Risk factors for animal and children abuse in brazilian context of domestic violence against women

Fatores de risco para maus-tratos contra animais e crianças no contexto brasileiro de violência doméstica contra a mulher

Factores de riesgo para el maltrato de animales y niños en el contexto brasileño de violencia doméstica contra las mujeres

Laiza Bonela Gomes
ORCID: https://orcid.org/0000-0003-2261-9050
Universidade Federal de Minas Gerais, Brazil
E-mail: laizabonela@hotmail.com
Marcelo Teixeira Paiva
ORCID: https://orcid.org/0000-0001-6334-073X
Universidade Federal de Minas Gerais, Brazil
E-mail: marcelo_thelin@hotmail.com
Lorena Diniz Macedo Silva
ORCID: https://orcid.org/0000-0001-6205-7422
Universidade Federal de Minas Gerais, Brazil
E-mail: lorena.macedo@yahoo.com.br
Rita de Cássia Maria Garcia
ORCID: https://orcid.org/0000-0001-7333-013X
Universidade Federal do Paraná, Brazil
E-mail: ritamaria@ufpr.br
Camila Stefanie Fonseca de Oliveira
ORCID: https://orcid.org/0000-0002-5557-7267
Universidade Federal de Minas Gerais, Brazil
E-mail: sfo.camila@gmail.com
Danielle Ferreira de Magalhães Soares
ORCID: https://orcid.org/0000-0003-4030-6832
Universidade Federal de Minas Gerais, Brazil
E-mail: danifm1@yahoo.com.br

Abstract
Studies reporting the link between animal abuse and interpersonal violence are scarce in Brazil, where domestic violence reached epidemic proportions in recent decades. This cross-sectional study included data from 351 women received in a Specialized Police Station in the city of Belo Horizonte, Brazil, from November 2019 to February 2020, victims of domestic violence. For risk factors analysis, two logistic models were adjusted: one responding to the presence of animal abuse and the other to the presence of violence against the victim's child.The victim being the pet's guardian (OR 2.85, 95%CI 1.17 - 7.69), the victim having suffered psychological harassment (OR 2.56, 95%CI 1.02 - 7.02) and alcohol consumption in the home environment (OR 3.26 95%CI 1.47 - 7.52), were risk factors for animal abuse. The existence of a conflicting relationship between the victim's children and the perpetrator (OR 4.08, 95%CI 1.79 -9.71), the consumption of drugs and alcohol in the domestic environment (OR 2.85, 95%CI 1.27 - 6.67), the victim being the guardian of pets (OR 2.42, 95%CI 1.07 - 5.70) and the victim being the perpetrator's ex- wife (OR 3.92, 95%CI 1.70 - 9.51)were risk factors for violence against the victims' children . The study provides evidence that the various types of domestic violence that women suffer are significantly associated with violence against pets and children and adolescents, especially psychological and physical violence. Given this, this study indicates that strategies for prevention and controlling for domestic violence should occur in a multidisciplinary way, providing an One-Health approach.
Keywords: Domestic violence; Animal cruelty; Child violence; Perpetuation of violence; Negligence.

Resumo
Estudos que relatam a ligação entre abuso de animais e violência interpessoal são escassos no Brasil, onde a violência doméstica atingiu proporções epidêmicas nas últimas décadas. Este estudo transversal incluiu dados de 351 mulheres vítimas de violência doméstica recebidas em uma delegacia especializada na cidade de Belo Horizonte, Brasil, entre novembro de 2019 a fevereiro de 2020. Para análise dos fatores de risco, dois modelos logísticos foram ajustados: um

respondendo à presença de abuso de animais e outro à presença de violência contra os filhos das vítimas. A vítima ser tutora do animal (OR 2.85, IC95% 1.17 – 7.69), a vítima ter sofrido assédio moral (OR 2.56, IC95% 1.02 - 7.02) e o consumo de álcool (OR 3.26 IC95% 1.47 - 7.52) no ambiente domiciliar, foram fatores de risco encontrados para a ocorrência de abuso contra animais. A existência de uma relação conflituosa dos filhos da vítima com o autor (OR 4.08, IC95% 1.79 -9.71), o consumo de drogas e álcool (OR 2.85, IC95% 1,27 – 6.67) e a vítima ser ex-cônjuge do autor (OR 3.92, IC95% 1.70 - 9.51), foram fatores de risco para violência contra os filhos das vítimas. O estudo fornece evidências de que os vários tipos de violência doméstica que as mulheres sofrem estão significativamente associados à violência contra animais de estimação, crianças e adolescentes, especialmente a violência psicológica e física. Diante disso, este estudo indica que estratégias para prevenção e controle da violência doméstica devem ocorrer de maneira multidisciplinar, proporcionando uma abordagem de Saúde Única.

Palavras-chave: Violência doméstica; Maus-tratos a animais; Violência infantil; Perpetuação da violência; Negligência.

Resumen

Los estudios que informan el vínculo entre el abuso animal y la violencia interpersonal son escasos en Brasil, donde la violencia doméstica ha alcanzado proporciones epidémicas en las últimas décadas. Este estudio transversal incluyó datos de 351 mujeres víctimas de violencia doméstica recibidas en una estación de policía en la ciudad de Belo Horizonte, Brasil, de noviembre de 2019 a febrero de 2020. Para el análisis de factores de riesgo, se ajustaron dos modelos logísticos: uno que respondió a presencia de abuso animal y otro a la presencia de violencia contra los hijos de las víctimas. La víctima es tutor del animal (OR 2.85, CI95% 1.17 - 7.69), la víctima ha sufrido el acoso escolar (OR 2.56, CI95% 1.02 - 7.02) y el consumo de alcohol (OR 3.26 CI95% 1.47 - 7.52) en el Medio ambiente doméstico, fueron factores de riesgo encontrados para el abuso de animales. La existencia de una relación conflictiva de los hijos de la víctima con el autor (OR 4.08, IC95% 1.79-9.71), consumo de drogas y alcohol (OR 2.85, CI95% 1.27 - 6.67) y la víctima es la antigua autoridad del autor (OR 3.92 , CI95% 1.70 - 9.51), fueron factores de riesgo de violencia contra los niños de los niños. El estudio proporciona evidencia de que los diversos tipos de violencia doméstica que sufren las mujeres están significativamente asociados con la violencia para mascotas, niños y adolescentes, especialmente la violencia psicológica y física. Dado esto, este estudio indica que las estrategias para prevenir y controlar la violencia doméstica deben ocurrir de manera multidisciplinaria, proporcionando un enfoque de salud único.

