Brazil.



Source: The authors (2020).

Table 2 - Relationship of the aggressor to the woman victim of violence in the municipality of Pinhais, Paraná, Brazil.

Relationship	n	%
EX-PARTNER	65	73,0
PARTNER	15	16,9
ACQUAINTANCE*	9	10,1
Total	89	100,0

Note: *Includes sons, grandsons, daughters-in-law, and sons-in-law. Source: The authors (2020).

Table 3 - Education and employment status of the 89 women victims of domestic violence in the municipality of Pinhais, Paraná, Brazil.

Variable	n	%
Victim's level of education		
ELEMENTARY INCOMPLETE	34	38,2
HIGH SCHOOL COMPLETE	21	23,6
HIGH SCHOOL INCOMPLETE	10	11,2
ELEMENTARY COMPLETE	6	6,7
UNDERGRADUATE COMPLETE	1	1,1
UNDERGRADUATE INCOMPLETE	1	1,1
ANALPHABET	1	1,1
NO INFORMATION	15	16,9
Employment status		
EMPLOYED	39	43,8
UNEMPLOYED	23	25,8
RETIRED	7	7,9
SELF-EMPLOYED	1	1,1
NO INFORMATION	19	21,3

Source: The authors (2020).

The families of these women were composed of an average of 3.12 members, with the presence of children (0 to 9 years old) and teenagers (10 to 19 years old) in 31.5% (28/89) of the cases, and elderly or people with disabilities in 16.85% (15/89). Most of the children and teenagers were enrolled in primary education (35.5%; 50/141). In relation to the occurrence of social vulnerabilities, 41.57% (37/89) presented problems with alcoholism, psychoactive substance use, psychiatric disorder and unemployment.

In relation to the type of violence, 47.5% (76/160) involved psychological violence, 35.6% (57/160) involved physical violence, 11.3% (18/160) involved emotional violence, 5.0% (8/160) involved economic violence and 0.6% (1/160) involved sexual violence, considering that one case could have more than one type of violence involved. Most cases (92.1%; 82/89) occurred in the victim's residence, 76.4% (68/89) of the cases presenting recurrence of violence, as shown in Table 4. Studies carried out in Santa Catarina and Rio Grande do Sul states also found a higher occurrence of psychological violence followed by physical violence, characterized by threats and physical aggression, respectively (Gadoni-Costa, et al., 2011; Macarini & Miranda, 2018). However, other authors describe a higher occurrence of physical violence, while the psychological violence will be more frequent when associated with physical violence (Madureira, et al., 2014; Santos, et al., 2018; Oliveira, et al., 2019). National data also show that the cases of violence against women occur with more frequency inside the home, that is, in the victim's residence (Fórum Brasileiro de Segurança Pública & Data Folha, 2019).

Table 4 - Characteristics of the cases of violence against women in the municipality of Pinhais, Paraná, Brazil.

