

Animal abuse in the context of adult intimate partner violence: A systematic review

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ABSTRACT

This systematic review focused on animal cruelty in abusive adult intimate partner relationships with a specific focus on the prevalence, motivations, and impact of animal abuse on victims of intimate partner violence (IPV) and the pets involved. Peer-reviewed research articles were sourced from online databases PubMed, CINAHL, Scopus and PsycInfo in July 2020. Overall, 427 records were retrieved, of which 35 articles from 30 studies were included in this review. Relevant data were extracted, with results presented as a narrative summary. The findings showed that the prevalence of animal abuse is high in households with intimate partner violence (range: 21%–89%) and there is a significant relationship between intimate partner violence and animal abuse. Both are often perpetrated concurrently, with animal abuse used as a mechanism to control the partner and facilitate intimate partner violence. Animal abuse affected a victim's decision to leave the abusive relationship and seek support and had an ongoing psychological impact on both animal and human victims. The findings have practical implications for organizations, professionals and researchers working in the field of intimate partner violence and animal abuse.

1. Introduction

Animal abuse (AA) is defined as “all socially unacceptable behavior that intentionally causes unnecessary pain, suffering or distress and/or death to an animal” (Ascione, 1993, p. 83). Physical abuse (e.g., kicking, punching, throwing, burning, drowning, asphyxiation, animal fighting) and neglect (e.g., deprivation of food, water, shelter, companionship, veterinary care, physical exercise) are the most basic forms of AA. AA is distinguished as active (e.g., stabbing, kicking, and beating) and passive (e.g., neglect and deprivation) abuse (Vermeulen & Odendaal, 1993) and is often underreported. For instance, there are around 60,000 reported incidents of AA to the Royal Society for the Prevention of Cruelty to Animals (RSPCA) in Australia every year (RSPCA Australia, 2019). However, this figure is likely only a small fraction of the estimated total instances of AA and underestimates the problem, as more than one quarter (25.7%) of people surveyed in one Australian study witnessed AA, of which only 9% reported the incident (Glanville et al., 2019). Among an undergraduate sample at a UK university, Newberry (2018)

found that 55% of the sample reported committing at least one act of animal cruelty, with jealousy, amusement, control of an animal, and retaliation against an animal often reported as motivations for AA.

Violence towards animals and humans is often interconnected and AA frequently parallels human abuse, with a significant overlap between the two (DeGue & DiLillo, 2009). AA has been identified as a potential indicator of and precursor to interpersonal violence, and this relationship has been termed the ‘Link’. Among the different types of violence, intimate partner violence (IPV) has been reported to be commonly associated with AA, with households with IPV more likely to report AA than households without IPV. Levitt et al. (2016) observed a significant relationship between active IPV and AA, with 41% of abusers of pets arrested for IPV at least once. Gullone and Clarke (2008) reported that 55% of people arrested for AA had a criminal record of domestic violence. The incidents of AA most frequently occurred as a result of an argument between the offender and his or her intimate partner, with the offender abusing pets in retaliation (Levitt et al., 2016) and to gain or maintain power and control over their partner. Further, children who

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had been abused were more likely to perpetrate AA during adulthood (DeGue & DiLillo, 2009). There, of course, exist many types of violence within relationships, such as physical, sexual, psychological and financial, as well as typologies of IPV. These typologies include Violent Resistance to meet violence with resistive violence; Separation-Instigated Violence, or Controlling Coercive Violence, where emotionally abusive intimidation, coercion and control are used against the victim; and Situational Couple Violence, which does not have its basis in power or control (Kelly & Johnson, 2008). Controlling Coercive Violence is particularly relevant to AA due to the focus on the animal as a tool for exercising control. These typologies give an understanding of what motivates the perpetrator to violence in that specific situation, and its application to AA is therefore specific to the context of the AA and the perpetrator's relationship with the victim.

Two overarching theoretical considerations in the field of studies related to IPV and AA and the Link are the 'Violence Graduation Hypothesis' and the 'Deviance Generalization Hypothesis'. The 'violence graduation hypothesis' posits that perpetrators begin by abusing animals and then subsequently move on to human abuse (Arluke et al., 1999) and that AA in childhood is a significant predictor of violence towards humans in adulthood. In contrast, the 'deviance generalization hypothesis' purports that AA is simply one among many forms of antisocial behavior, and offenders who commit one form of abuse are likely to engage in other forms of abuse with no specific chronological order (Frick & Viding, 2009).

These theories of 'violence graduation' and 'deviance generalization' hypotheses, whilst foundational in the understanding of what underlying forces are likely to have led perpetrators to commit acts of violence, do not focus on the more immediate motivations for AA in the context of IPV and do not consider the victim at all. These theories therefore take a very perpetrator-centric and less situationally-focused view of the link between AA and IPV.

1.1. Purpose of the systematic review

Previous reviews have examined the significance of the relationship between IPV and AA from the veterinary (Monsalve et al., 2017; Newland et al., 2019) and child (McPhedran, 2009a, 2009b) perspectives. Yet no systematic reviews have been conducted on the situational-specific motives driving AA, and its impact on human and animal victims involved, from an IPV victim's perspective. This is despite research pointing to AA as being a form of trauma to the people who witness it, and despite our growing understanding of the Link, this understanding is largely failing to translate into tangible measures, such as asking about pet ownership and animal abuse in domestic violence and child protection services (Randour et al., 2021). Studies assessing the context of AA in IPV are disparate, and thus a systematic review to help guide clinical practice and future directions for research is warranted.

Therefore, the primary objective of this study was to systematically review the peer-reviewed literature for studies investigating the association between adult IPV and AA, from the perspective of IPV victims. The secondary objectives were to assess the situational motives for AA among perpetrators and to explore the concern of victims towards their pets during the abusive relationship, and then consider these through the lens of the identified theories of IPV. By including both qualitative and quantitative studies, this review aimed to assess the prevalence of AA in abusive relationships, the association between IPV and AA, the motivations of AA, and its impact on victims of IPV and the pets involved.

2. Methods

This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Liberati et al., 2009) which provides a transparent structure for reporting systematic reviews. Original peer-reviewed, published research was systematically searched using

PubMed, CINAHL, Scopus and PsycInfo in July 2020 using Medical Subject Headings and keywords accounting for the different indexing among databases. The following terms were used in the different searches including 'intimate partner violence' OR 'domestic violence' OR 'physical abuse' OR 'spouse abuse' AND 'animal rights' OR 'animal abuse' OR 'animal cruelty' OR 'animal welfare' OR 'veterinary medicine' OR 'veterinarian AND pets' OR 'cats' OR 'dogs' OR 'domestic animals'. Boolean terms AND/OR were used to combine the search string. Journals were hand searched, and forward citation tracking of included studies was conducted.

2.1. Inclusion and exclusion criteria

The search criteria incorporated peer-reviewed primary research involving IPV and AA across adult (>18 years) populations published in the English language. Studies assessing self-reported or partner-reported findings, as well as studies reporting objective sources, such as police investigation records, including the information pertaining to the perpetration of AA in IPV context, were included. Both qualitative and quantitative studies were included. Excluded articles were studies focused on child (≤ 18 years) populations and studies reporting pet maltreatment in abusive relationships from the perspective of practitioners (veterinarians) and service providers (domestic violence shelter providers) as they did not directly align with the purpose of the review. Published research in peer-reviewed journals was only included due to the challenges in systematically searching and acquiring non-peer reviewed studies, including the potential risk of bias and varying quality (Mahood et al., 2014). Reviews, opinion pieces, theses, conference proceedings and editorials were also excluded for the same reasons.

2.2. Quality appraisal

Quality appraisal of included studies that met the inclusion criteria was independently undertaken (by DKT, MC, RK) using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross Sectional Studies (Moola et al., 2017) for quantitative studies ($n = 25$) and applied based on the aspects of the study in reporting the relationship between IPV and AA. For qualitative studies ($n = 5$), the Critical Appraisal Skills Programme (CASP) Qualitative Checklist (Critical Appraisal Skills Programme, 2019) was used. Any discrepancies in ratings were discussed (by MC, DKT, RK) and agreement made for each item. No studies were excluded on the basis of the quality assessment (see Section 3.2.4 for quality appraisal results).

2.3. Data extraction and synthesis

Data extracted from each study comprised of the author/s, publication year & country; objectives; design, participants & settings; measures of IPV and AA used in the study; data analysis method and main findings (see Table 1). Two or more articles published from the same study were treated as a single study. These duplicate publications were identified by reviewing the list of authors; references authors made to companion papers; the setting, participants and sample; and the ethics approval number. Due to the methodological heterogeneity, a meta-analysis was not possible. Extracted data were reviewed across studies, with similar concepts grouped into broad themes, these were then discussed, and reviewed by the authors to ensure consensus and that the aim of the review was met. Results are presented as a narrative summary.

