Article

Is Animal Cruelty a "Red Flag" for Family Violence?

Investigating Co-Occurring Violence Toward Children, Partners, and Pets

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Cross-reporting legislation, which permits child and animal welfare investigators to refer families with substantiated child maltreatment or animal cruelty for investigation by parallel agencies, has recently been adopted in several U.S. jurisdictions. The current study sheds light on the underlying assumption of these policies—that animal cruelty and family violence commonly co-occur. Exposure to family violence and animal cruelty is retrospectively assessed using a sample of 860 college students. Results suggest that animal abuse may be a red flag indicative of family violence in the home. Specifically, about 60% of participants who have witnessed or perpetrated animal cruelty as a child also report experiences with child maltreatment or domestic violence. Differential patterns of association were revealed between childhood victimization experiences and the type of animal cruelty exposure reported. This study extends current knowledge of the links between animal- and human-directed violence and provides initial support for the premise of cross-reporting legislation.

Keywords: *animal; child; family; abuse; violence*

Links between animal cruelty and interpersonal violence have been recognized throughout history (Ascione & Arkow, 1999). Recently, legislation in several U.S. states has begun to codify colloquial belief in these associations through the development of mandated cross-reporting systems for child protection and animal welfare agencies. Typically, such laws allow animal cruelty investigators to refer families to child welfare services and vice versa, with the expectation that homes with one type of substantiated

violence will also be at a higher risk for additional forms of victimization. As of July 2007, nine U.S. states had signed some type of cross-reporting legislation into law (California, Connecticut, District of Columbia, Ohio, Louisiana, Maine, Oregon, Tennessee, and West Virginia; Humane Society of the United States [HSUS], 2007), and five states had bills pending (District of Columbia, New York, Ohio, Massachusetts, and New Jersey; HSUS, n.d.-b).In addition, nine states (Maine, New York, Tennessee, Colorado, Indiana, Nevada, Connecticut, Vermont, and Illinois) currently have laws permitting pets to be included in protection orders for domestic violence, with similar legislation pending in three jurisdictions (District of Columbia, California, and New Jersey; HSUS, n.d.-a).

Despite these formal indications of support by policy makers and advocates for a link between animal- and human-directed violence, rigorous scientific efforts to elucidate the patterns of association between animal cruelty and interpersonal violence remain limited. Research to date has focused primarily on the link between exposure to animal abuse in childhood or adolescence (i.e., witnessing and/or perpetration) and subsequent perpetration of adult violence (e.g., Arluke, Levin, Luke, & Ascione, 1999; Felthous & Kellert, 1986; Hensley, Tallichet, & Singer, 2006; Kellert & Felthous, 1985; Peterson & Farrington, 2007; Tallichet & Hensley, 2004; Wright & Hensley, 2003). This research was spurred by MacDonald's (1961) early triad theory of violence (i.e., cruelty to animals, firesetting, and enuresis) and inclusion of animal cruelty in the *Diagnostic and Statistical Manual of Mental Disorders*, third edition, text revision (American Psychiatric Association, 1987) as a symptom of conduct disorder.

In contrast, relatively few studies have directly examined the co-occurrence of animal abuse and violence within the family. Despite widespread acceptance of the links between animal and family violence by advocates, policy makers, and researchers (see Becker & French, 2004), in which a substantial overlap between child abuse, domestic violence, and cruelty to animals is assumed, little evidence exists to support this contention (Piper & Myers, 2006). Most research has used a pairwise approach, examining links between animal and child abuse or between animal and partner abuse, with virtually no direct evidence regarding the overlap among all three forms of violence. The goal of the current investigation is to address this gap in the literature by simultaneously examining the co-occurrence of animal cruelty, child maltreatment, and domestic violence.

Why does the degree of overlap matter? Researchers and advocates point to the practical utility of using the identification of a home with one form of violence as an indicator that other members of the household may also be at risk of victimization (e.g., Becker & French, 2004; Boat, 1995).

This premise forms the basis for cross-reporting legislation that permits or requires child welfare and animal control investigators (and some other related professionals) to refer families with identified child maltreatment or animal cruelty for investigation by parallel agencies. In some states, cross-reporting is extended to suspected adult victims of violence (e.g., partner abuse, elder abuse). The prospect of early intervention (particularly for children identified as abused subsequent to an animal cruelty investigation), or intervention in homes that may not otherwise have been identified, is promising for child and animal welfare advocates who seek to identify high-risk homes and prevent (further) victimization. Although no published data have evaluated the effectiveness of these new reporting practices, how these policies will fare in future cost–benefit analyses will likely depend on the validity of the underlying assumption—that child maltreatment, domestic violence, and animal cruelty frequently coexist.

A Triad of Family Violence?