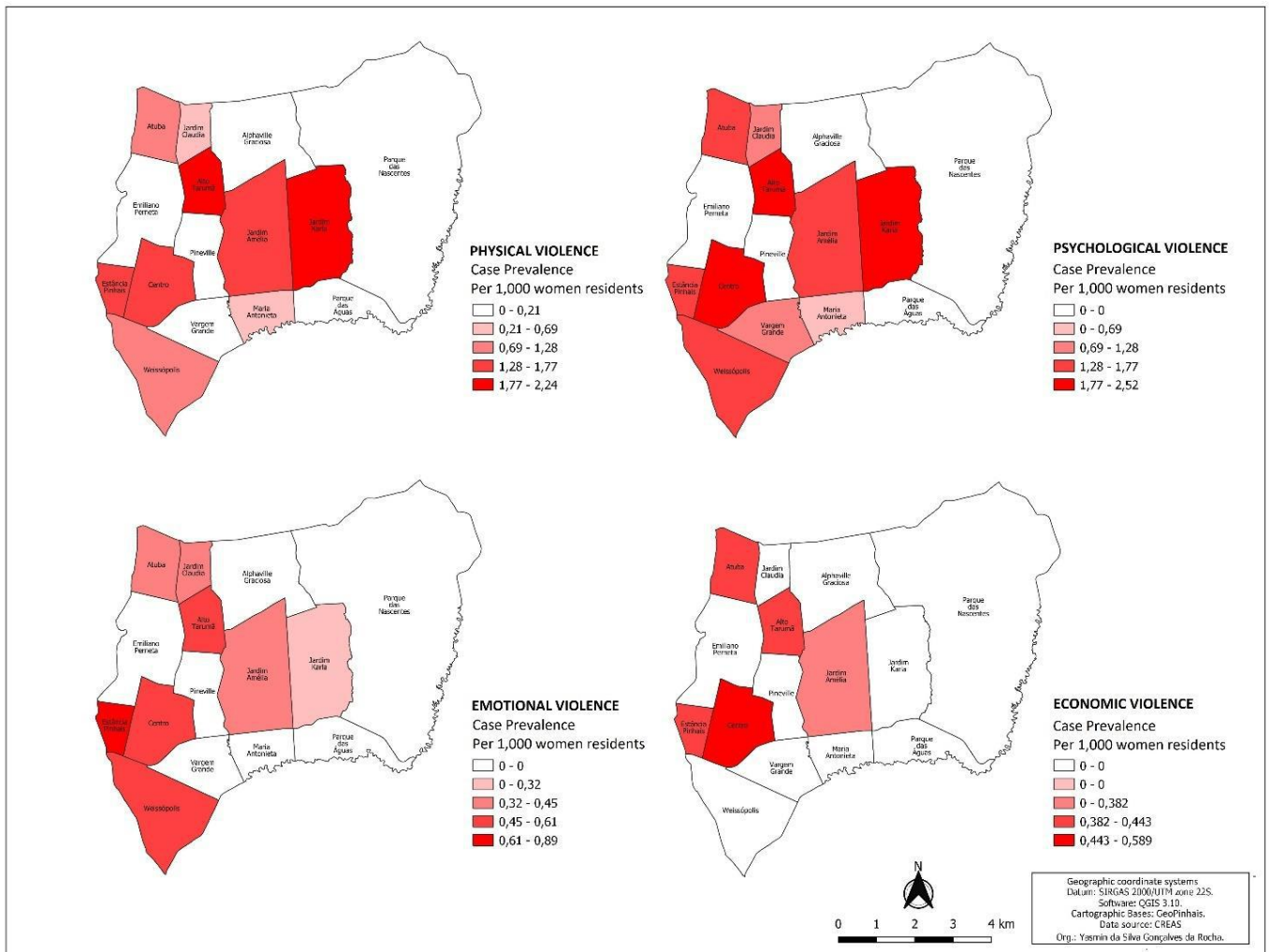
Characteristics	n	%
Type of violence*		
PSYCHOLOGICAL	76	85,4
PHYSICAL	57	64,0
EMOTIONAL	18	20,2
ECONOMIC	8	9,0
SEXUAL	1	1,1
Location of occurrence		
RESIDENCE	82	92,1
ON THE STREET	2	2,2
SOCIAL MIDIA	2	2,2
BY MESSAGE	1	1,1
TRAFFIC	1	1,1
RESIDENCE/WORK	1	1,1
Case recurrence		
YES	68	76,4
NO	20	22,5
NO INFORMATION	1	1,1

Note: *A case could have more than one type of violence involved, resulting in a total cumulative percentage greater than 100%. Source: The authors (2020).

The prevalence rate of the types of violence against women per neighborhood in the city is shown in Figure 4, considering the women population in Pinhais-PR according to data from IBGE (2010). Therefore, it is noted that the Alto Tarumã and Downtown neighborhoods presented high prevalence for all types of violence.

The type of violence did not present significant association with the victim's schooling and employment situation, nor with the presence of elderly and people with disabilities. On the other hand, the presence of children/teenagers showed a significant association with the occurrence of economic violence, as presented in Table 5.

Figure 4 - Spatial distribution of the prevalence of the types of violence against women by neighborhood in the municipality of Pinhais, Paraná, Brazil.