3. Results

3.1. Search outcomes

Systematic searches identified 427 articles, of which 109 duplicates were removed. Three reviewers (MC, RK, DKT) conducted the screening

Table 1
Summary of the included studies (35 articles from 30 studies).

Author(s), country	Objective	Method, participants, and setting	Measures/scales	Analysis	Major findings
1 Gallagher et al. (2008) Allen et al. (2006) Ireland	Investigate the connection between domestic violence and non-accidental injury in animals.	Questionnaire N = 23 Women victims of IPV recruited from 3 refuges. All participants owned pet/s at time of IPV.	Self-reported experiences of pet abuse, motivation of abuse, the effect of abuse	Descriptive statistics	13/23 (57%) witnessed threats of abuse, 11/23 (48%) witnessed actual abuse to companion animal. Animals were either physically abused (kicked, swung by tail, thrown, cigarette burn, killed) or neglected (denied food, access to exercise/outdoors and shelter). Pet abuse was used as a form of control over the women or their children, anger, and revenge. Concern for pets delayed seeking shelter in the refuge.
2 Ascione (1997) USA	Determine the prevalence of threatened and/or actual harm to pets by the women's partners in a sample of women entering domestic violence shelters.	Survey N = 38 Women victims of IPV recruited from a shelter. 74% had pet animal. Age mean (range): 30.2 (20–51) years	Battered Partner Shelter Survey (BPSS) – Pet Maltreatment Assessment	Descriptive statistics	71% reported that their partner had threatened and/or hurt or killed their pets, with 57% reporting actual physical harm. Physical violence included slapping, shaking, throwing, or shooting dogs and cats, drowning a cat, and pouring lighter fluid on a kitten and igniting. 18% reported concern for their animal's welfare had prevented them from coming to the shelter sooner.
3 Ascione et al. (2007) USA	Describe the relationship between domestic violence and pet abuse.	Questionnaire N = 221 Shelter women (n = 101) who were victims of IPV recruited from domestic violence shelters, aged 31.7 ± 8.0 years. Non-shelter women (n = 120) who had not experienced IPV recruited from local community, aged 32.5 ± 9.9 years. Eligibility required current pet ownership or pet ownership during previous year.	BPSS (for shelter women) and Families and Pets Survey (for non-shelter women) Conflict Tactics Scale (CTS)	Descriptive statistics, chi-square, logistic regression	Higher proportion of shelter women, compared to non-shelter women, reported threats to hurt or kill pets (52.5% vs. 12.5%, $p < 0.001$) and actual hurting or killing (54.0% vs. 5.0%, $p < 0.001$). Shelter women were nearly 11 times more likely to report that their partner had hurt or killed pets than the comparison group who had not experienced intimate violence. Pets of shelter women were less likely to receive regular veterinary care (55.5% vs. 80.0%, $p < 0.001$) and appropriate vaccinations (73% vs. 88.1%, $p = 0.004$). Minor physical violence and verbal aggression to women were the significant predictors of threats to pets, while severe physical violence perpetrated by the partner to women was significantly associated with actual hurt to the animals.
4 Barrett et al. (2020) Canada	Assess if women's experiences of specific subtypes of intimate partner victimization and controlling behaviors vary along with the frequency and severity of animal maltreatment.	Questionnaire N = 86 Women victims of IPV receiving services from domestic violence shelters Participants were divided into three groups: women who did not have pets during their relationship (n = 31), women who had pets and reported little or no animal maltreatment (n = 21), and women who had pets and reported frequent or severe animal maltreatment (n = 34).	Partner's Treatment of Animals Scale (PTAS) Revised Conflict Tactics Scale (CTS-2), Checklist of Controlling Behaviors (CCB)	Descriptive statistics, correlation, ANOVA	89% of the women with pets reported pets had been mistreated by their partner. Correlations between the PTAS and all the subscales of CTS2 and CCB were significant (correlation coefficients ranged from 0.34 to 0.46), suggesting AA was positively associated with domestic violence. Statistically significant group differences were observed in the Severe Psychological Abuse, Minor Physical Abuse, and Severe Physical Abuse subscales of the CTS2, and Physical Abuse, Sexual Abuse, and Economic Abuse subscales of CCB. 56% of the sample reported they delayed leaving their abusive partner due to concern for their pets' safety.

Table 1 (continued)

Author(s), country	Objective	Method, participants, and setting	Measures/scales	Analysis	Major findings
Barrett et al. (2018) Canada	Describe the relationship between animal maltreatment and help-seeking and terminate abusive partnership among women.	Questionnaire N = 86 Women victims of IPV recruited from women's shelter. 64% (n = 55) owned pets. Age mean (SD): 37.9 (10.9) years	PTAS CTS-2	ANOVA, regression analysis	35.2% indicated their partner abused (actually harmed) their pet(s), with the abuse escalating over time. Emotional and physical abuse of pet, threats to harm pet and neglect of pet were negatively associated with (i.e. delayed) women's decision to leave the relationship.
Fitzgerald et al. (2019) Canada	Assess the association between different subtypes of IPV and survivors' perceptions of why their partners engaged in animal maltreatment in the context of their relationships.	Questionnaire N = 100 Women victims of IPV recruited from emergency shelters, of which 55 had at least one pet at the time of relationship. Age mean (SD): 40.5 (11.0) years	PTAS CTS-2	Correlation, linear regression	47.3% reported AA escalated over time. The predictors of 'threats to harm animals' and 'neglect of animals' were 'to upset women or children', 'to regain control over the situation or argument', 'to exert control over the situation', while 'to upset women and children' was the main predictor of 'physical abuse' of animals.
5 Carlisle-Frank et al. (2004) USA	Examine the attitudes, perceptions and behaviors of both pet-abusing and non-pet-abusing perpetrators of family violence.	Questionnaire N = 48 Women victims of IPV recruited from domestic violence shelters. 34/48 had pets and were grouped into pet abusers and non-pet-abusers, with the designation including only actual abuse. Age range: 21–41 years	Sentient Beings Scale, Hassles & Stressors Scale, and Unrealistic Expectations Scale	Descriptive statistics, chi-square, t-test, linear regression	53% of partners had physically harmed (actually abused) pets, of which 90% reported physical abuse, 10% neglect. Pet-abusing perpetrators showed less affection towards pets (p = 0.003), more communication with pets through commands and threats (p < 0.0001), more often viewed companion animals as property (p = 0.0004), more likely to scapegoat pets (p = 0.0006), more likely to have unrealistic expectations about pets (p = 0.026), and more frequently punished pets (p = 0.0003).
6 Cavazos and Faver (2007) USA	To describe AA by partners of domestic violence victim women and assess how the concern of women about their pets affect the women's decision about seeking shelter.	Survey N = 501 Women victims of IPV owning a pet who sought help from the domestic violence program. Age mean (SD): 31.0 (9.2) years	Adapted from Pet Abuse Survey (PAS)	Descriptive statistics, chi-square	36% reported that their partners had threatened, harmed, or killed pets; 35% worried about the safety of pets during the relationship; and 20.5% delayed seeking shelter services due to concern for pet safety. Women whose pets had been abused (88%), compared to (51%) those whose pets had not been abused, reported pets were an important source of emotional support (p < 0.001).
7 Collins et al. (2018) USA	Explore the intersection of IPV and animal cruelty in an ethnically diverse sample.	Qualitative N = 103 Pet-owning women victims of IPV recruited from community-based domestic violence programs. Age mean (SD): 36.6 (7.5) years	Three open-ended questions of the Pet Treatment Survey (PTS)	Template analysis	75% had partners threaten a companion animal, 66% harmed, 16% neglected; and 11% killed. Animals were also abused by partners as discipline or punishment (39.8%). 20.4% reported deleterious impact of AA on their emotional and psychological well-being. Concern for pets prevented 38% of women from being able to engage in effective safety planning due to partner's use of AA as a tactic of coercive power and control.