Recent research has provided compelling evidence that child maltreatment and domestic violence commonly occur within the same household (Appel & Holden, 1998; Clemmons, DiLillo, Martinez, DeGue, & Jeffcott, 2003; Higgens & McCabe, 2000; Saunders, 2003). As noted, it has been suggested that these types of household violence may extend to another group of vulnerable household members—pets. For instance, Lacroix (1999), citing research indicating that the vast majority of pet owners see their animals as "members of the family," argued that companion animals who are abused within the home can rightfully be considered victims of family violence. Consistent with this notion, researchers have begun to explore the connection between witnessing and/or perpetrating animal abuse, childhood maltreatment, and domestic violence. The links posited by researchers and advocates tend to fall into two related categories: (a) the co-occurrence of animal abuse, child abuse, and domestic violence and (b) the perpetration of animal cruelty by children who witnessed animal abuse or were themselves abused. Current theories and evidence regarding these potential links are reviewed below.

Co-Occurrence of Animal Cruelty, Child Maltreatment, and Domestic Violence

Animal cruelty and domestic violence. Several researchers (Ascione, 1998; Carlisle-Frank, Frank, & Nielsen, 2004; Faver & Strand, 2003; Flynn, 2000) have assessed the co-occurrence of partner violence and animal

cruelty by asking women seeking services from domestic violence shelters about their experiences with animal abuse. Sample sizes were small across studies, ranging from 28 (Ascione, 1998) to 41 (Faver & Strand, 2003) pet-owning women. Findings from these studies indicated that between 46.5% and 71% of respondents reported that a male abuser had threatened, harmed, or killed their pet, whereas between 25.5% and 57% reported that their pet had actually been injured or killed by a partner. Although these results suggest that witnessing violence toward pets may be a common problem for abused women, the small sample sizes and lack of nonabused comparison groups make generalization and interpretation of these findings difficult.

In a recent study, Ascione et al. (2007) compared the reports of women in domestic violence shelters ($n = 101$) with a nonabused community sample ($n = 120$) and found that women in shelters were 11 times more likely to report that their partner had hurt or killed a pet (54% vs. 5%) and 4 times more likely to indicate that their partner had threatened a pet (52.5% vs. 12.5%) than the comparison group. Notably, the strongest predictors of threats toward pets in this study were the Minor Physical Violence and Verbal Aggression subscales of the Conflict Tactics Scale (CTS; Straus, 1979), whereas the strongest predictor of actual harm or killing of animals by a partner was the Severe Physical Violence subscale of the CTS. These results suggest that the severity of partner-perpetrated animal cruelty may increase as the severity of domestic violence in the home increases. Though consistent with earlier research, the addition of a comparison sample in this study provides important normative data suggesting a significantly increased risk of experiences with animal cruelty among battered women.

Simmons and Lehmann (2007) utilizing a much larger sample of women seeking services at an urban domestic violence shelter ($N = 1,283$) found that abusive males who were also cruel to animals used more forms of violence and employed more controlling behaviors toward their female victims than men who did not abuse their pets. These findings suggest that the presence of animal cruelty in conjunction with domestic violence may be indicative of a particularly high-risk relationship, with associated implications for the assessment and treatment of victims and perpetrators.

Animal cruelty and child maltreatment. An early study by DeViney, Dickert, and Lockwood (1983) examined 53 pet-owning families being treated by a state child welfare agency for substantiated cases of child abuse and neglect and found evidence of the concurrent abuse or neglect of a companion animal in 60% of these households. When cases were divided by the type of child maltreatment reported, the authors found that 80% of families with substantiated child physical abuse had existing records of

companion animal abuse versus 34% of families with either substantiated child sexual abuse or neglect. These findings suggest that the abuse of children and animals within a home may be fairly common and that identifying the specific type(s) of child maltreatment experienced may be important when exploring the nature and strength of the relationship between animal- and child-directed violence.

Miller and Knutson (1997) examined correlations between exposure to animal cruelty (including witnessing and perpetrating animal abuse) and retrospective reports of physical punishment and negative family environment in childhood among 314 inmates and 308 college students. In both samples, results pointed to significant, although weak, correlations between animal cruelty and being raised in negative or physically punitive home environments. Unfortunately, the authors neither provided specific information regarding the proportion of overlap between childhood exposure to animal abuse and severe physical punishment nor differentiated between individuals who witnessed versus perpetrated animal cruelty.