Source: The authors (2020).

Table 5 - Types of violence against women according to information regarding the victim and family composition in cases handled by the specialized reference center for social assistance (CREAS) of Pinhais, Paraná, Brazil.

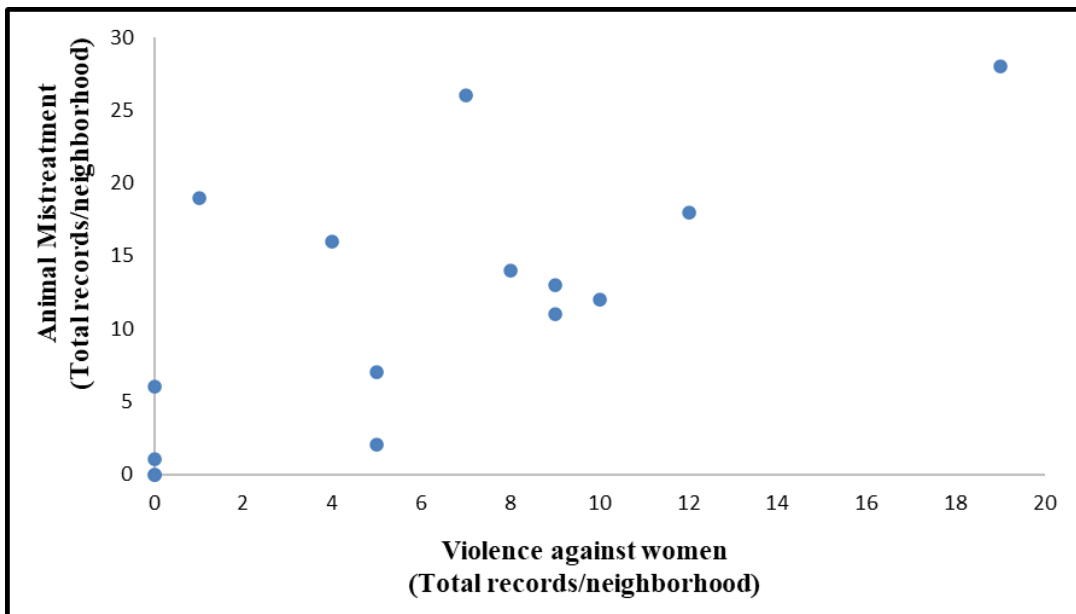
	PSYCHOLOGICA																p-value			
	PHYSICAL				p-value	L				p-value	EMOTIONAL				p-value	ECONOMIC				
	Yes		No			Yes		No			Yes		No			Yes		No		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%				
Victim's level of education					0,6815					0,5890					0,3183					0,3600
ELEMENTARY	27	47,4	14	43,7		37	48,7	2	18,2		8	44,4	33	46,5		2	25,0	39	48,1	
HIGH SCHOOL	20	35,1	11	34,4		25	32,9	6	54,5		9	50,0	22	31,0		5	62,5	26	32,1	
UNDERGRADUATE	2	3,5	0	0,0		2	2,6	0	0,0		0	0	2	2,8		0	0,0	2	2,5	
NO INFORMATION	8	14,0	7	21,9		12	15,8	3	27,3		1	5,6	14	19,7		1	12,5	14	17,3	
Victim's employment status																				
UNEMPLOYED	19	33,3	4	12,5	0,1424	16	21,0	7	53,8	0,0940	5	27,9	18	25,3	0,7026	2	25,0	21	26,0	0,8992
EMPLOYED	22	38,6	18	56,3		37	48,7	3	23,1		10	55,5	30	42,3		4	50,0	36	44,4	
RETIRED	5	8,8	2	6,2		6	7,9	1	7,7		1	5,5	6	8,4		1	12,5	6	7,4	
NO INFORMATION	11	19,3	8	25,0		17	22,4	2	15,4		2	11,1	17	24,0		1	12,5	18	22,2	
Presence of elderly/disabled people																				
YES	9	15,8	6	18,8	0,9498	13	17,1	2	15,4	1,0000	4	22,2	11	15,5	0,4933	2	25,0	13	16,0	0,6178
NO	48	84,2	26	81,2		63	82,9	11	84,6		14	77,8	60	84,5		6	75,0	68	84,0	
Presence of children/teenagers																				
TEENAGER(S)	12	21,1	4	12,5	0,4831	15	20,0	1	7,7	0,5420	3	16,7	13	18,3	0,5750	1	12,5	15	18,5	0,0257
CHILD/CHILDREN	11	19,3	10	31,2		19	25,0	2	15,4		4	22,2	17	24,0		5	62,5	16	19,7	
BOTH	21	36,8	7	21,9		22	29,0	6	46,1		8	44,4	20	28,2		0	0,0	28	34,6	
NOT HAVE	13	22,8	11	34,4		20	26,0	4	30,8		3	16,7	21	29,5		2	25,0	22	27,2	