Palabras clave: La violencia doméstica; Maltrato a los animales; Violencia infantil; Perpetuación de la violencia; Negligencia.

1. Introduction

For years, researchers, sociologists and psychologists have sought to demonstrate the relationship between violence against animals and human violence. One of the results found is that violent criminals, including serial killers and sex criminals, often report experience including violence or abuse of pets in the childhood (Burchfield, 2016). Children who experienced domestic abuse can develop the belief that violence is an appropriate way to resolve conflicts (Jaffe et al., 1992). It was also observed that individuals who committed or witnessed cruelty to animals in childhood were also victims of abuse as children (Degue & Dilillo, 2009). Thus, witness such practices as a child can be an important predisposing factor for their future practice, since it seems to be a learned and reproduced behavior.

Worldwide one in three women is or has been a victim of domestic violence according to World Health Organization study, including 161 countries. Globally, gender inequality and norms on the acceptability of domestic violence are a root cause of violence against women, that usually do not disclose the cause of their suffering. It was also observed that domestic violence problem is more prevalent in low- and middle-income countries, group of which Brazil is part (WHO, 2021).

Women, who were victims of domestic violence, reported the abuse of their aggressors towards their pets, as a source of threat and control, especially when there is a strong link between the victims and the pet in developed countries (Ascione et al., 2007; McDonald et al., 2019). The types of violence against animals can also be related to violence against children and seniors, as in the case of negligence, such as lack of food, water, shelter, medical care, among others (Vincent et al., 2019).

This study aimed at understanding the relationship between animal and children abuse on family environment from Brazilian women known as victims of domestic violence. In this way, it will be possible to establish strategies that enable the identification of other forms of violence that precede or follow the case of initial interest, identify early cases of violence, as

well as establish a single communication channel to prevent and curb cycles of violence, especially, in the family environment.

2. Methodology

Ethical approval

This study was approved by the Research Ethics Committee of the Federal University of Minas Gerais, Federal University of Minas Gerais (CAAE number - 82946418.9.0000.5149).

Type and area of study

A cross-sectional observational epidemiological study was performed through interviews with 351 women victims of violence who were at the Women's Police Station, located in the Specialized Division for Assistance to Women, the Elderly and People with Disabilities (DEMID) in Belo Horizonte, Minas Gerais, Brazil. They were in Police station between November/2019 and February/2021 for the primary objective to carry out a police report of domestic violence suffered.

Belo Horizonte is the capital of the state of Minas Gerais and is located in the Southeast Region of Brazil, being the sixth most populous city in the country. It has a geographic extension of 331,401 km² and a population density of 7,167 inhabitants per km² (IBGE, 2019). The estimated human population of the municipality in 2019 was 2,512,070 inhabitants (IBGE, 2019).

Data collect

Data were obtained from semi-structured and self-administered questionnaires to women victims of violence who sought the Police Station for Assistance to Women to record the police incident. The questionnaire was constructed and adapted from the form used by the Casa da Mulher Brasileira (CMB), a federal government initiative provided for in the "Woman, live without violence" program, which promotes full and humanized assistance for women in situations of violence (Brasil, 2015) and from Rocha, et al., 2020. The questionnaire consisted of 27 questions divided into six phases: Phase I: general information (date, time and day of the week); Phase II: personal information (age, average monthly income, occupation and education); Phase III: questions about domestic animals; Phase IV: typology of violence suffered; Phase V: perpetrators of violence; and Phase VI: family context. The approach to women was carried out exclusively by two female researchers, properly dressed in their uniforms. As they were in a delicate, challenging and emotionally impacting place, the researchers used a respectful and ethical approach to those women, through strategies such as: observation of the woman's body language and mental state to assess the correct moment of the approach; evaluation of the women's language to adapt verbal communication by the researchers; use of rapport[1] to create a bond; establishing visual contact; gentle physical touch on shoulders and detailed explanation of the research objectives and relevance. For each interviewee there was a clipboard with side shields, for comfort and confidentiality of information, containing an explanatory document followed by a self-administered and anonymous questionnaire to be filled. After being completed, the questionnaires were folded by the participants and deposited in a sealed urn. The researchers smiled and thanked them for their participation.

Data preparation

---

[1] *Rapport* is a concept originating in psychology that refers to the technique of creating an empathetic connection with another person. The term comes from the French Rapporter, whose meaning comes from the synchronization that allows to establish a harmonic relationship. The technique aims to generate trust in the communication process, so that the person becomes more open and receptive. This makes it easier for her to interact, exchange and receive information (IBC Coaching - https://www.ibccoaching.com.br/portal/coaching-e-psicologia/o-que-e-rapport/).

In total, 433 approaches were done with 416 acceptances and 17 refusals (3.9%). Questionnaires completed by women under 18 years of age and who had not been victims of any type of violence were disregarded (Figure 1).

Figure 1 - Distribution of N sample from questionnaires completed by women at the Specialized Police Station of Belo Horizonte, Minas Gerais, Brazil, 2020.
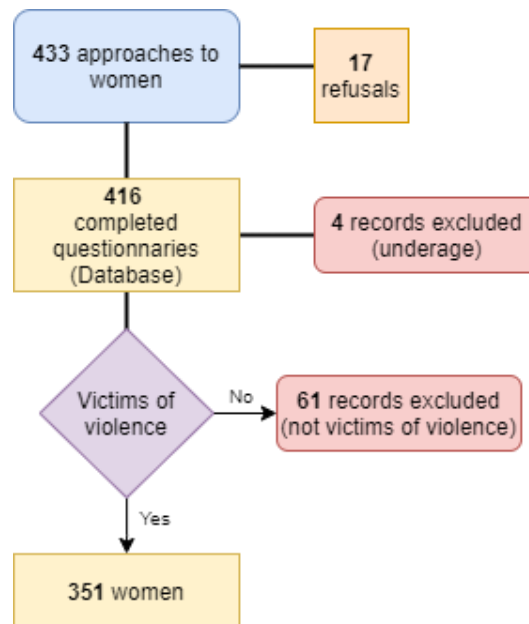
Source: The authors (2020).