Animal Cruelty by Children Exposed to Family Violence

Research investigating the perpetration of animal cruelty by children exposed to domestic violence or child maltreatment provides additional insight regarding the overlap and potential etiological links between these forms of violence within the home. Notably, many of these investigations (in contrast to those discussed above) have employed large, and more representative, samples with greater potential for generalization. For instance, Baldry (2003) found that animal-abusing youth in a large, nonclinical Italian sample ($N = 1,392$) were more likely to have witnessed animal cruelty perpetrated by their peers or parents, and reported more overall exposure to parental violence, than their nonabusive peers. Another study compared conduct-disordered adolescent boys with and without a history of animal cruelty and found that the animal-abusing group was more likely to report histories of physical and/or sexual abuse and exposure to domestic violence (Duncan, Thomas, & Miller, 2005). Two studies using maternal reports on the Child Behavior Checklist (CBCL) found that mothers who reported that their children were exposed to domestic violence were also more likely to report that their children had been cruel to animals (Currie, 2005) and that the prevalence of cruelty to animals was five times higher in a sexually abused sample of children than in a nonabused sample (Ascione, Friedrich, Heath, & Hayashi, 2003). In contrast to these findings, Dadds, Whiting, and Hawes (2006) found an association between animal cruelty and the presence of psychopathic (callous or unemotional) personality traits in a nonclinical

sample of adolescent boys but found no link between animal cruelty and a general measure of family conflict. These authors suggested that animal cruelty may be an early manifestation of conduct problems and empathic deficits associated with psychopathic personality traits, rather than the result of general externalizing or parenting problems.

Similar to Baldry (2003), Thompson and Gullone (2006) reported that a history of witnessing animal abuse was associated with significantly higher levels of animal cruelty among adolescents, especially when the abuse was perpetrated by a family member or friend (vs. stranger) and when it was witnessed more frequently. These findings suggest that social learning may play a role in the abuse of animals by children, particularly when these behaviors are modeled by important figures in the children's lives. Of course, in cases involving parental animal abuse, it may also be that the animal cruelty exists as part of a pattern of violence in the home and is utilized as a means of exerting control over or intimidating human victims of family violence. For example, reports indicate that male batterers may threaten or actually harm family pets as a way of controlling and manipulating female victims (Arkow, 1996; Ascione, 1999; Ascione et al., 2007; Boat, 1999; Flynn, 2000; Millikin, 1999). Similarly, child abusers may threaten, injure, or kill animals as a means of gaining silence or compliance from a child victim or as a threat to the child directly (i.e., This is what could happen to you; Boat, 1999). Thus, animal abuse as a form of victim control may hinder the reporting of child abuse or domestic violence occurring within the household and delay potential intervention.

Overall, these studies point to a significant relationship between childhood animal cruelty and exposure to family violence as well as between witnessing and perpetrating animal abuse. In particular, the existing data suggest that a history of sexual abuse, exposure to domestic violence, and witnessing of family members and friends engaging in animal cruelty may be important correlates (and potentially precursors) of animal abuse perpetration by children and adolescents. Furthermore, the results of these investigations imply that when animal abuse at the hands of children in a household is also considered, the co-occurrence of animal- and family-directed violence may be quite common.

The Present Study

The combined weight of the existing research provides preliminary support for the presence of a significant link between animal cruelty, child abuse, and domestic violence, with evidence suggesting that animal cruelty

may occur more frequently in homes with child maltreatment or domestic violence and that animal cruelty perpetrated by children may be associated with exposure to family violence. Furthermore, research suggests that the specific type or severity of family violence experienced may be important when examining the nature of the relationship between animal, child, and partner abuse and that witnessing animal cruelty may be a significant predictor of animal abuse perpetration in childhood. However, existing data provide little information regarding the rates of overlap among all three types of family violence or the predictive value of animal abuse as a indicator of family violence (and vice versa). In addition, with the exception of a few large-scale studies on childhood animal cruelty, much past research has been limited by the use of small and highly selective samples.

The present study addresses these gaps in the literature by (a) investigating the co-occurrence of child maltreatment, exposure to domestic violence, and animal cruelty and (b) examining the perpetration of animal cruelty by children exposed to family violence. On the basis of past research, we expect to identify substantial rates of overlap between animal cruelty and both forms of family violence. In addition, it is hypothesized that exposure to child abuse or parental violence in the home will predict animal cruelty perpetration by children. Furthermore, the limited existing research suggests that the link between animal cruelty and family violence may vary by the specific type of violence experienced. Although the literature is too sparse to support specific hypotheses by abuse type, it is expected that a history of physical abuse, in particular, will be associated with both witnessing and perpetrating animal cruelty. This study will examine several forms of child maltreatment independently, in addition to considering overall exposure to family violence. Finally, this investigation expands on past research by utilizing a detailed, behaviorally specific measure of family violence with a large, geographically diverse sample of college students to examine the links between multiple forms of violence in the home.