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Table 1 (continued)

Author(s), country	Objective	Method, participants, and setting	Measures/scales	Analysis	Major findings
8 Faver and Strand (2003) USA	Examine the impact of perpetrators' threats or actual harm to pets on the likelihood that concern for pets would affect women's decisions to leave their abusers.	Questionnaire N = 41 Pet-owning women victims of IPV receiving services from women's shelters. Age mean: 36.0 years	Domestic Violence PAS	Descriptive statistics, logistic regression	48.8% reported partner had threatened pets, and 46.3% had actually harmed pets. 26.8% reported that concern for the welfare of their pets had affected their decision to leave/stay. Women whose partners had threatened (OR = 7.1) and actually harmed or killed (OR = 7.9) their pets were more likely to report that concern for their pets had affected their decision about leaving their abuser.
9 Febres et al. (2014) USA	Assess the prevalence of adulthood AA perpetration and its association with IPV perpetration, among men arrested for domestic violence.	Questionnaire N = 307 Men arrested for domestic violence recruited from court referrals to Batterer Intervention Programs. Age mean (SD): 33.1 (10.2) years	Aggression Toward Animals Scale (ATAS) CTS-2	Descriptive statistics, correlation, linear regression	41% committed at least one act of AA since the age of 18 years, with the mean number of 9.5 ± 13.0. Physical abuse 80.0%, threats 71.2% and neglect 12.0%. Psychological and physical violence, total adulthood AA, and physical AA were all positively and significantly correlated with each other. In the final adjusted models, the statistical significance of the association of AA with physical assault (p = 0.052) and severe psychological aggression (p = 0.057) were at cut-off level.
10 Febres et al. (2012) USA	Examine the prevalence of adulthood AA perpetration and its association with interpersonal violence perpetration among women arrested for domestic violence.	Questionnaire N = 87 Women arrested for domestic violence recruited from court referrals to Batterer Intervention Programs. Only pet owning women were included in the analysis. Age mean (SD): 30.5 (10.3) years	ATAS CTS-2	Descriptive statistics, correlation	17% of participants committed at least one act of AA during adulthood. No statistically significant differences on frequency of IPV (psychological and physical) perpetration between the women who abused animals and those who did not. Animal abusers reported more frequent psychological aggression and physical assault perpetration in their relationships than women who did not abuse animals.
11 Fielding and Plumridge (2010) Bahamas	Examine the link between animal abuse, animal care, and domestic violence and other deviant behaviors in the household.	Questionnaire N = 641 College students aged 18 years or over, of which 132 who lived with an intimate partner with pets completed questions relating to personal domestic violence. 47.3% were pet owners. 63.2% were under 21 years and 69.6% were female.	Intentional harm and caring of pet Hitting, intimidating, threatening, and swearing, (HITS©) inventory	Fisher's exact test, chi-square, logistic regression	Domestic violence was significantly associated with pets harmed intentionally (47.3% vs. 14.1%, p < 0.001) and pets not well cared for (47.4% vs. 19.0%, p = 0.007) Respondents in the household with pet abuse were more likely to be victims of IPV compared to households with no pet abuse (19.2% vs. 5.7%, p = 0.04). Respondents were more likely to be sexually abused in households where pets were not well cared for than in households where pets were well cared for (36.4% vs. 2.6%, p < 0.001).

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Table 1 (continued)

Author(s), country	Objective	Method, participants, and setting	Measures/scales	Analysis	Major findings
12 Flynn (2000a) USA	Explore the role of companion animals in abusive relationships.	Qualitative interviews N = 10 Women victims of IPV recruited from a shelter for women. Eligibility included women with pet ownership. Age range: 22–47 years	Semi-structured interview on pet abuse and motives of abuse.	Qualitative analysis	8/10 women had companion animals threatened or abused by their male partners. Controlling, hurting, and intimidating the women, and sometimes children, were the motivations of AA. Concern for pets delayed women from leaving their abusers. AA added to the stress and terror the victims were already experiencing.
13 Flynn (2000a) USA	Explore experiences of abused women seeking shelter about pet abuse and the roles of pets in their abusive relationships.	Questionnaire N = 107 Women victims of IPV recruited from a shelter for women. 40.2% owned pets. Age mean (range): 32.4 (17–61) years	Abused women's experiences of pet abuse	Descriptive statistics	46.5% women with pet reported that their partner had threatened to harm or actually harmed their pets. Women having an abused pet indicated a stronger emotional attachment to their pet than women whose pets had not been abused.
14 Gupta (2008) USA	Investigate the potential mediational role of expressive representations in the relationship between rejection sensitivity and both IPV and AA.	Questionnaire N = 427 (228 males and 199 females) Undergraduate students recruited from a university population. Study restricted to dog owners. Age mean (SD): 19.7 (2.1) years	ATAS CTS-2	Structural equation modelling	IPV was significantly correlated with AA among males ($r = 0.55$, $p < 0.001$), but not among females ($r = 0.13$, $p > 0.05$).
15 Haden et al. (2018) USA	Examine associations between animal cruelty, IPV, and antisocial personality disorder among incarcerated adult males.	Questionnaire N = 42 Men incarcerated for IPV in a prison. Age mean (SD): 37.4 (8.3) years	Interview for Antisocial Behavior—Caretaker Form (IAB), Boat Inventory of Animal-Related Experiences (BIARE), Reports of Animal Care and Abuse (RACA) CTS-2	t-test, chi-square	38% endorsed using threats against animals during a relationship conflict, and 52% reported abusing and/or killing a pet. Individuals who had a history of childhood AA were more likely to have threatened harm or killing of a pet during a relationship conflict. Lifetime perpetration of AA was significantly associated with both threats to ($p = 0.02$), and actual perpetration of ($p = 0.02$) AA during relationship conflicts.
16 Hardesty et al. (2013) USA	Explore abused women's decisions about pets when seeking help from a shelter.	Qualitative interviews N = 19 IPV abused women recruited from a domestic violence shelter. Eligibility included women with pet ownership. Age mean (range): 39.8 (21–56) years	Emotional bonds to, abusers' treatment of, and decisions about pets	Grounded theory	7 women's pet had been physically harmed, 12 had experienced threats to physically harm their pets. Women whose partners used pets as a control tactic ($n = 9$) reported strong bonds to their pets. Women whose abusers did not use pets as a control tactic ($n = 10$) expressed less emotional attachments to their pets. For these women, decisions about personal and child safety were more important than decisions about their pets.

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Table 1 (continued)

Author(s), country	Objective	Method, participants, and setting	Measures/scales	Analysis	Major findings
17 Hartman et al. (2018) USA	Examine rates of AA in pet-owning families experiencing IPV and association between IPV and the risk for partner-perpetrated AA.	Questionnaire N = 291 IPV abused women seeking services from domestic violence agencies. Women having a pet animal currently or within the past year were included. Age mean (SD): 36.3 (7.4) years	PTS CTS-2	Descriptive statistics, logistic regression	11.7% of partners threatened to harm a pet and 26.1% actually harmed a pet. Interpersonal violence (none of the subscales) was not associated with threats to pets in the adjusted model, while more Psychological Aggression (OR = 1.07, $p = 0.011$) and less Physical Assault (OR = 0.90, $p = 0.019$) significantly predicted higher risk of actual harm to pets.
18 Levitt et al. (2016) USA	Examined various forms of AA and possible links between corresponding forms of interpersonal offenses.	Review of criminal histories of adult males arrested for AA obtained from the FBI's Behavioral Analysis Unit. N = 150 men Age mean (SD): 37.4 (13.2) years 41% (n = 61) of the offenders lived with their intimate partner.	Active, passive, and animal sexual abuse offenses IPV perpetrated by the participants	Descriptive statistics, chi-square	41% of the offenders in the sample were arrested for interpersonal violence at least once, with offender's spouse being the most common victim. 20% were arrested for physically assaulting their spouse or intimate partner. 32% of those who had abused a pet belonging to their intimate partner did so to retaliate. A significant relationship was found between abuse of one's partner's pet and domestic violence ($p < 0.001$), with offenders who assaulted their intimate partner also performing acts involving active cruelty against an animal/s.
19 Loring and Bolden-Hines (2004) USA	Explore threatened and/or actual pet abuse as a means of coercing abused women into committing illegal acts.	Questionnaire N = 107 IPV affected women referred to a family violence centre. 62% (n = 72) had owned pets. Women included had committed at least one illegal behavior. Age mean (range): 31 (16–73) years	BPSS	Descriptive statistics	75% of the pet owner women reported threatened and/or actual pet abuse. 44% (n = 24) of women who reported pet abuse experienced coercion in the form of threats or actual harm to animals in order to force the women to commit an illegal act. The coerced women reported committing the illegal act(s) to spare their pet the experience of abuse.
20 Monsalve et al. (2018) Brazil	Identify the associated factors of companion animal neglect in the family environment.	Review of investigations carried out by the Animal Protection Division. N = 118 AA investigations Households with pet were included in the analysis.	Neglect or physical abuse of pets Reports of the presence of domestic violence made by family members or neighbours	Descriptive statistics, chi-square, Fisher's exact test, logistic regression	76.3% of the cases were categorized as AA, all of which were neglect. Domestic violence in the household was not associated with animal neglect.
21 Newberry (2017) UK	Explore the link between domestic violence and AA.	Qualitative analysis of AA within the context of domestic violence. N = 74 stories Anonymous stories were obtained from online discussion forums where victims voluntarily shared their experiences.	Pet as a source of support, motivations for AA	Thematic analysis	Companion animals provided emotional support for victims and physical protection from violence. Motivators of AA included control, discipline of the animal, jealousy, and use of alcohol. Victims often attributed abuser's behavior to their childhood cruelty.