Statistical analysis

The questionnaires were entered in the Epi Info7 Software and the data obtained were analyzed in the R software, with the stats, pscl, MASS, spatstat and car packages (Venables & Ripley, 2002; Baddeley & Turner, 2005; Jackman et al., 2007; Fox & Weisberg, 2019; Team, 2020; Jackman, 2020). At first, a unique dataset including risk factors for animal and children abuse was analyzed (n=351). A descriptive analysis was performed including the presentation of relative and absolute frequencies per response category of each variable. For risk factor analysis, the first model strategy was refused in the evaluation of the model fitting. Given this, data were analyzed considering two subsets: risk factors for animal abuse (n=133), risk factors for children abuse (n=169), these models were based on data from the victims to had only animals or/and children and for this reason 52 registers were not considered in this phase. Univariable analysis between each hypothesized factor and the risk of animal abuse and the risk of children abuse were performed applying using logistic regression. Factors with a trend toward significance ($p < 0.25$) were initially considered for inclusion in the multivariable analysis. Subsequently, multivariate logistic regression models were adjusted, using two Generalized Linear Models (GLM) (Friendly, M., & Meyer, D., 2015).

For each model, the following workflow was adopted:

- Adjustments of a logistic model with all variables collected in the study;
- Variable selection by the stepwise[2] forward method using AIC[3] .
- Evaluation of the final model using the ANOVA table, with likelihood ratio and residual deviance indicators and the diagnosis of influence (Davison & Snell, 1991).

---

[2] Method used for selection of variables - helps in building models.

[3] AIC: criterion based on the maximum likelihood function. The smaller the AIC, the better, because it means less information loss in the model.

At first a full model was run and only variables with p < 0.05 in the likelihood ratio test were retained. Biologically plausible interactions among the main factors were also tested and would be retained in the final stage if significant (p < 0.05). Confounding was checked by re-adding, one by one, the variables removed in the stepwise backward procedure. A variable was considered a confounder if its removal made the regression coefficients of the remaining variables showed a relative change >25% or in case the regression coefficient ranged between −0.4 and 0.4, if an absolute change >0.1 was observed in accordance with Noordhuizen et al. (2001). Model results are presented as odds ratios (OR) along with their 95% confidence interval (CI).

3. Results

Descriptive analysis

Questionnaires from 351 women were analyzed. Table 1 shows the count and the percentage of each class of age, average monthly income and level of education of the participants.

Table 1 - Frequency distribution of women victims of violence according to age, average monthly income and education, Belo Horizonte, Minas Gerais, Brazil, 2020.

Variables names and response categories	Frequency distribution	%
Age		
18 to 24	48	13.68
25 to 39	151	43.02
40 to 59	99	28.21
60 or more	11	3.13
Not informed	42	11.97
Total	351	100.00
Income		
Without income	72	20.51
Until 1 MW*	117	33.33
> 1 to 3 MW	111	31.62
>3 to 5 MW	20	5.70
5 to 10	14	3.99
More than 10	7	1.99
Not informed	10	2.85
Total	351	100.00
Education level		
Literate	7	1.99
Elementary school	73	20.80
High school	170	48.43
College education	67	19.09
Postgraduate	24	6.84
Does not have	7	1.99
Not informed	3	0.85
Total	351	100.00

*MW: Brazilian minimum wage, approximately USD 210 in 2020. Source: The authors (2020).

From the universe of participants who declared themselves to be victims of violence (n=351), the next figures show the variables in relation to the type of violence suffered by the victim, the link between the victims and the author of violence and the number of authors involved in the reported violence. Since more than one answer option could be marked on the questions about the type of violence suffered and the relationship with the authors, the final N (n=1159) was higher than the number of base participants included (n=351) (Figure 2).

Figure 2 - Frequency distribution of types of violence experienced by women in Belo Horizonte, Minas Gerais, Brazil, 2020.
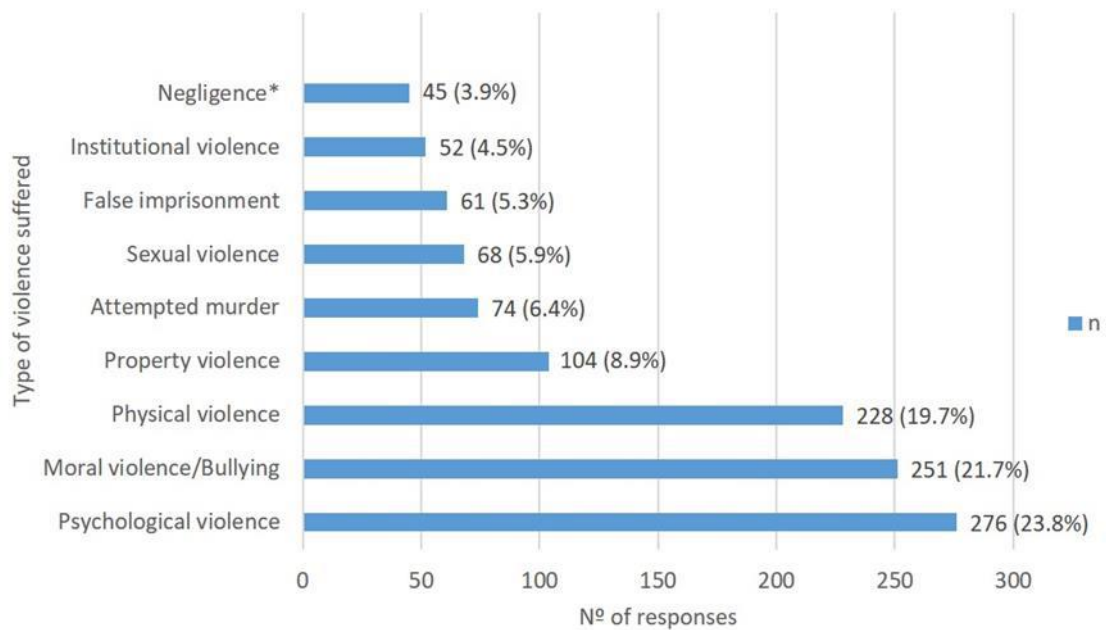
* Negligence = omission of care and protection against preventable injuries such as dangerous situations, diseases, pregnancy, feeding, hygiene, among others (Brazil, 2002).Source: The authors (2020).