Note: For all hypothesis tests, it was considered that p-value < 0.05 indicates significant association. Source: The authors (2020).

Association Between Cases of Animal Mistreatment and Violence Against Women

When comparing Figures 1 and 3, it is possible to note a similarity in the spatial distribution of the cases per neighborhood, indicating a possible correlation between the two percentages. Thus, the existence of this relation was verified through Pearson's correlation analysis, which presented a Pearson correlation coefficient of 0.698 (positive correlation, but weak to moderate) and the significance test resulted in a p-value = 0.0038 (indicating statistical significance). Therefore, considering the information per neighborhood, there is evidence that there is correlation between the variables: percentage of cases of violence against women and percentage of cases of animal mistreatment estimated as positive and moderate (graphic 2).

Graphic 2 - Spread diagram of the occurrences of animal mistreatment and violence against women by neighborhood in the municipality of Pinhais, Paraná, Brazil.

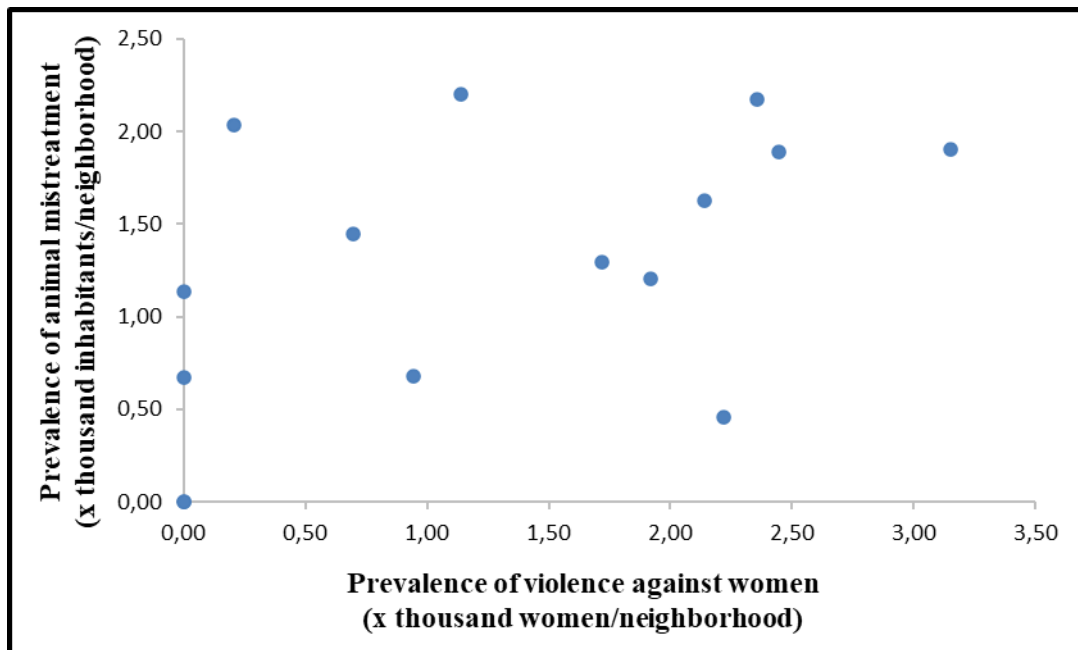


Source: The authors (2020).