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Table 1 (continued)

Author(s), country	Objective	Method, participants, and setting	Measures/scales	Analysis	Major findings
22 Richard and Reese (2019) USA	Explore the relationship between the nature of animal cruelty perpetrated by owners versus cruelty against animals of domestic partners, family members, and neighbours.	Review of police reports of animal cruelty incidents. N = 181 incidents The incidents included those perpetrators who had also committed some other crime. 83% of the perpetrators were male.	Types of AA: dog fighting, shooting, neglect, poisoning, threat, stabbing, kicking/hitting with blunt force, and "other." Motivations for the AA Domestic violence	Descriptive statistics, chi-square, logistic regression	Perpetrators who were intimate partners or family members of the owner of the animal were more likely to demonstrate active cruelty (e.g., kicking, blunt force injuries). Partners (of the pet owners) were less likely to engage in dogfighting and shooting, while more likely to kick or hit the animal. Apathy (less likely; OR = 0.13, $p < 0.05$) and hurt or intimidating another person (more likely; OR = 47.3, $p < 0.01$) were the main motivations for partners committing abuse of animals. Individuals charged with domestic violence were most likely to kick/hit an animal and were motivated by a desire to hurt or intimidate their partner and other family members.
23 Riggs et al. (2018) Australia & UK	To explore the link between domestic violence and animal cruelty in abusive relationship.	Questionnaire N = 503 (304 females) 258 from Australia (age 39.4 ± 30.1 years) and 244 from the United Kingdom (age 38.5 ± 12.5 years).	Pet Attitude Scale (PAS) Participants' experience of domestic violence (researcher developed)	Descriptive statistics, chi-square, <i>t</i> -test, Cohen's <i>d</i>	Of participants who had experienced IPV, 21.0% had also witnessed their pets being abused. There was no significant difference in AA (PAS score) between participants experiencing domestic violence or not. Female participants who had witnessed AA reported greater psychological distress and lower levels of social support.
Taylor et al. (2019) Australia & UK	How humans respond to violence directed towards animals in the context of violent human relationships.	Qualitative N = 137 (83 females, 28 transgender) Participants from a larger mixed-method study, whose open-ended responses were analysed. Age mean (SD): 38.4 (12.5) years	Experience of domestic violence, animal abuse, and participants' response to the abuse.	Thematic analysis	108 participants reported domestic abuse perpetrated by an intimate partner and 16 reported the partner abused their animal. Animal companions are an important source of emotional strength and support to those experiencing domestic violence. Witnessing AA was traumatic, caused additional feelings of guilt and triggered leaving the abusive relationships. The experience of AA in the context of IPV among the transgender sample resonated with the cisgender and heterosexual focused literature.
24 Simmons and Lehmann (2007) USA	Gain a greater understanding of pet abuse within the context of the controlling behaviors displayed in violent relationships.	Survey N = 1283 IPV abused women recruited from a domestic violence shelter. Eligibility included women with pet ownership.	Researcher developed instrument on pet abuse (presence or absence) and severity (continuous scale) of pet abuse CCB	Descriptive statistics, chi-square, Fischer extract, correlation, <i>t</i> -test	25% indicated their abuser committed some form of pet abuse. Higher percentage of individuals reporting pet abuse also reported their abuser used sexual violence ($p < 0.001$), marital rape ($p < 0.001$), emotional violence ($p = 0.009$), and stalking ($p = 0.005$). Association between pet abuse and physical violence was not significant. Perpetrators who abuse their pet demonstrated greater use of controlling behaviors than those who do not abuse their pets ($p < 0.001$).

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Table 1 (continued)

Author(s), country	Objective	Method, participants, and setting	Measures/scales	Analysis	Major findings
25 Strand and Faver (2006) USA	Assess factors associated with abused women's concern for their pets and decision making associated with this concern.	Survey N = 51 IPV abused women recruited from two domestic violence shelters. 84% owned pet animal. Age mean (SD): 38.0 (9.2) years	Modified version of the PAS	Descriptive statistics, chi-square, correlation	86% of women with a pet reported that their pets had been abused (threatened 74%, harmed 52% and killed 14%). 91% worried about the pet's safety whilst they were in the abusive relationship. 65% reported that their decision to seek shelter was affected by concern for the safety of their pets, among which 88% delayed seeking shelter and 12% prompted to leave their abusers. Women without children were more likely to indicate that their decision to seek shelter was affected by concern for their pets than women who reported having children (85% vs. 45%, $p = 0.01$).
26 Tiplady et al. (2012) Australia	Investigate the effect of IPV on companion animal welfare.	Survey N = 26 Adult women with experience of IPV and concurrent animal ownership recruited from the general public. Majority were 30–60 years of age.	Self-reported effect of IPV on pet animal	Descriptive statistics, chi-square, Fischer's exact test	Animals had been verbally threatened with harm (68.2%) and physically abused (77%). 84% (16/19) of the multiple-pet-owning women reported that there was an individual 'target animal'. Animals targeted for abuse were most likely to be dogs owned by the victimized women. 85% reported behavioral changes in animals, which included being frightened and cowering, running away, fearful and avoiding the abuser, aggressive to the abuser, proximity seeking to women and hiding. 92% were unwilling to discuss the AA with a veterinarian.
27 Tiplady et al. (2015) Australia	Identify the ongoing impact on behavior and welfare of companion animals who had been exposed to a domestic violence relationship.	Survey N = 5 Women who had left violent relationships and had accessed the domestic violence crisis service or stayed at a refuge were interviewed immediately and six months after leaving the relationship. Age range: 43–50 years	Women's experiences of companion animal during domestic violence, incidents of AA, animals' behavioral changes	Thematic analysis	Women reported that the abusive partner selectively used violent behavior towards animal and much of the violence was hidden from public view. The shared experience of domestic violence had made women closer to their animals. Exposure to domestic violence impacted animals, especially fear and anxiety. Companion animal behavioral changes such as distrust and fear towards men persisted at six months after the violent relationship ended.
Tiplady et al. (2018) Australia	Explore issues of animal and veterinary involvement in domestic violence situations.	Qualitative interviews N = 13 Women who had accessed the domestic violence crisis service or stayed at a refuge. Eligibility included having companion animals during domestic violence in which the participant was victimized. Age median (range): 43 (20–55) years	AA, veterinary care, behavioral changes observed, concern for companion animals as a barrier to leaving	Qualitative analysis	8 women reported that their pets had been abused e.g. shouting or screaming, physical abuse, and neglect. An attempt to control/punish the animal, increase the animal's perceived "toughness", and deliberately upset the women were the main reasons of AA. In households with multiple pets, most of the abuse was directed at a particular pet with whom the woman shared an emotional bond. Pets exposed to violence had a number of behavioral changes including being protective of the woman and becoming aggressive towards others. Women often delayed leaving due to concerns for their pets.

(continued on next page)

Table 1 (continued)

Author(s), country	Objective	Method, participants, and setting	Measures/scales	Analysis	Major findings
28 Travers et al. (2009) Australia	Identify the prevalence of perpetrator violence against the family pet and its effect on decision making by women.	Survey N = 85 Pet-owning women experiencing domestic violence and had attended the Domestic Violence Court Advocacy Service.	Threatened to and actually hurt or killed	Descriptive statistics, logistic regression	27% of partners had threatened to hurt or kill a pet, and 23% had done so. Women whose partners had threatened or killed a pet were more likely to delay leaving, return home, delay calling police, or refuse to lay charges than women whose partners had not.
29 Volant et al. (2008) Australia	To examine the connection between domestic violence and AA.	Survey N = 204 IPV group, n = 102, aged 38.5 ± 9.5 years; control group, n = 102, aged 42.1 ± 13.3 years. Women in IPV group recruited from domestic violence support services and control group recruited from the general public. Participants in both groups included women owning a pet.	Threats and actual AA	Descriptive statistics, chi-square, logistic regression	AA in the IPV group was 52.9%, while none of the participants reported pet abuse in non-IPV group ($p < 0.01$). Partner threats of AA in the IPV group were 46.0%, while 5.8% of the participants reported AA threats in non-IPV group ($p < 0.01$). In the final adjusted model, women whose partners had threatened the pets were more likely to belong to the IPV group ($OR = 5.1, p = 0.044$). 33.3% of women (in IPV group) had delayed leaving their violent relationship because of concern for their pet's welfare.
30 Walton-Moss et al. (2005) USA	Identify risk factors for IPV and related injury among (community-dwelling) women.	Survey N = 845 IPV group, n = 427; comparison group, n = 418 Participants were the control group of a case control study of intimate partner homicide. Women aged (18–50) and relationship criteria (intimate partner within the past year) recruited from the general public. 74.1% were 26–50 years	Pet abuse CTS	t-tests, chi-square, logistic regression	Threat or actual abuse of a pet was a significant risk factor for partners perpetrating IPV ($OR = 7.59, p = 0.011$).