The answers were divided into nine types of violence, being psychological violence the most frequent, representing 23.8% (276/1159) of the total, and negligence the least reported, with 3.88% (45/1159) of the total. As to the link between the victims with the aggressors, 402 responses were marked (Figure 3).

Figure 3 - Frequency distribution of categories of relationships between women victims and perpetrators of violence in Belo Horizonte, Minas Gerais, Brazil, 2020.
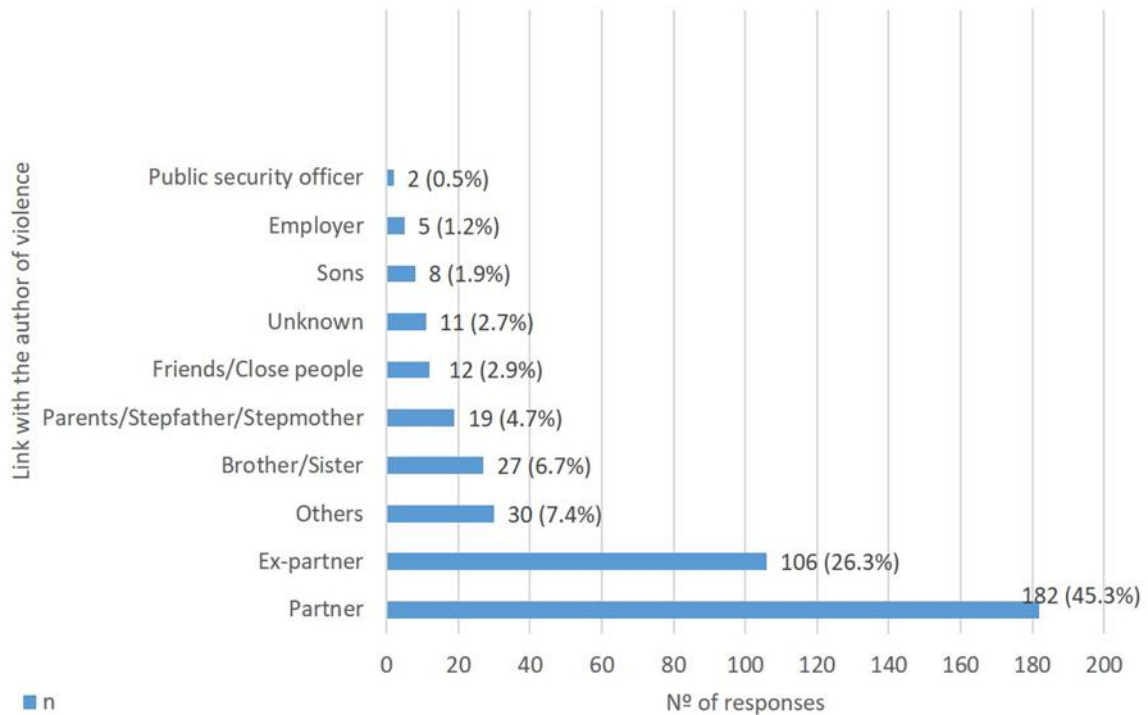
Source: The authors (2020).

The most frequent bond was the partner as the main author of the violence suffered (45.3%; 182/402) followed by the ex-partner representing 26.4% (106/402). The link between the victim and the public security agent and the employer were the least reported, with 0.5% (2/402) and 1.24% (5/402), respectively. The category "others" represented other family members such as uncles/aunts, cousins, nephews or grandchildren and other individuals such as neighbors, people from work, patients or the partners of their relatives.

Regarding the number of authors involved in violence answered by women victims, in 77.5% (272/351) only one author was reported responsible for the violence. Two or more in 17.4% (61/351) and in 5.1% (18/351) the information was not answered. In relation to the phase of pets, 74.9% (263/351) answered that they have animals at home. The majority, 69.2% (182/263), belonged to victims, according to Table 2.

Table 2 - Frequency distribution of women victims of violence according to responsibility for caring for animals and what they represent to them Belo Horizonte, Minas Gerais, Brazil, 2020.

Variables name and response categories	Frequency distribution	%
Responsible for taking care of animals		
The woman (victim)	196	60.68
Another family member	94	29.10
Partner	25	7.74
Author of women's violence	7	2.17
Not applicable	1	0.31
Total	323	100.00
Animal represents for the victim		
Family member	191	64.31
Company	89	29.97
Guard animal	11	3.70
Others	6	2.02
Total	297	100.00

Source: The authors (2020).

Regarding the animal having suffered some type of abuse in the family environment, the answer was affirmative in 22.05% (58/263) – Table 3. Of these, 22.41% (13/58) died.

Table 3 - Frequency distribution of variables related to the occurrence of animal abuse in the home environment, according to victims of violence in, Belo Horizonte, Minas Gerais, Brazil, 2020.

Variables name and response categories	Frequency distribution	%
If an animal has suffered any type of abuse		
Yes	58	22.05
Not	205	77.95
Total	263	100
If yes, which situations the animal experienced?		
Beating	34	35.42
Psychological abuse	24	25.00
Run out of food	12	12.50
Get stuck	10	10.42
Sexual abuse	1	1.04
Poisoning	6	6.25
Others	4	4.17
Mutilation	2	2.08
Injuries by white weapons	2	2.08
Not applicable	1	1.04
Total	96	100
If the animal died by abuses situations		
Yes	13	22.41
Not	42	72.41
Not informed	3	5.17
Total	58	100
Responsible for mistreating animals		
Partner	3	27.27
Sons	0	0.00
Father/mother	1	9.09
Others (neighbors, brothers and street people)	7	63.64
Total	11	100
The aggressor's first victim*		
Woman (victim)	13	72.22
Pets	2	11.11
Sons	0	0.00
Others	3	16.67
Total	18	100

*when the victim aggressor is the same animal aggressor. Source: The authors (2020).