With the intent of considering the animal and female population per neighborhood, the prevalence of cases was analyzed, instead of the percentage of cases. However, Pearson correlation coefficient was equal to 0.50 (positive correlation, but weak) and the significance test presented p-value = 0.0551 (marginal statistical significance), and thus it could not be concluded that, considering the prevalence, there was correlation between the variables (Graphic 3). It is believed that the divergence of these results could have occurred due to the need of considering the animal populational estimative according to species.

Therefore, it is noted the importance of an integration of information between the institutions responsible for preventing and fighting violence that allows this deeper evaluation and within the family context, since the relation between interpersonal violence and animal abuse has already been proven by other studies in countries in North America and Europe (Newberry, 2017; Monsalve, et al., 2017; Hensley, et al., 2018; Bright, et al., 2018).

Graphic 3 - Spread diagram of the prevalence of animal mistreatment and violence against women by neighborhood in the municipality of Pinhais, Paraná, Brazil.



Source: The authors (2020).

In their studies, Fitzgerald and collaborators (2019) showed that emotional abuse, neglect and threats against pets were motivated by the aggressor's desire to cause trouble for the woman victim of violence and their children in order to have control and power over them. Other studies highlight those animals can be used as "paws" in the dynamic of domestic violence, seen as they are subjected to the same context of vulnerability of that family (Carlisle-Frank, et al., 2004; Ascione, et al., 2007; Roguski, 2012; Monsalve, et al., 2017).

The social disorganization can be measured by the residential instability, economic disadvantage, high levels of ethnic heterogeneity (which makes managing social ties with neighbors difficult, especially in more populated neighborhoods) and family rupture (Hart & Waller, 2013; White & Quick, 2018). This disorganization showed to be correlated with animal abuse and domestic violence occurrences in neighborhoods of a coastal city in the United States of America (White & Quick, 2018). The authors believe that communities that present defective organizational structures will present more crimes, against animals or people, because they are not able to promote an effective control and stop the occurrence of these crimes. Despite the current study not focusing in showing this relation, the results show a higher occurrence of cases involving animal abuse and violence against women in the Weissópolis, Alto Tarumã and Vargem Grande neighborhoods, which have a higher populational density and lower income when analyzing the city maps for these issues, which could justify larger intervention in these neighborhoods.

The Link has increasingly shown that the segregated way of acting and the fragmented approaches in facing cases that involve animal abuse and domestic violence is completely inefficient and limited (Ferro, et al., 2014; Jegatheesan, et al., 2020). An efficient way to develop collaborative work among professionals from different areas is learning with the other in a collective way, exercising empathy, one of the interpersonal abilities found in successful relationships. Thus, it will be possible to obtain points of view and decision-making processes that are complementary, bringing efficacy and efficiency in breaking the violence cycle (Carpenter, et al., 2010; Jegatheesan, et al., 2020).

4. Final Considerations

The cases of animal abuse in the city of Pinhais-PR presented higher occurrence of neglect of moderate severity, the feline species was the most affected and the Downtown neighborhood concentrated the highest prevalence in all types of neglect. In the cases of violence against women, the main aggressor was the ex-partner, with an average age of 39.15 years old. The victims presented an average age of 38.44 years old, incomplete basic education and were employed. The most occurring type of violence was psychological, being that the Alto Tarumã and Downtown neighborhoods presented higher prevalence. The number of cases of animal abuse and violence against women per neighborhood showed a significant correlation, while the incidences showed an inconclusive correlation.

The limitation found in this study was the lack of standardization of information about the cases, especially in relation to violence against women. Despite that, the results bring important implications to the understanding about the Link and its occurrence in the country. It also reinforces the need for public policies that recognize the existence of the Link and the importance of having a confrontation network for cases involving animal abuse and domestic violence.

It is expected that the present study will be an incentive for further research with a focus on the maturing of intersectoral strategies for an efficient confrontation of the various types of violence within the multi-species family and for the establishment of public policies that recognize this relationship.

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