Note: IPV, Intimate Partner Violence; AA, Animal Abuse; BPSS, Battered Partner Shelter Survey – Pet Maltreatment Assessment; CTS, Conflict Tactics Scale; PTAS, Partner's Treatment of Animals Scale; CTS-2, Revised Conflict Tactics Scale; CCB, Checklist of Controlling Behaviors; PAS, Pet Abuse Survey; PTS, Pet Treatment Survey; ATAS, Aggression Toward Animals Scale; OR, Odds ratio; SD, standard deviation.

of titles and abstracts for relevant studies and independently reviewed them for inclusion. After screening for relevance, the full text of 68 articles was assessed for eligibility, of which 30 articles met the inclusion criteria. Five additional studies were identified by handsearching and reviewing the reference lists of included studies (see Fig. 1). The resulting 35 articles, which reflected 30 individual studies for analysis, were included in this review [articles from the same study included Gallagher et al., 2008 and Allen et al., 2006; Barrett et al., 2020, Barrett et al., 2018 and Fitzgerald et al., 2019; Riggs et al., 2018 and Taylor et al., 2019; and Tiplady et al., 2015 and Tiplady et al., 2018].

3.2. Study characteristics

3.2.1. Study design

Studies emanated mainly from the USA ($n = 20$), with others conducted in Australia ($n = 4$), Ireland ($n = 1$), Canada ($n = 1$), the Bahamas ($n = 1$), Brazil ($n = 1$), the UK ($n = 1$), and one study in both Australia and the UK ($n = 1$). Most of the included studies ($n = 25$) used cross-sectional questionnaire (quantitative) surveys while the remaining five were qualitative. Among the included studies, four assessed participants' descriptive self-reports on the issue of AA (Allen et al., 2006; Ascione, 1997; Flynn, 2000b; Loring & Bolden-Hines, 2004), seven showed bivariate association between IPV and AA (Cavazos & Faver, 2007; Febres et al., 2012; Haden et al., 2018; Levitt et al., 2016; Simmons & Lehmann, 2007; Strand & Faver, 2006; Tiplady et al., 2012), and 13 reported multivariate association between IPV and AA. Five studies

analysed and reported qualitative findings (Collins et al., 2018; Flynn, 2000a; Hardesty et al., 2013; Newberry, 2017; Tiplady et al., 2018). One study reported quantitative (Riggs et al., 2018) and qualitative (Taylor et al., 2019) findings in two separate papers.

Among the quantitative studies, three studies employed a comparison group, among which two studies (Ascione et al., 2007; Volant et al., 2008) compared women recruited from domestic violence shelters with community-dwelling women who had not experienced IPV. Walton-Moss et al. (2005) compared IPV-abused and non-abused women, both recruited from the general public. Two studies (Barrett et al., 2020; Carlisle-Frank et al., 2004), although they did not include a comparison group when recruiting participants, compared findings between pet abusers and non-pet-abusers.

3.2.2. Participants and setting

Participants in most of the studies ($n = 20$) were female victims of IPV reporting incidents of AA perpetrated by their partner, among which 18 studies recruited participants from domestic violence shelters and/or domestic violence support programs. The remaining two studies included Febres et al. (2012), who recruited women arrested for domestic violence, and Tiplady et al. (2012), who recruited IPV-affected women from the general population. One study (Walton-Moss et al., 2005) recruited women living with a partner from the general public. In the case of Loring and Bolden-Hines (2004), women included had committed at least one illegal act. Two studies (Febres et al., 2014; Haden et al., 2018) included men arrested for domestic violence, while

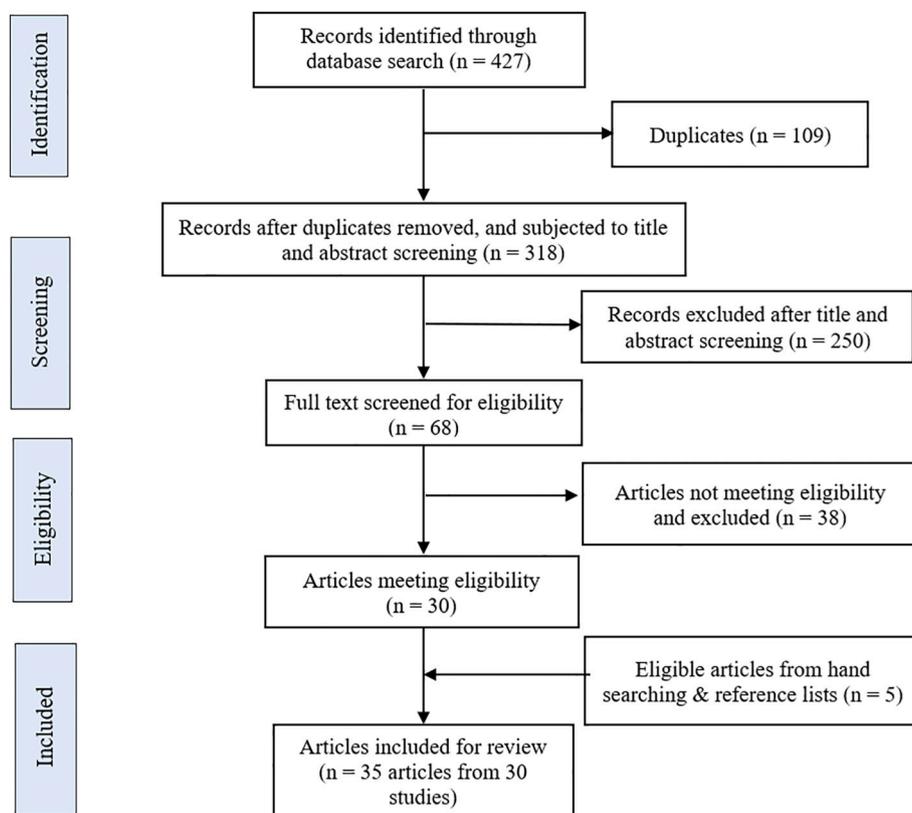


Fig. 1. Flow diagram showing studies selection process.

another two studies (Fielding & Plumridge, 2010; Gupta, 2008) had male and female college students as participants. For Riggs et al. (2018), participants did not need to be living with animal companions nor did they need to have experienced IPV.

Three American studies reported the analyses of criminal investigations of AA incidents carried out by the Animal Protection Division (Monsalve et al., 2018; $n = 118$), police reports (Richard & Reese, 2019; $n = 181$), and the Behavioral Analysis Unit of the FBI (Levitt et al., 2016; $n = 150$). One UK study (Newberry, 2017) analysed anonymous stories ($n = 74$) of AA from online discussion forums within the context of domestic violence.

The total number of study participants across the included studies was 6123 participants, comprising 449 AA incidents and 74 online stories of AA. Sample sizes across the individual studies ranged from 10 to 1283 (10 to 103 in qualitative and 23 to 1283 in quantitative studies). The mean age of the participants, among the studies which reported age, ranged from 30.2 (Ascione, 1997) to 43.0 (Tiplady et al., 2018) years.

3.2.3. Assessment of IPV and AA

Ten studies used standard validated scales to measure IPV, with the Conflict Tactics Scale (CTS) (Ascione et al., 2007; Walton-Moss et al., 2005) and the Revised Conflict Tactics Scale (CTS2) (Barrett et al., 2020; Febres et al., 2012; Febres et al., 2014; Gupta, 2008; Haden et al., 2018; Hartman et al., 2018) the most commonly used scales. CTS includes subscales for reasoning, verbal aggression, minor physical aggression, and severe physical aggression (Straus, 1989). Other scales used included the Checklist of Controlling Behaviors (CCB) (Barrett et al., 2020; Simmons & Lehmann, 2007) and the Hitting, Intimidating, Threatening and Swearing (HITS©) inventory (Fielding & Plumridge, 2010).