In the phase about family context, 74.6% (262/351) of the victims had children, most women had more than one child (61.5% 161/262) – Table 4. The relationship between children and the aggressor of the victim was conflicted in 43.89% of the reports (115/262) and 36.26% of the children had already suffered abuse (95/262). Psychological aggression was the type of violence against children most described by the victims – 44.23% (69/156).

Table 4 - Frequency distribution of variables related to the family context of women victims of violence in Belo Horizonte, Minas Gerais, Brazil, 2020.

Variables names and response categories	Frequency distribution	%
Victim has children		
Yes	262	74.64
Not	73	20.80
Not informed	16	4.56
Total	351	100.00
If yes, how many children have?		
One	101	38.55
Two	86	32.82
Three	54	20.61
Four	12	4.58
Five	9	3.44
Total	262	100.00
Relationship between aggressor and the children		
Harmonica	61	23.28
Conflicted	115	43.89
Others	31	11.83
Not applicable	52	19,85
Not informed	3	1.15
Total	262	100.00
Have the children ever been abuse/violence?		
Yes	95	36.26
Not	142	54.20
Not applicable	23	8.78
Not informed	2	0.76
Total	262	100.00
If yes, what situations did they experience?		
Physical aggression	57	36.54
Sexual abuse	6	3.85
Negligence	16	10.26
Others	8	5.13
Psychological violence	69	44.23
Total	87	55.77

Source: The authors (2020).

Regarding the consumption of alcohol, cigarettes and/or illicit drugs, 461 responses were generated, with alcohol consumption being the most frequent one, representing 34.4% (160/461) of the total – Figure 4.

Figure 4 - Frequency distribution of substances abused in the family environment according to women victims of violence in Belo Horizonte, Minas Gerais, Brazil, 2020.
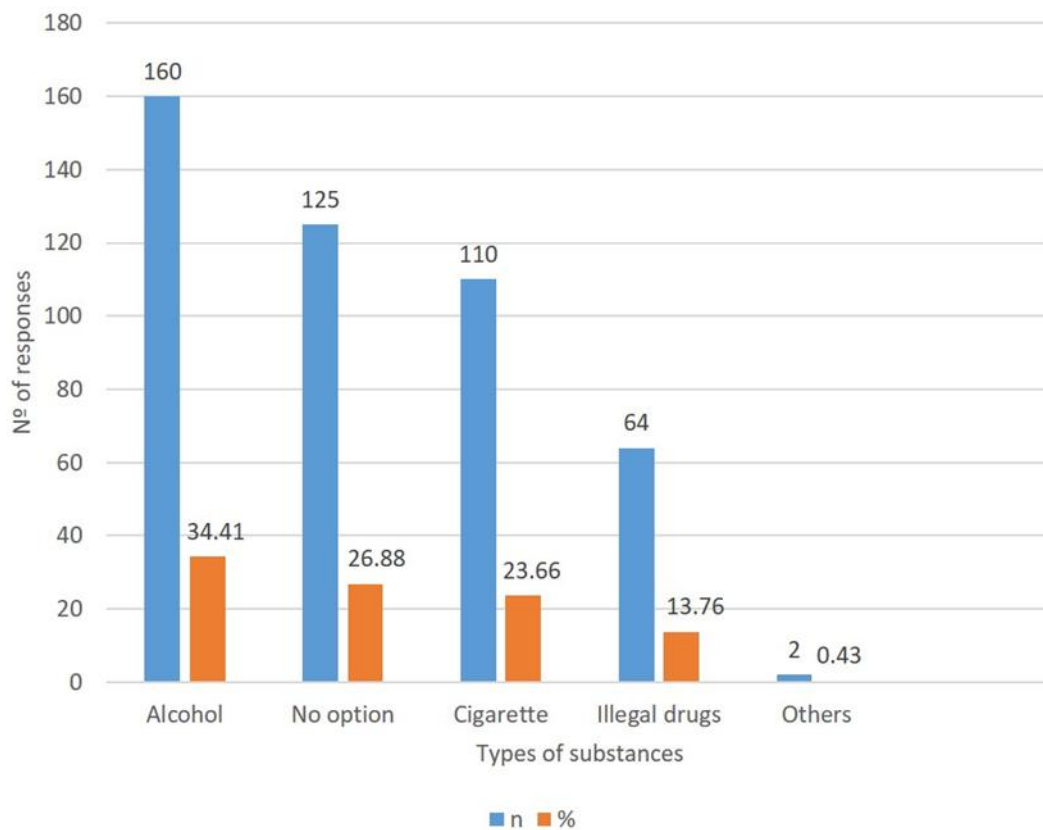
Source: The authors (2020).

Risk factors analysis

The final model summary for the risk of the animal abuse in the family of women victims of domestic violence are presented in the next Table 5.

Table 5 - Summary of the final model for the occurrence of animal abuse in family environment with violence against women.

Variables names	*Odds ratio*	95 % IC	p Value
The victim declares herself to be the animal's guardian	2.85	1.17-7.69	0.026
The victim has suffered moral harassment (humiliation/embarrassment)	2.56	1.02 - 7.02	0.052
Number of children of the victim	1.41	0.95 - 2.09	0.084
Alcohol consumption in the family environment	3.26	1.47 - 7.52	0.004

Source: The authors (2020).

In homes where the victim was the guardian of companion animals, these animals had almost three times greater chance of suffering some type of abuse in the home environment.

The animals of women victims of psychological harassment had a 2.56 times greater chance of suffering some type of abuse in the home environment. It was decided to maintain this variable in the model due to the marginally significant p value at 5% significance and because of its contribution to the total percentage of explanation of the model.

Alcohol consumption in the family environment increased the chance of violence against animals by 3.26 times. The number of children of the victim, despite not having been considered a statistically significant factor for the risk of the animal in the household being a victim of abuse, was retained in the final model due to its importance in explaining the variance of the model.

As shown in the Table 6, the victim having been subjected to private imprisonment increased in almost four times the chances that their children would also be victims of domestic violence, while for property violence this increase was almost three times. The other types of violence did not show a statistically significant association in the model. When the author of the violence was the victim's ex-spouse, the children's chances were almost four times greater of also suffering violence in the home environment. The existence of a conflicting relationship between the author and the victim's children was a factor that increased the chances of their children suffering violence more than four times.