Method

Participants

The current study utilized a sample of 860 college students recruited from three universities in the Midwest and West. More specifically, participants included students attending a private university located in a large, urban city in California (50.8%), a public university in a midsized city in Nebraska (12.7%), and a private college in a small town in Ohio (36.5%). The majority

of the participants were female (75.6%; $n = 650$) and White (70.1%; $n = 603$), although other ethnicities were also represented in the sample (i.e., Asian, 11.2%; Hispanic/Latino, 7.1%; Black, 4.2%). The average age of participants was 20.1 ($SD = 1.72$; range = 17-37), and most had never been married (97%).The median annual family income reported by participants while growing up was between US$71,000 and US$80,000, although reported family incomes ranged from less than US$10,000 to more than US$150,000.The vast majority (84.9%) of participants reported that their family owned a pet while they were growing up, whereas 72.3% indicated that animals were an important part of their life while growing up. Participants received credit through their psychology courses for their participation.

Measures

Participants provided demographic information and retrospective reports of child maltreatment and violence in their family of origin using the Computer-Assisted Maltreatment Inventory (CAMI; DiLillo, DeGue, Kras, & Di Loreto-Colgan, 2006; DiLillo, Fortier, et al., 2006). The CAMI is a computer-based, self-report measure designed to assess for a childhood history of sexual abuse, physical abuse, psychological abuse, neglect, and exposure to domestic violence. Sexual abuse, physical abuse, and exposure to domestic violence are assessed on the CAMI using a series of behaviorally specific screening questions, which are followed (on one or more affirmative responses) by more detailed queries regarding the nature and circumstances of the reported experiences (see DiLillo, Fortier, et al., 2006, for further discussion of the CAMI design). In contrast, psychological abuse and neglect are assessed by the CAMI using Likert-type scales, which ask respondents to indicate their level of agreement with a range of statements regarding their family and home environment while growing up. Because the CAMI is a newly developed measure, information regarding its psychometric properties is limited. However, available data indicate that 1- to 2-week test–retest reliability for the sexual and physical abuse subscales were .71 and .86, respectively, with additional evidence of concurrent and convergent validity (DiLillo, Fortier, et al., 2006).

Respondents also completed the Animal Violence Inventory (AVI), a modified version of the Boat Inventory on Animal-Related Experiences (Boat, 1999). Consistent with past research, participants were asked whether they had ever (a) witnessed someone intentionally neglect, hurt, torture, or kill an animal or (b) intentionally neglected, hurt, tortured, or killed an animal themselves. Animal abuse was defined as including the neglect of (e.g.,

denial of food, water, or medical treatment; excessive confinement; allowing the animal to live in filth) or intentional infliction of physical pain or injury (e.g., beating, shooting, drowning; making an animal fight; engaging in sexual acts with an animal) on any household pet or wild animal. Participants were specifically asked to exclude hunting and routine farm activities. In addition to these items assessing animal cruelty exposure, participants were asked whether (a) animals were an important part of their life and (b) their family owned a pet while they were growing up.

Results

Exposure to Animal Cruelty

Results indicated that 22.9% of the full sample reported some exposure to animal cruelty. Less than a quarter (21.6%) of the full sample reported witnessing cruelty toward animals in their lifetime, with males more likely to witness animal abuse than females, $\chi^2(1, 860) = 28.9$, $p < .01$. The most frequent perpetrators were friends or acquaintances, although 31.1% of the witnesses saw a parent or other family member hurt or kill an animal. Most animal abuse was witnessed during middle childhood and adolescence and involved companion animals (i.e., dogs, cats). The types of cruelty witnessed most often involved hitting, beating, or kicking and throwing objects at an animal.

Only 4.3% of the full sample reported perpetrating animal cruelty, with males significantly more likely than females to report intentionally neglecting, hurting, torturing, or killing an animal, $\chi^2(1, 860) = 18.4$, $p < .01$. The majority of participants (77.8%) reported engaging in these behaviors more than once, with almost half of perpetrators (47.4%) reporting that they engaged in these acts between two and five times. Most respondents engaged in these behaviors alone, but when others were involved, brothers and mothers were reported most often. Participants who reported abusing animals cited dogs and cats as their most common victims, with hitting, beating, or kicking as the primary form of cruelty employed.