Fifteen studies used standard validated scales to assess AA, among which three studies (Ascione, 1997; Ascione et al., 2007; Loring & Bolden-Hines, 2004) used the Battered Partner Shelter Survey – Pet Maltreatment Assessment (BPSS) and two (Collins et al., 2018; Hartman

et al., 2018) used the Pet Treatment Survey (PTS) which was a revised version of the BPSS. Three studies used the Aggression Toward Animals Scale (ATAS) (Febres et al., 2012; Febres et al., 2014; Gupta, 2008), while the other three used the domestic violence Pet Abuse Survey (PAS) (Cavazos & Faver, 2007; Faver & Strand, 2003; Strand & Faver, 2006). Other scales used included the Partner's Treatment of Animals Scale (PTAS) (Barrett et al., 2020), the Pet Attitude Scale (Riggs et al., 2018), the Interview for Antisocial Behavior—Caretaker Form (IAB) and the Boat Inventory of Animal-Related Experiences (BIARE) (Haden et al., 2018), and the Unrealistic Expectations Scale (Carlisle-Frank et al., 2004).

Some studies used multiple measures of IPV as well as AA. Few used adapted versions of the scales mentioned, while some used only part of the items from the scale.

3.2.4. Quality appraisal

Quality appraisal has been applied to studies, not individual articles, as two or more articles stemming from a single research were treated as one study. All the quantitative studies ($n = 25$) described the setting and participants in detail and defined the criteria for inclusion. Though most studies ($n = 22$) identified confounding factors, fewer ($n = 13$) stated strategies to deal with confounding. Ten studies used valid and reliable scales for measuring IPV, and 15 studies used such scales for measuring AA. The majority (21/25) used appropriate statistical analyses.

Qualitative studies in general had clearly stated aims, applied appropriate qualitative methodologies, had appropriate recruitment and data collection strategies, and had a clear statement of findings. Some studies (2/5) did not clearly state potential ethical issues and/or whether the relationship between researcher and participants had been taken into consideration. The quality ratings applied are based on the aspects of the study in reporting the association between IPV and AA (see Tables 2 and 3).

3.3. Main findings

3.3.1. Prevalence of AA and types of abuse (in IPV context)

Included studies often reported the prevalence of AA in terms of threats to harm and actual harm to animals. The proportion of pet owning female victims of IPV who reported their partner threatened harm to animals ranged from 12% (Hartman et al., 2018) to 75% (Collins et al., 2018). Similarly, the prevalence of actual abuse (physical harm, neglect or killing) as reported by female victims varied between 23% (Travers et al., 2009) and 77% (Tiplady et al., 2012). Some studies included both threats and actual abuse, and reported instances from 21% (Riggs et al., 2018) to 89% (Barrett et al., 2020). Tiplady et al. (2012) recruited adult women experiencing IPV and concurrent companion animal ownership from the general public and reported 57.7% of women experienced verbal threatening behavior and 77% witnessed physical abuse of their pets. Around half of the participants (47.3%) reported that the extent of AA in the abusive relationship escalated over time (Fitzgerald et al., 2019).

Two studies used samples of men arrested for domestic violence in which 41% (Febres et al., 2014) and 52% (Haden et al., 2018) admitted committing at least one act of AA. Febres et al. (2012) conducted a similar study among women arrested for domestic violence and found a history of AA in 17% of the participants. Fielding and Plumridge (2010) found 47.3% of college students experienced AA in the context of domestic violence. Monsalve et al. (2018) reviewed the investigations carried out by the American Animal Protection Division and found 76.3% of incidents were AA, all of which were due to neglect.

3.3.2. Association between IPV and AA

Most of the studies revealed that AA emerged during IPV, indicating a strong association between AA and IPV. Women who reported that their partner abused their pet were more likely to suffer from frequent and severe forms of violence (Barrett et al., 2020; Hartman et al., 2018; Levitt et al., 2016). Animal abusers showed greater use of controlling behaviors towards their partner (Simmons & Lehmann, 2007), and were less affectionate towards their pets, used commands and threats while communicating with pets, considered pets as property, and had unrealistic expectations about their pets (Carlisle-Frank et al., 2004; Fielding & Plumridge, 2010). Offenders charged with offenses relating to IPV were more likely to show active and more severe forms of animal cruelty than those not charged with IPV (Levitt et al., 2016; Richard & Reese, 2019).

Controlled studies examining the relationship between IPV and AA supported the findings of a strong association. Ascione et al. (2007) found women in shelters were 11 times more likely to report that their partner had hurt or killed pets than the comparison group who had not experienced IPV. Volant et al. (2008) reported partner threats of pet abuse were significantly higher ($OR = 5.1, p = 0.044$) in the IPV group than the control group. Pets in IPV families (compared to non-IPV families) were less likely to receive regular veterinary care (55.5% vs. 80.0%, $p < 0.001$) and appropriate vaccinations (73% vs. 88.1%, $p = 0.004$) (Ascione et al., 2007). In a study comparing abused and non-abused women both recruited from the general public, Walton-Moss et al. (2005) reported AA was a significant risk factor for partners perpetrating IPV ($OR = 7.59, p = 0.011$).

In one study, minor physical violence and verbal aggression by men towards women were associated with threats to pets, while severe physical violence perpetrated by the partner towards women was significantly associated with actual physical harm to pets (Ascione et al., 2007). Hartman et al. (2018), however, found partners' psychological (i. e. non-physical) aggression increased the risk of AA ($OR = 1.07, p = 0.011$), while physical assault decreased the risk ($OR = 0.90, p = 0.019$). Two studies reported that psychological aggression towards a partner was associated with AA among men, but not among women (Febres et al., 2012; Febres et al., 2014). Simmons and Lehmann (2007) found AA was significantly associated with sexual violence ($p < 0.001$),

marital rape ($p < 0.001$), emotional violence ($p = 0.009$), and stalking ($p = 0.005$) towards the partner, but not with physical violence ($p = 0.668$). Pet abusers were also more likely to engage in other illegal actions (Haden et al., 2018; Levitt et al., 2016; Richard & Reese, 2019).

Among the studies investigating a relationship between IPV and AA, only two studies did not find an association. Riggs et al. (2018) found no significant difference in animal abuse (as measured by PAS score) between households with and without IPV among a sample of women from the general public. Monsalve et al. (2018), while reviewing the investigations of AA incidents, found IPV was not associated with animal neglect. Gupta (2008) found IPV significantly correlated with AA among males ($r = 0.55, p < 0.001$), but not among females ($r = 0.13, p > 0.05$).

3.3.3. Motivation for AA in the context of IPV

Controlling and deliberately upsetting the partner by hurting, terrorizing, and intimidating them was the primary purpose of AA. Studies reported AA as a means of control over IPV victims (Allen et al., 2006; Flynn, 2000a; Gallagher et al., 2008; Newberry, 2017; Tiplady et al., 2018), retaliation against the partner and pet (Levitt et al., 2016), discipline or punishment of the pet (Collins et al., 2018; Newberry, 2017; Tiplady et al., 2018), and anger and revenge (Gallagher et al., 2008). Offenders' jealousy of the partners' closeness with pets was perceived to have contributed to AA (Flynn, 2000a; Newberry, 2017). Fitzgerald et al. (2019) reported the major motivators of threats and neglect of pets as being 'to upset women or children', 'to regain control over the situation or argument', and 'to exert control over the situation', while 'to upset women and children' was the main motivator of actual harm (physical abuse) to pets. Richard and Reese (2019) found apathy (less likely; $OR = 0.13, p < 0.05$) and to hurt or intimidate another person (more likely; $OR = 47.3, p < 0.01$) were the main motivations for partners committing AA. Perpetrators also used AA as a means of coercing women to commit illegal acts such as bank robbery, drug trafficking, bank fraud and credit card theft or fraud (Loring & Bolden-Hines, 2004). Pets were also abused as revenge for leaving the offender following separation.

3.3.4. Impact of AA on IPV victims

Companion animals were an important source of emotional and social support for victims of IPV (Newberry, 2017; Taylor et al., 2019) and the shared experience of domestic violence made human victims closer to their pets (Tiplady et al., 2015). Newberry (2017) found animals provided physical protection from the violent partner. Strand and Faver (2006) reported 91% of IPV victims were worried about the safety of their pets during the abusive relationship. The abusive partner selectively used violent behavior towards pets with much of the violence hidden from public view (Tiplady et al., 2015). Pets targeted for abuse were most likely to be dogs and owned by the victimized partner (Tiplady et al., 2012). IPV-affected women whose pets had been abused showed a stronger emotional attachment to their pet (Flynn, 2000b; Hardesty et al., 2013) and considered pets as important source of emotional support (Cavazos & Faver, 2007) compared to women whose pets had not been abused.

For the victims of IPV, witnessing AA was traumatic and caused additional feelings of guilt, anger, anxiety and stress (Flynn, 2000a; Taylor et al., 2019). Collins et al. (2018) reported 20.4% IPV victims experienced a deleterious impact of AA on their emotional and psychological well-being. Women witnessing AA reported higher emotional distress and lower social support compared to men who witnessed AA (Riggs et al., 2018). Women also engaged in criminal activities to protect their pets from the abusive partners (Loring & Bolden-Hines, 2004).