Table 6 - Summary of the final model for the occurrence of children abuse in family environment with violence against women.

Variables names	Odds ratio	95 % IC	p Value
The victim declares himself to be the guardian of the animal	2.42	1.07 - 5.70	0.032
The victim has been imprisoned (deprivation of liberty)	3.59	1.30 - 10.60	0.012
Victims having suffered patrimonial violence	2.62	1.13 - 6.30	0.023
Victims is the author's ex-partner	3.92	1.70 - 9.51	0.001
Relationship other than being the author's ex-partner	3.94	0.95 - 17.54	0.057
The number of children of the victim	1.54	1.04 - 2.30	0.030
Conflicting relationship between and the victim's children	4.08	1.79 -9.71	0.000
Absence of a close relationship between the perpetrator of violence against women and their children	0.31	0.07 -1.12	0.077
Drug, alcohol or cigarette consumption in the family environment	2.85	1.26 - 6.67	0.011

Source: The authors (2020).

The greater the number of children, the greater the likelihood that one of them would suffer domestic violence. For each child of the victim an increase of 1.54 in the chance of one of the children suffering violence in the family environment was observed. For example, in a household with two children this risk would be 3.08, whereas in a house with three children it would be 4.5 and so on.

As observed for the model of risk factors for animal abuse, the children of women who declared themselves victims of violence were more than twice as likely to have suffered violence and alcohol consumption increased by almost three times this chance.

The factors "Relationshipother than being the author's ex-partner" and "Absence of close relationship between the author of violence against women and their children" despite not having shown to be significant in the final model, were maintained as they played an important role in the explanation of the variance observed in the model.

4. Discussion

The results presented are evidence of the existence of a link between the violences also in Brazilian domestic environment, as shown in developed countries. The interaction between humans and animals, especially in the family environment, is a factor that imposes on animals the condition of being subject to the realities experienced by the family, leaving them vulnerable to the consequences from this link, such as the occurrence of violence (Monsalve et al., 2019). In this context, according to Flynn (2000), the forms of violence or negligence against pets should be considered domestic violence, and in a broader concept, in this research the violences occurring at home will be called family violence, including violence against women, violence against animals and also violence inflicted on children and teenagers.

The psycological[4], moral[5] and physical violences[6] (Law Maria da Penha - Law n. 11,340 of 7 August 2006) were the most frequent ones found in the responding victims in this research, similar to what was recently found by Rocha (2020) in a study in Paraná and other studies from south of Brazil (Gadoni-Costa et al., 2011; Macarini & Miranda, 2018). According to the Diagnosis of domestic and family violence in the integrated public security regions of Minas Gerais (2016), the most frequent types of violence against women in the state are physical and psychological violence, including this predominance also in the Metropolitan Region of Belo Horizonte (RMBH). The aggressors most reported by women were their respective partners and ex-partners as authors of the violence suffered, evidence also found in previous studies (Hartman et al., 2018; Rocha, 2020). The women victims who declared that they had a pet responded more often that the animals under their responsibility, considering them as family members. This link has also been previously demonstrated in other studies (Siegel, 1993; Flynn, 2000; Ascione et al., 2007) and explains why animals in this context of violence are at greater risk of suffering animal abuse, and the aggressor can attain the animal as an effective means to directly affect the women, as pets are an important psychological and emotional support for victims (Flynn, 2000). It was found in this study that in 22% of the homes of participating women victims, their animals were suffering or had already suffered some type of abuse in the family environment, with physical and psychological aggression the most frequent. A study conducted by Ascione (1997) showed that 71% (27/38) of women who own pets reported threat or death to their pets from their abusive partners.

Studies show some motivations for pets to be the target of violence, most of them through findings that men animal abuse as a means of control and/or threat to their partners; to demonstrate power; to coerce them by teaching submission; to generate discomfort in the woman and children and to punish some unwanted behavior (Kellert & Felthous, 1985; Donovan & Adams, 1995; Fitzgerald et al., 2019). Ascione (1997) was the first researcher to examine the animal abuse that occurred in the lives of women victims of violence, through the application of questionnaires to women victims. Although the research was empirical, the findings of the concomitant occurrences of violence in the family environment were similar to those found in this study, where pets were also at risk of being victims in the homes of women victims. Other study with similar results was carried out by Flynn (2000), in a survey of female victims, found that approximately half of them who reported having pets reported their animals as victims of violence by their partners. Some researchers demonstrated that animal abuse is a risk factor for aggressors to be violent with their intimate partners, with cruelty to animals being a marker of family violence (Flynn, 2000; Walton-Moss et al., 2005).

Most of the women participating in this research who had children declared the family environment was conflicting,

---

[4] Any conduct that causes emotional damage and lower self-esteem or that harms and disturbs their full development aimed at degrading or controlling their actions, behaviors, beliefs and decisions, through threats, embarrassment, humiliation, manipulation, isolation, constant surveillance, persistent persecution , insult, blackmail, ridicule, exploitation and limitation of the right to come and go or any other means that harms psychological health and self-determination (threat, embarrassment, material abandonment, verbal friction, disturbance of peace or work).

[5] Any conduct that constitutes slander, defamation or injury.

[6] Any conduct that offends the woman's bodily integrity or health (bodily harm, torture, criminal acts, murder).

and the children were often also victims of their aggressor, especially when the ex-partner was involved in violence against women, indicating that children are more exposed to violence when her mother's ex-partner is violent against her. The main violence suffered by the victim's children was psychological violence, followed by physical aggression. In this study, it was also evidenced that in conflicting homes there is a greater chance that the children of women victims also suffer some type of violence in the domestic environment. This result is similar to that described in a study that demonstrated high frequency of conflicts as a stronger predictor of damages, threats and violences than demographic, economic or social factors (Ascione et al., 2007).