Exposure to Child Maltreatment and Domestic Violence

Nearly half (49.4%) of the full sample of college students reported experiences with at least one form of family violence during childhood, including physical abuse, sexual abuse, emotional abuse, physical neglect, or

witnessing of parental violence. The most common form of childhood mal-treatment reported was physical abuse. More than one quarter (27.2%) of respondents reported experiencing a severe form of physical abuse by a parent on at least one occasion (i.e., hitting with a fist or hard object, kick-ing, throwing or knocking down, choking, intentional burning, or threaten-ing with or using a weapon). To ensure a conservative estimate of physical abuse, respondents were only categorized as physically abused if they had an overall severity score (based on abuse type, frequency, and level of injury) that was greater than the mean severity score for all respondents reporting any experience with physical punishment. Thus, only cases involving relatively more severe physical abuse were included. A history of sexual abuse was reported by 15.7% of respondents and included any sexual contact under the age of 18 that was forced with a family member (excluding sexual play or exploration with a similar-age peer) or with someone more than 5 years older (excluding voluntary sexual activity with a dating partner). Participants with total scale scores one standard deviation above the mean on the physical neglect (14.4%) and psychological abuse (14.5%) subscales were categorized as experiencing these maltreatment types during childhood. Parental violence was witnessed by 17.7% of respondents overall, with 10.7% reporting physical abuse of their father by their mother and 14.8% reporting physical abuse of their mother by their father. Thus, 7.8% of the sample witnessed bidirectional domestic violence.

When analyses were limited to only severe domestic violence (involving injury, 10 or more occurrences, or in which the participant was still very bothered by the events as an adult), 11.6% of the sample was classified as domestic violence exposed. Domestic violence is defined as exposure to *any* parental violence (as opposed to only severe violence) in all analyses below, except where explicitly specified.

Overlap Between Animal Cruelty and Family Violence

Overall rates of overlap between animal cruelty exposure (including wit-nessing and/or perpetrating animal abuse), domestic violence, and child-hood maltreatment are represented in Figure 1. In this college population, using retrospective self-report data, 36.2% of the sample experienced no exposure to family or animal violence, 37.2% reported exposure to only one form of violence, 17.8% experienced two types of violence, and 4.1% reported exposure to all three forms of violence.

Victims of family violence were significantly more likely to report expe-riencing animal cruelty (as a witness or perpetrator) than nonvictims in this

Figure 1
Overlap of Exposure to Child Abuse (CA), Domestic Violence (DV),
**and Animal Abuse (AA) in a College Sample**
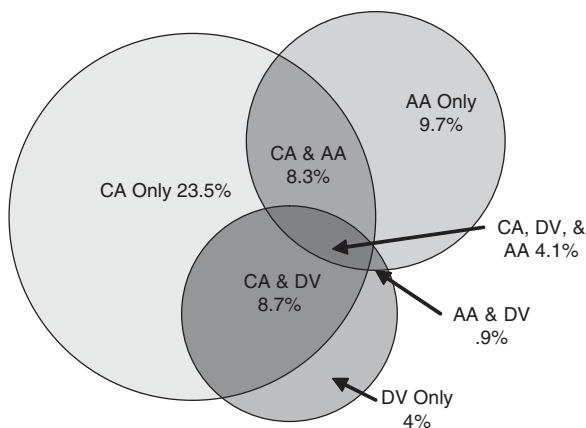
Note: Percentages are of the full sample. AA includes witnessing and/or perpetrating abuse. Scale of figure is approximate.

study, $\chi^2(1, 860) = 7.3$, $p < .01$, with more than a quarter of victims (26.8%) reporting some exposure to animal abuse. Chi-square analyses were utilized to compare rates of animal cruelty exposure between participants with no family violence history and those who experienced child abuse, domestic violence, or both child abuse and domestic violence (see Figure 2). Results indicated that child abuse victims, $\chi^2(1, 860) = 8.8$, $p < .001$, and victims of both child abuse and domestic violence, $\chi^2(1, 860) = 5.7$, $p < .01$, were more likely to witness or perpetrate animal abuse than nonvictims, although the difference did not reach significance for those exposed to any parental violence, $\chi^2(1, 860) = 3$, *ns*. However, when the sample was limited to those who witnessed severe domestic violence, rates of animal cruelty exposure were also significantly higher in this group, $\chi^2(1, 860) = 6.5$, $p < .05$. Notably, the majority (73.2%) of family violence victims overall did not report any exposure to animal abuse.

Participants who witnessed and/or perpetrated animal abuse were also significantly more likely to report experiencing at least one form of family violence than those who were not exposed to animal cruelty, $\chi^2(1, 860) = 7.3$, $p < .01$. Notably, however, rates of family violence victimization among those exposed to animal cruelty were significantly higher than vice

Figure 2
Animal Cruelty Exposure by Family Violence Victimization (%)
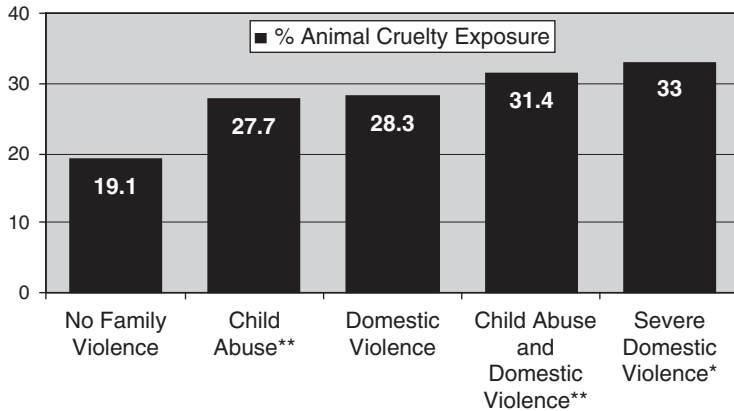