Victims of IPV were emotionally bonded to their pets and the fear of AA significantly affected victims' decisions to seek support, plan for safety and terminate the abusive relationship (Cavazos & Faver, 2007; Collins et al., 2018; Faver & Strand, 2003; Flynn, 2000a; Gallagher et al., 2008; Tiplady et al., 2018; Volant et al., 2008). Across the included studies, the proportion of women who reported a delay in leaving the

Table 2
Joanna Briggs Institute (JBI) critical appraisal checklist for analytical cross-sectional studies^a.

Studies	Were the criteria for inclusion in the sample clearly defined?	Were the study subjects and the setting described in detail?	Was the exposure measured in a valid and reliable way?	Were objective, standard criteria used for measurement of the condition? ^b	Were confounding factors identified?	Were strategies to deal with confounding factors stated?	Were the outcomes measured in a valid and reliable way?	Was appropriate statistical analysis used?
Gallagher et al. (2008)	Yes	Yes	NA	NA	No	No	No	No
Allen et al. (2006)								
Ascione (1997)	Yes	Yes	NA	NA	Yes	No	Yes	No
Ascione et al. (2007)	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes
Barrett et al. (2018)	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes
Fitzgerald et al. (2019)								
Barrett et al. (2020)								
Carlisle-Frank et al. (2004)	Yes	Yes	NA	NA	Yes	Yes	Yes	Yes
Cavazos and Faver (2007)	Yes	Yes	NA	NA	Yes	No	Yes	Yes
Faver and Strand (2003)	Yes	Yes	NA	NA	Yes	Yes	Yes	Yes
Febres et al. (2014)	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes
Febres et al. (2012)	Yes	Yes	Yes	NA	Yes	No	Yes	Yes
Fielding and Plumridge (2010)	Yes	Yes	Yes	NA	Yes	Yes	No	Yes
Flynn (2000b)	Yes	Yes	NA	NA	Yes	No	No	No
Gupta (2008)	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes
Haden et al. (2018)	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes
Hartman et al. (2018)	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes
Levitt et al. (2016)	Yes	Yes	No	NA	Yes	No	No	Yes
Loring and Bolden-Hines (2004)	Yes	Yes	NA	NA	No	No	Yes	No
Monsalve et al. (2018)	Yes	Yes	No	NA	Yes	Yes	No	Yes
Richard and Reese (2019)	Yes	Yes	No	NA	Yes	Yes	No	Yes
Riggs et al. (2018)	Yes	Yes	No	NA	Yes	No	Yes	Yes
Taylor et al. (2019)								
Simmons and Lehmann (2007)	Yes	Yes	Yes	NA	Yes	No	No	Yes
Strand and Faver (2006)	Yes	Yes	NA	NA	Yes	No	Yes	Yes
Tiplady et al. (2012)	Yes	Yes	NA	NA	Yes	No	No	Yes
Travers et al. (2009)	Yes	Yes	No	NA	No	Unclear	No	Yes
Volant et al. (2008)	Yes	Yes	No	NA	Yes	Yes	No	Yes
Walton-Moss et al. (2005)	Yes	Yes	Yes	NA	Yes	Yes	Unclear	Yes
Total (n = 25)	25 Yes	25 Yes	10 Yes	25 NA	22 Yes	13 Yes	14 Yes	21 Yes

^a All quality ratings applied are based on the aspects of the study in reporting the relationship between domestic violence and animal abuse. Response options: Yes, No, Unclear, Not Applicable (NA).

^b Rated NA across all studies due to no objective criteria measuring the condition.

Table 3
Critical Appraisal Skills Programme (CASP) ratings of qualitative studies.

Studies	CASP Question	Collins et al. (2018)			Flynn (2000a)			Hardesty et al. (2013)			Newberry (2017)			Tiplady et al. (2018) Tiplady et al. (2015)		
		Yes	Can't tell	No	Yes	Can't tell	No	Yes	Can't tell	No	Yes	Can't tell	No	Yes	Can't tell	No
1	Are the aims stated clearly?	●			●			●			●			●		
2	Is the qualitative methodology appropriate?	●			●			●			●			●		
3	Is the research design appropriate to address aims of the research?	●			●			●			●			●		
4	Is the recruitment strategy appropriate to aims?	●			●			●			●			●		
5	Does the data collection method address the research issue?	●			●			●			●			●		
6	Has the relationship between researcher and participants been considered?	●				●			●					●		
7	Have ethical issues been taken into consideration?	●				●			●					●		
8	Was the data analysis sufficiently rigorous?	●			●			●			●			●		
9	Is there a clear statement of findings?	●			●			●			●			●		
10	How valuable is the research?	●			●			●			●			●		

partner and entering a domestic violence shelter due to concern for their pets ranged from 18% (Ascione, 1997) to 56% (Barrett et al., 2018). Strand and Faver (2006) found 65% of IPV victims reported that their decision to seek shelter was affected by concern for the safety of their pets, among whom 88% delayed seeking shelter. Further, women without children were more likely to report that their decision to seek shelter was affected by concern for their pets than women with children (85% vs. 45%, $p = 0.01$; Strand & Faver, 2006). Among the correlational studies, emotional and physical abuse of pets as well as threats of abuse were significantly associated with the decision to leave the relationship (Barrett et al., 2018; Faver & Strand, 2003). Women whose partners had physically abused their pets were more likely to delay leaving, return home, delay calling police, or refuse to lay charges than women whose partners had not (Travers et al., 2009). Most of the studies found experience of AA prevented women from seeking support except Taylor et al. (2019) who reported witnessing animal abuse triggered leaving the abusive relationships.

Taylor et al. (2019) sample included diverse genders and sexualities, and reported the experience of AA in the context of IPV among transgenders largely mirrored the cisgender and heterosexual focused literature. However, there could be unique aspects of companionships provided by animal to people of diverse genders and sexualities who experienced significant IPV related to their identity.

3.3.5. Impact of AA (and IPV) on animal victims

The most prominent impact of AA in IPV was the actual physical harm, suffering and even death caused to the pet, with the perpetrator using a range of methods to harm pets such as punching, throwing, hitting, kicking, drowning, shooting, swinging by the tail, stabbing and neglect (Allen et al., 2006; Ascione, 1997; Gallagher et al., 2008; Tiplady et al., 2018). Participants reported behavioral changes and ongoing psychological impact on pets. Common behavioral changes included being frightened and cowering, running away, hiding, aggression towards the abusers, seeking proximity and being protective towards the victimized women, avoidance of strangers and decreased food consumption (Tiplady et al., 2018), with Tiplady et al. (2012) reporting almost 85% of participants experiencing such behavioral changes. Psychological impact on the abused pet as perceived by the IPV victims were increased anxiety, distrust, and fear towards men (Tiplady et al., 2015). The behavioral changes and psychological impact on the pets persisted when victims were interviewed six months after terminating the violent relationship.

4. Discussion

4.1. Discussion on major findings

This review found that pet animals are often threatened, harmed, or killed by abusers in households with IPV, with the prevalence of AA among IPV households owning pet ranging between 12% and 89% across the included studies. The wide range of prevalence of AA documented in the studies reviewed is due to the different definitions of AA used across studies and study settings from where participants were recruited. Some studies considered threats to harm animals, some considered actual harm to animals, while some reported both threats and actual harm. The actual enactment of abuse also varied from neglect to physical harm. Furthermore, some studies used single item indicators of AA in IPV (e.g., whether the perpetrator harmed/threatened to harm your pet), while others used multi-items measures. Studies using multiple items of AA (e.g., the Partners Treatment of Animals Scale, Pet Treatment Survey, Aggression Toward Animals Scale) reported higher prevalence rates than the studies that use only single items. Studies recruiting participants from domestic violence shelters and support programs reported higher rates of AA than studies which had community-based samples of IPV survivors. This indicates that the prevalence of AA is higher when there is more severe IPV as severity of IPV might be correlated with victim's help seeking. Thus, the methodological issues including the context of IPV and operationalization of AA across the studies reviewed have contributed to a wide variation in prevalence estimates.