Domestic violence and animal abuse in the family environment is a problematic issue not only at the time it occurs, but also for future generations who witness the violence. Studies show that children who suffer domestic violence and/or children who are not corrected when they mistreat animals tend to frequently reproduce violent acts against animals and to become potential aggressors, or even to become dangerous criminals, when adults (Felthous & Kellert, 1987; Baldry, 2003; Douglas et al., 2006; Degue & Dilillo, 2009; Bright et al., 2018). Baldry (2003) carried out a study using two models to predict animal abuse and found that a child witnessing violence against an animal was the main predictor for the replication of violence by children. In addition to the reproduction of violence actions, these children who are exposed to violence, more often have emotional and behavioral problems compared to other children (Girardi & Pozzulo, 2012; McDonald et al., 2016). Another important factor to be highlighted is that studies show that individuals who mistreat animals are more correlated with committing other crimes than individuals who do not mistreat animals, in other words, animal abuse is related to criminal behavior in society (Henry, 2004; Randour & Hardiman, 2007).

A study carried out in Spain was the only one to present different results, where this correlation between animal abuse and the commission of other crimes was lower when compared to previous references in the literature (Van Wijk et al., 2018). Furthermore, some research shows that the child's experience of realities such as routine physical punishment and parental alcoholism were significantly associated with later aggressive behavior (Felthous, 1980). In this research in homes of women victims where there was alcohol consumption, the animals were more likely to suffer some type of violence compared to family environments that did not consume alcohol. In homes without consumption of substances, including alcohol, cigarettes and/or illicit drugs, there was a protective factor for the children, in relation to the occurrence of violence against them. Researchers from the United States (Vaughn et al., 2009) showed that alcohol consumption is one of the most common disorders detected in people with a history of abusing animals, and, therefore, the use of alcohol is an important risk factor for the occurrence of family violence.

Violence against animals and interpersonal violence usually coexist, and animal abuse can be a risk factor, a marker and sometimes a precursor of other forms of violence and also the reverse (Flynn, 2000). In the Link Theory, violence is considered and perpetuated through an intergenerational cycle of violence, resulting from experiences from childhood in the family environment and expressing itself in a prejudicial way in childhood itself until adulthood. Thus, the various forms of violence do not occur in an isolated way in society and the occurrence of animal suffering through mistreatment can be a sign of problems and conflicts in the family environment (Gomes & Soares, 2019). Therefore, identifying and understanding the forms of violence against animals in family environment is fundamental, as this animal abuse can be a method that aggressors use to control their partners and intimidate other family members, which can result in children exposed to various types of violence, a significant risk of mental and behavioral problems and also in the perpetuation of violent cycles (Ascione, 1997) transcend generations.

All the results presented highlight the importance of building an intersectoral and multidisciplinary approach in dealing with the cycles of violence. The main practical limitations of this study were the difficulty in obtaining authorization from the police agency to conducting this research and the questionnaire building including all the questions proposed by the

research, but at the same time, preserved the identity of the victims and, as much as possible, the emotional integrity of each participant. However, the results bring important implications for the understanding of the factors related to family violence and the need to establish public policies that recognize the existence of the Link Theory, also in development countries, and work towards a coping network for the identification and early intervention of scenarios of violence and interruption of these cycles considering a One-Health approach. Animal abuse should be used as a marker of family violence, a precursor of these types of violence or as an indicator of other forms of criminality. The result of this academic work can encourage integration between different sectors, promoting a less violent and safer society for humans and animals.

5. Final Considerations

Women victims of domestic violence are more often victims of their partners or ex-partners, being the psychological, moral and physical violences the most frequently practiced by their aggressors. In families where there were pets and violence against woman, animal abuse are most often present as beatings and psychological aggression. As well, children from women victims often suffered violence by the woman's aggressors and these risks are greater improved when there was alcohol consumption in the family environment. The chaotic and conflicting families were more likely to suffer some type of domestic violence, including women, animals and children.

Acknowledgments

References

Ascione, F. R. (1997). Battered women's reports of their partners' and their children's cruelty to animals. Journal of Emotional Abuse, 1(1), 119-133.

Ascione, F. R., Weber, C. V., Thompson, T. M., Heath, J., Maruyama, M., & Hayashi, K. (2007). Battered pets and domestic violence: Animal abuse reported by women experiencing intimate violence and by nonabused women. Violence against women, 13(4), 354-373.

Baddeley, A., Turner, R., Møller, J., & Hazelton, M. (2005). Residual analysis for spatial point processes (with discussion). Journal of the Royal Statistical Society: Series B (Statistical Methodology), 67(5), 617-666.

Baldry, A. C. (2003). Animal abuse and exposure to interparental violence in Italian youth. Journal of Interpersonal Violence, 18(3), 258-281.

Brazil, Ministry of Health. (2002). Family violence: guidelines for in-service practice. Brasília, DF.

Brazil, Ministry of Women, Racial Equality and Human Rights. (2015). General guidelines and care protocols: Casa da Mulher Brasileira. Program Woman, live without violence. http://www.mulheres.ba.gov.br/arquivos/File/Publicacoes/CasadaMulherBrasileira_DiretrizesGeraiseProtocolosdeAtendimento.pdf.

Bright, M. A., Huq, M. S., Spencer, T., Applebaum, J. W., & Hardt, N. (2018). Animal cruelty as an indicator of family trauma: Using adverse childhood experiences to look beyond child abuse and domestic violence. Child Abuse & Neglect, 76, 287-296.

Burchfield, K. B. (2016). The sociology of animal crime: An examination of incidents and arrests in Chicago. Deviant Behavior, 37(4), 368-384.

Davison, A. C., & Snell, E. J. (1991). Residuals and diagnostics. Statistical Theory and Mod.

DeGue, S., & DiLillo, D. (2009). Is animal cruelty a "red flag" for family violence? Investigating co-occurring violence toward children, partners, and pets. Journal of Interpersonal Violence, 24(6), 1036-1056.

Donovan, J., & Adams, C. J. (1995). Animals and women: Feminist theoretical explorations. Durham, NC: Duke University Press.

Douglas, J. E., Burgess A. W., Burgess, A. G., & Ressler, R. K. (2006). Crime classification manual: a standard system for investigating and classifying violent crimes. (2ª ed.,): Jossey-Bass, 555p.

Felthous, A. R. (1980). Childhood antecedents of aggressive behaviors in male psychiatric patients. The Bulletin of the American Academy of Psychiatry and the Law, 8(1), 104-110.

Felthous, A. R., & Kellert, S. R. (1987). Childhood cruelty to animals and later aggression against people: A review. The American journal of psychiatry, v.144, p.710-17.