Note: Asterisks indicate that rates of animal cruelty exposure (including witnessing and/or per-petrating animal abuse) were significantly higher among those exposed to family violence than among those not exposed to the same category of violence in chi-square analyses ($df = 1$, $N = 860$). Categories are not mutually exclusive.
$*p < .05. **p < .01.$

versa (i.e., rates of animal abuse exposure among family violence victims), with a majority (57.9%) of this group reporting co-occurring family violence. Chi-square analyses were again conducted to compare rates of family violence victimization between participants who were not exposed to animal cruelty and those who witnessed, perpetrated, or both witnessed and perpetrated animal abuse (see Figure 3). Results reached statistical significance for those individuals who witnessed animal cruelty, $\chi^2(1, 860) = 6.7$, $p = .01$, indicating that these participants were more likely to report a history of family violence than those who did not witness animal abuse. Despite even higher rates of victimization among animal abuse perpetrators, $\chi^2(1, 860) = 2.5$, ns, and combined witnesses/perpetrators of animal cruelty, $\chi^2(1, 860) = 2.8$, ns, these differences did not reach the level of significance, likely due to reduced power associated with the small sample of animal abuse perpetrators.

Further examination of animal cruelty exposure by abuse type indicated that participants who witnessed animal abuse were significantly more likely

Figure 3
Family Violence Victimization by Animal Cruelty Exposure (%)
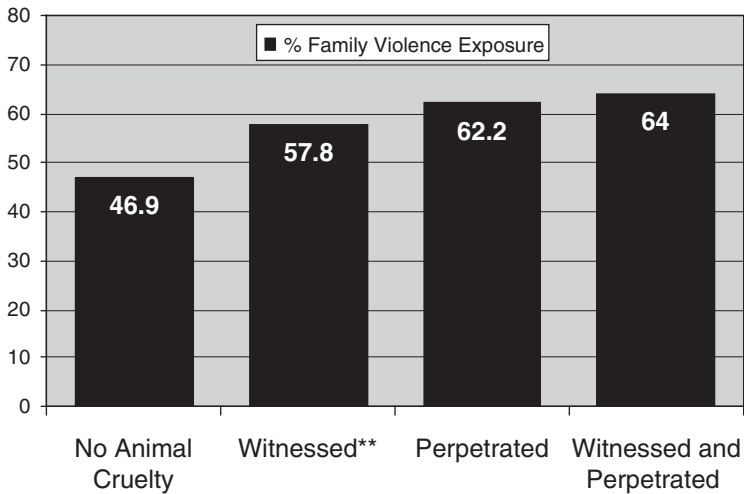
Note: Rate of family violence exposure (including child abuse and/or domestic violence) was significantly higher among individuals who witnessed animal cruelty than among those who did not witness animal cruelty in chi-square analyses ($df = 1$, $N = 860$). Categories are not mutually exclusive.

**p < .01.

to report a history of child physical abuse, $\chi^2(1, 860) = 7.5$, $p < .01$, emotional abuse, $\chi^2(1, 860) = 16.2$, $p < .01$, and severe domestic violence, $\chi^2(1, 860) = 7.4$, $p < .01$, than participants who did not witness animal abuse. However, witnesses to animal cruelty were not more likely than nonwitnesses to be victims of sexual abuse or neglect, or to be exposed to parental violence generally.

Binary logistic regression analyses were employed to predict exposure to family violence by both witnessing and perpetrating animal cruelty in independent models. Results indicated that witnessing, $\chi^2(1, 860) = 5.34$, $p < .05$, and perpetrating, $\chi^2(1, 860) = 4.47$, $p < .01$, animal cruelty were predictive of family violence, with each increasing the odds of child abuse or domestic violence exposure by 1.5 to 2 times (see Table 1).