In our review, men were the offenders in most incidents of IPV and AA. Men were more likely to endorse physical abuse and be threatening towards animals than women, consistent with previous studies (Febres, 2015). Psychological and physical violence were positively and significantly correlated with AA among men, but not among female perpetrators of AA. It is also important to note while debates about gender symmetry/asymmetry continue in the IPV literature, there is growing consensus among scholars that AA conducted in the context of IPV is a highly gendered phenomena even in cis-hetero relationships (with the evidence suggesting that males are far more likely to perpetrate abuse of animals in the context of IPV than females). Previous studies have reported controlling an animal, retaliation against an animal, amusement, prejudice, fear or dislike of the animal, and acting out of anger as the major motivators for AA (Hensley & Tallichet, 2005; Newberry, 2018). This review identified that perpetrators of IPV primarily used threats or actual abuse of animals to control, coerce, hurt, and intimidate partners, with anger towards animals and retaliation against animals being reported in fewer cases. Previous studies have found similar motivations

for AA in a domestic violence context (Alleyne & Parfitt, 2019; McPhedran, 2009b). Abusers considered pets as objects/property which might have minimized cognitive dissonance while abusing the animal (Carlisle-Frank et al., 2004). In addition, perpetrators used AA as a means to upset the victim (Fitzgerald et al., 2019). These findings are unable to be linked back to either the 'violence graduation hypothesis' or the 'deviance generalization hypothesis' as the study participants are unable to reflect upon whether they believe the perpetrator's actions have stemmed from childhood or represent a larger picture of anti-social behavior. Likewise, those two same theories are unable to predict whether power and control, or retribution and the aim of upsetting others, are the situationally specific motives of perpetrators. The findings are largely consistent with the typology of power and control (Coercive Control Violence) as the motivator for AA in IPV. However, the findings were not entirely consistent with this. Whilst exerting control or influence is consistent, motivators such as retaliation and to upset the victim are less so. These instances not related to Coercive Control Violence may instead be indicative of Separation-Instigated or Situational Couple Violence, meaning power and control is not exclusively at the core of AA in IPV.

For victims of IPV, pets were an important source of emotional support. This is consistent with a previous systematic review reporting the benefits of pet in reducing loneliness and improving emotional well-being (Cleary et al., 2020). Due to the strong bonds IPV victims have with their pets, AA may exacerbate their psychological trauma and serve as an additional obstacle in many victims' safety plans. Indeed, research has shown how this emotional bond is deliberately exploited by the perpetrator and therefore makes AA a method of IPV as well as a form of violence in its own right (Upadhy, 2014). The fear of leaving their pet was the primary concern affecting victims' decisions to end the abusive relationship and seek for support services, and was further exacerbated by the limited number of shelters that allow pets to accompany victims and resistance by some shelters to facilitate co-sheltering (Stevenson et al., 2018). In multi-pet families, pets owned by the IPV victim (usually women) and pets with whom the women had stronger emotional attachments were selectively targeted. These findings show that AA in the context of IPV is important and an extension of domestic violence against the partner.

The importance of viewing AA as an extension of IPV, and understanding the Link between IPV and AA, is being increasingly recognised. Recently, a motion was brought before the Victorian Legislative Council that called for animal abuse to be recognised as a form of family violence, for animals to be recognised as vulnerable individuals, and for a review of the *Family Violence Protection Act 2008* that would include protection for companion animals (Legislative Council, 2021). This is in addition to the 35 States in the USA that have enacted protections for animals under domestic violence protection orders (Wisich, 2021). This demonstrates a commitment to advancing the issue of AA and protections afforded to animals to move into the realm of government action and legislation.

4.2. Methodological notes

Participants in most of the included studies were women seeking domestic violence support services who reported incidents of AA perpetrated by their partner. Other studies recruited undergraduate students, offenders arrested for domestic violence, records of AA investigations and stories of AA from online forums. As IPV often goes unreported (Ascione, 2008), there may be an underestimation of domestic violence, and therefore AA, in the included studies (Levitt et al., 2016).

Studies investigating the Link between IPV and AA typically rely on samples constituting human victims (usually women) of IPV, with few studies recruiting offenders of AA. The link established in such extreme cases may not be present in the general population (Arluke et al., 1999). Whilst most of the studies reviewed involved female victims of IPV, the

research of Taylor et al. (2019) specifically involved gender and sexually diverse (LGBTQ) populations. As the experiences of individuals who are not cisgender and/or heterosexual may be distinct in important ways from those who are cisgender and heterosexual, further research is recommended. For example, transgender and gender diverse survivors of IPV relationships with their animal companions may be even more salient in their survival and coping.

Due to the cross-sectional design of the included studies, the direction of causality between IPV and AA cannot be established. AA might have occurred either before, concurrently with, or after, the aggressive behavior towards the partner. As many studies suggested that perpetrators of AA are involved in concomitant incidents of other forms of violence and aggressive behavior (Carlisle-Frank et al., 2004; Simmons & Lehmann, 2007), this review provides some support for the 'deviance generalization hypothesis', with perpetrators of AA often involved in other types of offending. However, this study does not provide any evidence against the 'violence graduation hypothesis' as the included studies did not focus on how AA led to IPV and it is not clear whether a particular circumstance, motivation and method of cruelty prohibits, maintains or escalates the perpetration of AA. Longitudinal prospective studies are suggested to shed further light on this issue.

4.3. Limitations

As many women were reluctant to leave their abusive partner due to fear and concern for their pets, it is likely that those unreported incidents of IPV may have higher prevalence of AA. Generalization of findings from self-selected volunteer samples of violence-affected victims could be problematic as they may not be representative of all victims with pets who experience IPV.

4.4. Implications for future research

The study of the Link between IPV and AA appears to take on two angles of perspective. The first angle is where the tendency towards violence comes from, be it through childhood, developing further as the perpetrator ages, or through a general tendency towards violence that is unrelated to childhood. The second angle is what motivates the perpetrator at the moment of AA in IPV. The perpetrator may be unaware of underlying drivers towards violence and instead be motivated by emotions such as power, retaliation or a desire to upset. Theories seem to be divided between these two perspectives, and both are very much angled towards the perpetrator, and how and why they act as they do.

Future research has considerable scope. First, a further analysis of the drivers behind victims' perceptions and response is warranted, as well as the development of a theoretical framework from this. Why do victims respond as they do, and why do they perceive their pets as they do in the context of AA? Second, research that attempts to draw some predictive analysis and understanding of how underlying tendencies towards violence and situational motivators intersect could also be warranted. If violence stems from a gradual increase of violent acts from childhood, does this find more prevalence in power and control? Or in a desire of retaliation? If perpetrators merely have a more generalized tendency towards violence, does this manifest in all types of motives or does its prevalence show more in a desire for control? Without this higher-level view of the intersection between theoretical bases the two will remain separate and isolated from one another. Finally, future research could include the success of interventions like law reform to reduce the incidence of AA within IPV.

4.5. Implications for practitioners

Increased awareness about the co-existence of IPV and AA among the public and other key stakeholders such as police, veterinarians and professionals working for the elimination of violence is important for prevention of both types of abuse. Development of cross-reporting

systems to enable co-recording of IPV and AA incidents could help to better identify perpetrators of both human and animal abuse in the community. As human and animal abuse rarely occur in a vacuum, and instead often overlap (Ascione, 2005), occurrence of one type of violence should be considered as a warning sign of the other. Community workers, veterinarians and other professionals should be trained to recognize the various forms of domestic violence and AA (Becker & French, 2004), and those encountering IPV should investigate the presence of AA in the household, and vice-versa, and report possible incidents to the relevant authorities. Community based crime surveys and domestic violence studies should include questions related to AA to systematically collect data on community prevalence of AA in the context of domestic violence.

As participants in the included studies showed reluctance to report incidents of AA in the household, difficulties experienced in disclosing such abuse should be understood and AA should be considered as a part of domestic violence and treated confidentially. Women's shelters and refuges should have provision for accommodating pets as this can positively impact on the decision to leave the abusive relationship.

Recognizing the complexity of AA in a domestic violence context, Jegatheesan et al. (2020) recommended a bioecological systems model, to enable better understanding of the psychological problems of AA and family violence. A transdisciplinary collaborative approach is required in the identification, prevention, and protection of animals and people experiencing AA and domestic violence. AA remains a complex issue that requires a multidisciplinary approach (Arluke et al., 1999).

5. Conclusion

This study extends the current literature on the Link between IPV and AA by providing a comprehensive review of studies reporting AA in IPV situations. AA in IPV situations adversely affects the physical and psychological wellbeing of both human and animal victims. Studies should consider the cultural issues, social norms, legal frameworks, and people's perception towards violence against pets and humans. The findings have practical implications for organizations, professionals and researchers working in the field of IPV and AA. By actively applying this understanding of the interrelated nature of IPV and AA, health and social support services can maximise victims' and pets' safety by considering AA as both a form of IPV and a tool for inflicting IPV by perpetrators, and using this understanding to design services for the protection of both forms of victim.

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Michelle Cleary: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Project administration, Funding acquisition. **Deependra K. Thapa:** Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing. **Sancia West:** Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing. **Mark Westman:** Writing – review & editing. **Rachel Kornhaber:** Conceptualization, Methodology, Investigation, Data curation, Writing – original draft, Writing – review & editing.

Declaration of competing interest

No conflict of interest has been declared by the authors.

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