Fitzgerald, A. J., Barrett, B. J., Stevenson, R., & Cheung, C. H. (2019). Animal maltreatment in the context of intimate partner violence: A manifestation of power and control?. Violence against women, 25(15), 1806-1828.

Flynn, C. (2000). Battered women and their animal companions: Symbolic interaction between human and nonhuman animals. Society & Animals, 8(2), 99-127.

Fox, J., & Weisberg, S. (2019). An {R} companion to applied regression 3rd ed Sage Thousand Oaks.

Friendly, M., & Meyer, D. (2015). Discrete data analysis with R: visualization and modeling techniques for categorical and count data (Vol. 120). CRC Press.

Gadoni-Costa, L. M., Zucatti, A. P. N., & Dell'Aglio, D. D. (2011). Violência contra a mulher: levantamento dos casos atendidos no setor de psicologia de uma delegacia para a mulher. Estudos de Psicologia (Campinas), 28(2), 219-227.

Girardi, A., & Pozzulo, J. D. (2012). The significance of animal cruelty in child protection investigations. Social Work Research, 36(1), 53-60.

Gomes, L. B., & Soares, D. F. M. (2019). Teoria do elo: a conexão entre maus-tratos a animais e violência intrafamiliar. Revista CFMV XXV(81), 32-33.

Governo Estadual de Minas Gerais. (2016). Diagnóstico de violência doméstica e familiar nas regiões integradas de segurança pública de Minas Gerais. http://www.seguranca.mg.gov.br/images/2016/NOVEMBRO/DIAGNOSTICO%20DE%20VIOLENCIA%20DOMESTICA%20E%20FAMILIAR.pdf.

Hartman, C. A., Hageman, T., Williams, J. H., & Ascione, F. R. (2018). Intimate partner violence and animal abuse in an immigrant-rich sample of mother–child dyads recruited from domestic violence programs. Journal of interpersonal violence, 33(6), 1030-1047.

Henry, B. (2004). The relationship between animal cruelty, delinquency, and attitudes toward the treatment of animals. Society & Animals, 12(3), 185-207.

Instituto Brasileiro de Geografia e Estatística (IBGE). (2019). Belo Horizonte. https://www.ibge.gov.br/cidades-e-estados/mg/belo-horizonte.html.

Jackman, S., Kleiber, C., & Zeileis, A. (2007). Regression models for count data in r (No. 2007/24).

Jackman, S. (2020). Classes and Methods for R Developed in the Political Science Computational Laboratory. United States Studies Centre, University of Sydney. Sydney, New South Wales, Australia.

Jaffe, P. G., Sudermann, M., & Reitzel, D. (1992). Child witnesses of marital violence.

Kellert, S. R., & Felthous, A. R. (1985). Childhood cruelty toward animals among criminals and noncriminals. Human relations, 38(12), 1113-1129.

Legislation: Maria da Penha Act 2006. (2022, February 8). http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2006/lei/l11340.htm

Macarini, S. M., & Miranda, K. P. (2018). Atuação da psicologia no âmbito da violência conjugal em uma delegacia de atendimento à mulher. Pensando famílias, 22(1), 163-178.

McDonald, S. E., Graham-Bermann, S. A., Maternick, A., Ascione, F. R., & Williams, J. H. (2016). Patterns of adjustment among children exposed to intimate partner violence: A person-centered approach. Journal of Child & Adolescent Trauma, 9(2), 137-152.

McDonald, S. E., Collins, E. A., Maternick, A., Nicotera, N., Graham-Bermann, S., Ascione, F. R., & Williams, J. H. (2019). Intimate partner violence survivors' reports of their children's exposure to companion animal maltreatment: A qualitative study. Journal of interpersonal violence, 34(13), 2627-2652.

Monsalve, S., Rocha, Y. S. G., & Garcia, R. C. M. (2019). Teoria do Elo: a relação entre os maus-tratos a animais e a violência interpessoal. In Garcia, R. C. M., Calderón, N., Brandespim, D. F. (Eds.). (2019). Medicina Veterinária do Coletivo: Fundamentos e Práticas. São Paulo: Integrativa Vet, 1, 160-171.

Noordhuizen, J. P. T. M. (200l). Application of quantitative methods in veterinary epidemiology. Wageningen Pers.

Randour, M. L., & Hardiman, T. (2007). Creating synergy for gang prevention: Taking a look at animal fighting and gangs. Proceedings of persistently safe schools, 199.

Rocha, Y. S. G., Galdioli, L., & Garcia, R., M. (2020). Estratégia para avaliação de violência no âmbito da família multiespécie. Revista Clínica Veterinária, 146, 46-50.

Rocha, Y. S. G. (2020). Maus-tratos a animais como indicador de violência doméstica. Dissertação (Mestrado). Setor de Ciências Agrárias, Programa de Pós-Graduação em Ciências Veterinárias. Universidade Federal do Paraná, Curitiba.

Siegel, J. M. (1993). Companion animals: In sickness and in health. Journal of Social Issues, 49(1), 157-167.

Team, R. C. (2020). R: A language and environment for statistical computing.

van Wijk, A., Hardeman, M., & Endenburg, N. (2018). Animal abuse: Offender and offence characteristics. A descriptive study. Journal of Investigative Psychology and Offender Profiling, 15(2), 175-186.

Vaughn, M. G., Fu, Q., DeLisi, M., Beaver, K. M., Perron, B. E., Terrel, K., & Howard, M. O. (2009). Correlates of cruelty to animals in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. Journal of Psychiatric Research, 43(15), 1213-1218.

Venables, W. N., & Ripley, B. D. (2013). Modern applied statistics with S-PLUS. Springer Science & Business Media.

Vincent, A., McDonald, S., Poe, B., & Deisner, V. (2019). The Link between interpersonal violence and animal abuse. Society Register, 3(3), 83-101.

Walton-Moss, B. J., Manganello, J., Frye, V., & Campbell, J. C. (2005). Risk factors for intimate partner violence and associated injury among urban women. Journal of community health, 30(5), 377-389.

World Health Organization. (2021). Violence against women. https://www.who.int/news-room/fact-sheets/detail/violence-against-women.