Table 1
Binary Logistic Regressions Predicting Family
Violence and Animal Cruelty

Outcomes/Predictors	β	SE	Odds Ratio	Wald Statistic
Family violence exposure				
Witnessing animal cruelty	0.39	.17	1.48	5.26*
Family violence exposure				
Perpetrating animal cruelty	0.75	.37	2.11	4.14*
Witnessing animal cruelty				
Perpetrating animal cruelty	2.10	.37	8.22	32.8**
Sexual abuse	0.05	.24	1.05	0.04
Physical abuse	0.21	.20	1.24	1.14
Emotional abuse	0.81	.28	2.25	8.68**
Neglect	−0.25	.29	0.78	0.79
Domestic violence	0.10	.23	1.10	0.18
Perpetration of animal cruelty				
Witnessing animal cruelty	2.10	.37	8.15	32.4**
Sexual abuse	0.44	.43	1.55	1.05
Physical abuse	0.63	.38	1.88	2.70
Emotional abuse	−0.43	.53	0.65	0.67
Neglect	0.68	.49	1.98	0.16
Domestic violence	−0.05	.44	0.95	0.01

* $p < .05$. ** $p < .01$.

Regression analyses were also used to predict witnessing animal cruelty by animal abuse perpetration, four types of child maltreatment (i.e., sexual, physical, emotional, and neglect), and exposure to parental violence. A test of the full model versus a model with intercept only was statistically significant, $\chi^2(6, 860) = 53.1$, $p < .001$. Perpetrating animal abuse and emotional abuse appeared as the only significant predictors of witnessing animal cruelty (see Table 1). Odds ratios indicated that when holding the other factors constant, perpetrating animal violence and emotional abuse increased the risk of witnessing animal abuse by more than 8 and 2 times, respectively.

Perpetration of Animal Cruelty

Prevalence rates of animal cruelty perpetration were somewhat higher among those who experienced at least one form of family violence as a child than among those who did not, 5.4% versus 3.2%; $\chi^2(1, 860) = 2.5$, *ns*, although this pattern did not reach significance. Of those participants

who engaged in animal abuse, a majority (62.2%) had also experienced child maltreatment or exposure to domestic violence. Individuals who reported abusing animals were more likely to report a history of sexual abuse, $\chi^2(1, 860) = 3.8$, $p < .05$, physical abuse, $\chi^2(1, 860) = 5$, $p < .05$, and neglect, $\chi^2(1, 860) = 5$, $p < .05$, than nonperpetrators. However, they did not differ significantly from nonperpetrators with regard to emotional abuse or exposure to domestic violence.

Perpetration of animal abuse was also significantly correlated with a history of witnessing animal abuse ($r = .24$, $p < .001$). In fact, results indicated that 67.6% of animal abuse perpetrators had witnessed animal cruelty versus 19.4% of nonperpetrators, $\chi^2(1, 860) = 45.2$, $p < .001$.

Binary logistic regression analysis was employed to predict the perpetration of animal cruelty. Six predictors were entered into the model, including witnessing animal abuse, four types of child maltreatment (i.e., sexual, physical, emotional, and neglect), and exposure to parental violence. A test of the full model versus a model with intercept only was statistically significant, $\chi^2(6, 860) = 48.6$, $p < .001$. Witnessing animal abuse appeared as the only significant predictor of perpetrating animal cruelty when compared with each of the family violence types assessed (see Table 1). The odds ratio for witnessing animal abuse indicated that when holding family violence exposure constant, the risk of animal abuse perpetration was 8.14 times greater among those who witnessed animal cruelty than among those who did not.

Discussion

An examination of the overlap between animal cruelty and family violence in this college sample provides some support for the links hypothesis proposed by child and animal welfare advocates, with results indicating that a substantial proportion of individuals had been exposed to multiple forms of violence in the home, including child abuse, domestic violence, and animal cruelty. In fact, about 40% of the participants who experienced family or animal violence were also exposed to *at least* one additional type of abuse. However, the success of cross-reporting systems in correctly identifying at-risk households may depend on the type of violence initially documented. Specifically, the results suggest that animal abuse may prove a more reliable marker for other forms of family violence than vice versa. For instance, although about 60% of individuals who witnessed or perpetrated animal abuse also experienced family violence, only about 30% of family violence

victims had experienced animal cruelty. Similarly, regression analyses pointed to both witnessing and perpetrating animal abuse as significant predictors of family violence, whereas childhood emotional abuse (the form least likely to be investigated by child welfare authorities) was the only type of family violence that significantly predicted exposure to animal abuse.

These findings lend support to evolving practices in many jurisdictions in which child welfare referrals are made in response to animal cruelty complaints and suggest that child maltreatment or domestic violence may be present in many (perhaps even the majority) of these homes. If one considers that only the most severe instances of animal cruelty are likely to come to the attention of authorities (and, thus, potentially the most at-risk households), it is possible that rates of concurrent family violence in these families may be even higher than the 60% suggested by these findings. These results also stress the need for professionals in school, medical, and mental health settings to assess for exposure to family violence when presented with a child who is reporting a history of witnessing or perpetrating animal cruelty.

Overall, individuals who reported witnessing or perpetrating acts of animal cruelty were more likely to have a history of family violence than those with no exposure to animal abuse (although the small sample size may have precluded significant findings for perpetrators). Although more data are needed to draw firm conclusions, results from a closer examination by the *type* of family violence experienced sheds some initial light on the context in which animal cruelty occurs. For instance, as hypothesized, a strong link was identified between child physical abuse and *both* witnessing and perpetrating animal abuse. These findings suggest that some homes may be prone to generalized physical violence—with lines blurred between victims and perpetrators. Significant associations between physical punishment and exposure to animal cruelty were also identified among college students by Flynn (1999a, 1999b) and Miller and Knutson (1997). Furthermore, specific to witnessing animal cruelty was an increased prevalence of childhood emotional abuse. These findings may point to an underlying family dynamic in which vulnerable or dependent household members are devalued. In addition, it may be that animal-directed violence is being used in some homes as an additional form of psychological abuse, with the intention of intimidating, controlling, frightening, or distressing children. The same tactics may explain, in part, the overall pattern of overlap between child maltreatment and witnessing family violence. That is, there may be situations in which adults abuse animals to frighten or manipulate their child victims into complying or not reporting their abuse, as described in anecdotal accounts (e.g., Ascione, 1999). The link between sexual abuse and perpetration (but not

witnessing) of animal cruelty identified in this study has also been reported by other researchers (Ascione et al., 2003; Friedrich et al., 1992; McClellan, Adams, Douglas, McCurry, & Storck, 1995). It is possible that animal cruelty committed by victims of sexual abuse reflects a means of coping through redirected aggression (i.e., directing abuse-related anger and pain toward an animal). Finally, animal abuse perpetration was also associated with higher rates of childhood neglect. Although this relationship could, as well, be the product of redirected aggression at neglecting or inattentive parents, the overlap between this form of maltreatment and animal abuse might also reflect a generalized lack of parental supervision often associated with child neglect.

Results revealed a robust link between witnessing animal abuse and perpetrating cruelty toward animals. In fact, regression analyses indicated that witnessing animal abuse was the only significant predictor of animal cruelty perpetration in a model that included child abuse and domestic violence exposure. Furthermore, individuals who witnessed animal cruelty were eight times more likely to be perpetrators. The strong overlap between witnessing and perpetrating animal cruelty suggests that social learning may play an important role in the development of animal abuse behaviors (Haden & Scarpa, 2005). That is, individuals may learn these behaviors by observing their peers, family members, or other adult abusers engaging in similar acts. When witnessing interacts with a history of child maltreatment or exposure to domestic violence, the risk of animal cruelty may increase even further.

Seemingly in contrast to the results of past research conducted in domestic violence shelters, this study did not find significant relationships between overall exposure to parental violence and animal cruelty. However, when domestic violence was limited to only the most severe cases, exposed individuals were more likely to have experienced animal cruelty overall and, specifically, to have witnessed animal abuse. These results are consistent with the findings of Ascione et al. (2007) suggesting that severity of animal cruelty in the home is directly related to the severity of the domestic violence experienced. It is likely that the overall level of violence witnessed by this college sample was less severe than the one experienced by women entering a domestic violence shelter, which in turn, resulted in a weaker relationship with animal cruelty exposure. Thus, it may be that an important link between animal abuse and domestic violence is present only in homes where the parental violence is particularly acute, chronic, or distressing to child witnesses.

The present study is limited by the use of retrospective self-report data, which could result in over- or underestimates of exposure to family and animal violence owing to intentional (e.g., social desirability) or unintentional

(e.g., forgetting) errors. Rates of exposure to animal cruelty in this study were somewhat lower than those reported in other college samples using versions of the same measure (Flynn, 2000; Miller & Knutson, 1997), suggesting that underreporting was more likely in this sample and that the present estimates may be conservative. In addition, it was not possible to determine whether the various abuse types occurred concurrently or whether certain experiences preceded others. The inability to determine temporal sequencing precludes any conclusions regarding causal relationships. Despite these limitations, this research adds to the current literature by using behaviorally specific measures to concurrently examine child maltreatment, domestic violence, and animal cruelty in a large, geographically diverse sample, providing empirical data regarding the extent and nature of the links between animal abuse and family violence.

Overall, the results suggest that there is a significant overlap between these various forms of abuse within the home and that, in particular, the identification of animal cruelty in a home (perpetrated by parents or children) may serve as a reliable red flag for the presence of child maltreatment or severe domestic violence. These findings provide initial support for the underlying assumptions of cross-reporting legislation. However, given the limited resources available to these welfare agencies, future research is needed that specifically examines the implementation and effectiveness of these policies to assess whether increased attention to the link between animal- and human-directed violence results in improved intervention and prevention efforts for at-risk families.

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